

PROJECT MANUAL

Promenade Hill Park Renovation Downtown Revitalization Initiative

The renovation of Promenade Hill Park in the City of Hudson including provision of ADA accessible ramps, walkways, pavements, spray shower, drainage, landscape improvements, and pedestrian lighting, as well as coordination with the City of Hudson and National Grid for lighting improvements

Mayor:

Kamal Johnson

Treasurer:

Heather Campbell

Common Council:

Tom DePietro, President

Alderman, 1st Ward

Jane Trombley

Rebecca Wolff

Alderman, 2nd Ward

Dewan Sarowar

Tiffany Garriga

Alderman, 3rd Ward

Shershah Mizan

Calvin Lewis, Jr.

Alderman, 4th Ward

Malachi Walker

John S. Rosenthal

Alderman, 5th Ward

Eileen Halloran

Dominic Merante

CITY OF HUDSON DRI PROJECT NUMBER: C1001294



**City of Hudson
Columbia County, New York**

Funding for this project partially provided by a New York State

Department of State Downtown Revitalization Initiative

Promenade Hill Park Improvements

City of Hudson

PROMENADE HILL PARK RENOVATION
CITY OF HUDSON, NEW YORK

TABLE OF CONTENTS

DIVISION 00

Table of Contents

Notice to Bidders

Information for Bidders

Request for Information Form

Form of Proposal*

Required acknowledgements, intent, and certifications*

Sample Agreement – AIA A132 Standard form of Agreement

Sample General Conditions – AIA A232 General Conditions

NYS Standard NYS Clauses – Appendix A

Special Conditions – Insurance Requirements

NYS Vendor Responsibility Forms *

NYS M/WBE Forms *

EEO 177 Certification *

***Items which must be completed and returned with Bid.**

FORMS

NYS Standard Payment Requisition Forms

NYS Payment Requisition attachments

Shop Drawing Submittal Form

Closeout Forms

APPENDICES

- Soils Report
- Prevailing Wage Rates, Columbia County
- NYS Minimum Wage Requirements

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

00 31 13 MILESTONE CONSTRUCTION SCHEDULE

DIVISION 01—GENERAL REQUIREMENTS

| | |
|--------|-------------------------------------|
| 011000 | Summary of Work |
| 012100 | Allowances |
| 012300 | Alternates |
| 012500 | Substitution Procedures |
| 012600 | Contract Modification Procedures |
| 012900 | Payment Procedures |
| 013100 | Project Management and Coordination |
| 013200 | Construction Progress Documentation |
| 013233 | Photographic Documentation |
| 013300 | Submittal Procedures |
| 014000 | Quality Requirements |
| 014200 | References |
| 015000 | Temporary Facilities and Controls |
| 015639 | Tree Pruning and Protection |
| 016000 | Product Requirements |
| 017300 | Execution |
| 017700 | Closeout Procedures |
| 017823 | Operations and Maintenance Data |
| 017839 | Project Record Documents |

Technical Specifications

DIVISION 02 - EXISTING CONDITIONS

| | |
|--------|--------------------------------|
| 020150 | Site Restoration |
| 024113 | Selective Site Demolition [PO] |
| 025200 | Sawcut Pavement and Curbs |

DIVISION 3 - CONCRETE

| | |
|--------|-------------------------------|
| 033100 | Cast-in-Place Concrete [P.O.] |
|--------|-------------------------------|

DIVISION 4 – MASONRY

| | |
|--------|--------------------------------|
| 044300 | Unit Masonry [PO] |
| 044301 | Stone Masonry Restoration [PO] |

DIVISION 5 – METAL

| | |
|--------|--------------------------------|
| 055213 | Ornamental Steel Hand Railings |
|--------|--------------------------------|

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

| | |
|--------|----------------|
| 079213 | Joint Sealants |
|--------|----------------|

DIVISION 22 – PLUMBING

| | |
|--------|-----------------------------------|
| 224723 | Drinking Fountain & bottle filler |
|--------|-----------------------------------|

225200 Water Play Elements [P.O.]

DIVISION 31 – EARTHWORK

312000 Earthwork [P.O.]
312316 Rock Removal [P.O.]
312333 Root Pinning [P.O.]
312500 Erosion and Sedimentation Controls [P.O.]

DIVISION 32 – EXTERIOR IMPROVEMENTS

320516 Aggregates for Exterior Improvements
320519 Geotextiles
321243 Grass Paving (ADA)
321420 Stone Unit Pavers
321540 Stabilized Decomposed Granite Pavement
321440 Stone Steps, Copings and Curbs
321430 Resilient Safety Surface – PIP (wearing course only)
321816 Engineered Wood Fiber Playground Safety Surfacing [ADD ALT]
322335 Decomact Tree Root Zones
329200 Site Furnishings
324000 Landscape Boulders and Stone Seating
329100 Planting Soils
329119 Landscape Grading
329200 Turf - Sod
329201 Aerate Top-dress and Overseed Existing Lawn
329300 Landscape Planting

DIVISION 33 – UTILITIES

331100 Water Distribution System [P.O.]
334000 Stormwater Utilities [P.O.]

List of Drawings

- 1 L-000 GENERAL NOTES & LIST OF DRAWINGS
- 2 T-001 SURVEY
- 3 L-001 DEMOLITION & REMOVALS PLAN - CITY OF HUDSON SCOPE
- 4 L-002 DEMOLITION & REMOVALS PLAN - CONTRACT SCOPE
- 5 L-003 ADA ACCESS PLAN
- 6 L-100 MATERIALS PLAN
- 7 L-101 PLAYGROUND ENLARGEMENT PLAN
- 8 L-102 UPPER PROMENADE ENLARGEMENT PLAN
- 9 L-200 LAYOUT PLAN
- 10 L-201 HANDRAIL LAYOUT PLAN
- 11 L-202 PLAZA STONE LAYOUT PLAN
- 12 L-300 GRADING PLAN
- 13 L-400 PLANTING PLAN
- 14 L-500 PAVEMENT DETAILS
- 15 L-501 WALL & RAMP DETAILS

| | |
|----|--|
| 16 | L-502 STAIR DETAILS |
| 17 | L-503 HANDRAIL DETAILS |
| 18 | L-504 STONE DETAILS |
| 19 | L-505 SITE FURNISHINGS |
| 20 | L-506 PLAYGROUND DETAILS |
| 21 | L-507 PLANTING DETAILS |
| 22 | L-508 TREE PROTECTION & SEDIMENT CONTROL DETAILS |
| 23 | S-001 STRUCTURAL NOTES |
| 24 | S-100 FOUNDATION PLAN |
| 25 | S-101 ARCED RAMP FOUNDATION PLAN |
| 26 | S-102 STRUCTURAL DETAILS |
| 27 | S-103 STRUCTURAL DETAILS |
| 28 | S-104 STRUCTURAL DETAILS |
| 29 | C-100 ELECTRIC & WATER UTILITY PLANS |
| 30 | C-101 STORM WATER UTILITY PLAN & PROFILES |
| 31 | C-102 WATER PLAY ELEMENT CUT SHEETS |
| 32 | C-103 UTILITY DETAILS |
| 33 | C-104 UTILITY DETAILS |

END OF TABLE OF CONTENTS

NOTICE TO BIDDERS

The City of Hudson, New York invites the submission of Sealed Bid Proposals from qualified Contractors to furnish materials and labor to complete the following project in accordance with the plans and specifications:

Promenade Hill Renovations
Hudson, New York
DRI Project No. C1001294

The project area is located at the foot of Warren Street at the intersection of Front Street, City of Hudson, New York. The project is funded by the New York State Downtown Revitalization Initiative.

This work is to be bid under a SINGLE CONTRACT system covering the work of all trades under separate contracts as follows:

Contract No. 1 – General Construction

Sealed bid documents shall be accepted up until **12:00 PM, Noon; on March 15, 2021**. Bids received after that time will be disqualified. Bids will be opened at 1:00 PM on March 15, 2021 and will be posted electronically at the on-line Planroom within 48 hours.

Sealed bid documents shall be addressed to: Mr. Robert Perry, DPW Superintendent,
City of Hudson,
Department of Public Works
520 Warren Street,
Hudson, NY 12534

Each bid must be prepared and submitted in accordance with the Instructions to Bidders and must be accompanied by Bid Security in the form of a certified check, bank check, or bid bond in the amount defined in the "Information to Bidders."

Any bid may be withdrawn without prejudice prior to the official bid submission time or any publicized postponement thereof.

OBTAINING AND VIEWING BID DOCUMENTS

Bid documents dated February 8, 2021 will be made available for viewing and download on February 16, 2021 through an on-line planroom. Prospective Bidders may electronically view and download an electronic copy of the BID Documents at the Camelot Print & Copy Centers on-line Planroom at www.camelotplanroom.com. Prospective Bidders may order or otherwise print one hard copy for the purpose of preparing the Bid.

Plan Holders must be registered with The City of Hudson via Planroom to be invited to the Pre-Bid meeting, to receive a list of other plan holders, to receive Addenda / or responses to pre-bid questions (RFIs), and to submit a bid. Plan Holders are responsible for checking the on-line planroom for Addenda, meeting invitations, or other bid-related announcements.

PAPER BID DOCUMENTS

Hard copy sets of the bid documents may be ordered directly from the designated printing house / on-line plan room as indicated. Plans and specifications (paper and electronic copies) will remain the property of

The City of Hudson and must be returned or certified in writing as destroyed by non-bidding and unsuccessful bidders within 30 business days following the award of the Contract or the rejection of the bids.

SITE VISITATION AND PRE-BID MEETING

Bidders are encouraged to visit the project site, on their own, in advance of the Prebid conference. The area is a public park, and it is currently open to the public. The Prebid conference will be held via ZOOM (teleconference) and will be conducted by the City of Hudson on the following date:

Prebid ZOOM conference (on-line teleconferencing) **March 2, 2021 at 1:00 PM.**

Registered Plan Holders will receive an invitation to the Zoom Prebid meeting no less than 24-hours in advance of the meeting.

REQUESTS FOR INFORMATION

Requests for information, interpretation and clarification shall be made to the Construction Manager: Daniel Proper by email to dproper@po-eng.com, by email using the RFI form bound in the BID Documents. Subject heading shall read: Promenade Hill Park Pre-Bid RFI.

RFI submissions shall be submitted no later than **March 5, 2021 at 5:00 PM.**

RFI's received after this date will not be processed.

Addenda addressing RFI's will be issued to all registered plan holders by March 9, 2021 at 5:00 PM. Each Bidder is responsible to confirm receipt of all Addenda. Failure to do so shall not relieve the Bidder of his/her obligations under the submitted Bid.

In accordance with State Finance Law, Section 139j, the following City of Hudson staff member has been designated as the contact for this contract: **Robert Perry**, Superintendent, Department of Public Works, City of Hudson, New York. All technical & administrative questions should be directed to the Construction Manager, Daniel Proper by email to dproper@po-eng.com using the RFI form. Please note that contacting any other staff regarding this contract may be a violation of State Finance Law, Section 139j, resulting in a determination of contractor non-responsibility.

Preparation of Bids

Bids shall be prepared as set forth in the Information to Bidders, enclosed in a sealed envelope bearing on its face the name, address and phone number of the bidder and the title of the project.

Each bidder agrees to waive any claim it has or may have against the City of Hudson, the Construction Manager, the Landscape Architect, and their respective employees, arising out of or in connection with the administration, evaluation or recommendation of any bid.

The City of Hudson, Construction Manager, further reserves its right to disqualify bidders for any material failure to comply with the Information for Bidders and General, Supplementary, and Special Conditions. The City of Hudson reserves the right to reject any or all bids and to waive any informalities or defects in such bid either before or after opening.

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BID PACKAGE

Bid submissions must include a complete set of signed (and notarized where indicated) documents to be valid. Bid submissions with missing or incomplete information will be deemed 'non-responsive'. Bid submission must include the following:

Form of Proposal

Acknowledgement of receipt of addenda.

New York State Certifications

 Certification regarding debarment, suspension, ineligibility, and outstanding debts

 Non-collusive bidding certificate

 Affirmation pursuant to NYS State Finance Law §139-j (3) and §139-j (6) (b)

 Statement concerning authority to do business in the State of New York

 Acknowledgement of form of business

Federal law certification

Statement of Surety's intent

Either: Certification of compliance with the Iran Divestment Act (IDA)

Or: Declaration of Bidder's inability to provide certification of compliance with the IDA

NYS Vendor Responsibility Questionnaire, CCA-2

 Attachment A – Completed Construction Contracts

 Attachment B – Uncomplete Construction Contracts

 Attachment C – Financial Information

M/WBE Forms

EO 177 Certification

Bid Bond

BONDS

Bid Security: Each bidder must deposit with his bid, security in the form outlined in the "INFORMATION FOR BIDDERS".

Performance Bond: The successful bidder will be required to furnish a Performance Bond and a Labor and Material Bond in the statutory form of public bonds required by Sections 136 and 137 of the State Finance Law, each for 100% of the amount of the Contract.

No bidder may withdraw his/her bid within 45 business days after the date of the opening of bids.

SCOPE OF WORK

Contractor is responsible for visiting the site(s), attending pre-bid conference, reviewing all the drawings, specifications, and addenda to obtain a complete understanding of the entire work scope for the purpose of bidding.

GENERAL CONSTRUCTION CONTRACT: Value to be determined at the time of bid.

General Construction Contract (GC): A general description of the primary work elements is listed below for reference. Bidders are responsible for reviewing all the drawings, specifications,

and addenda (that may be issued) to obtain a complete understanding of the entire work scope. The Scope of Work includes all work indicated in the Contract Documents:

1. Installation of construction fencing and temporary facilities including tree protection,
2. Installation of temporary erosion and sediment control measures,
3. Locate and work with care around existing high voltage electric duct bank,
4. Installation of pedestrian light footings, bases, and poles.
 - a. City of Hudson will install conduit and National Grid will install wires, luminaires, and the commission lighting. Contractor to coordinate the work.
5. Selective demolition and removals of items not demolished and removed by the City of Hudson.
6. Clean, cut and install salvaged granite curbs,
 - a. City of Hudson will provide stockpile of salvaged curbs.
7. Tree removals, (by City of Hudson)
8. Stump removals, (by City of Hudson)
9. Selective tree pruning,
10. Project layout including establishing and maintaining all necessary horizontal and vertical controls.
11. Earthwork, grading and fine grading,
12. Installation of new drainage structures including new cast iron grates,
13. Reconstruction of existing drainage structures including new manhole covers,
14. Furnish and install landscape boulders and stone block benches.
15. Furnish and install concrete pavement base,
16. Furnish and install reinforced colored concrete curbs and pavement,
17. Furnish concrete stair foundations and walls with stone veneer and coping,
18. Furnish and install bluestone stair treads and copings,
19. Furnish and install bluestone mow strip, and salvaged granite curbs.
20. Furnish and install limestone unit pavers and granite sett pavers,
21. Furnish and install painted ornamental steel handrails,
22. Furnish and install drinking fountain/bottle filler including connection to water supply,
23. Furnish and install site furniture, (benches, and trash receptacles),
24. Furnish and install reinforced concrete slab for water play features.
25. Furnish and install spray shower elements including connection to water supply,
26. Furnish and install double check valve at water play area,
27. Furnish and install spray shower mechanical activator at water play area,
28. Furnish and install poured-in-place resilient surfacing (wearing course only) at water play area,
29. Furnish and install installation soil and compost materials,
30. Furnish and install sod,
31. Planting of trees, shrubs, ground covers and bulbs,
32. Installation of shredded bark mulch, and
33. Site restoration and cleanup.

ADD ALTERNATE

- A. Play Area improvements, including the following:

- A. Furnish and Install Engineered Wood Fiber Playground Safety Surfacing.
- B. Play area landscaping planting-trees and ground cover,
- C. Play area seating, Colored Concrete Pavement with Salvaged Granite Curb.

All adjacent facilities, *i.e.*, the Chamber of Commerce and its reduced-area parking lot and the public sidewalk are to remain operational during construction. Any shutdowns to the facility loads will need to be performed off hours or outside of their normal use.

OPPORTUNITY PROGRAM REQUIREMENTS

Minority- and Woman-Owned Business Enterprise (MWBE) contractors,

The following goals for MWBE participation on the Contract have been established at 30 percent:

- Minority-Owned Business Enterprises (MBE), fifteen percent (15%), and
- Woman-Owned Business Enterprises (WBE), fifteen percent (15%).

PROJECT COMPLETION

The completion date for this project is **240 days** after agreement has been approved by the City of Hudson.

END OF NOTICE TO BIDDERS

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INFORMATION FOR BIDDERS

1. SUBMISSION OF BIDS

- (A) The Owner (City of Hudson) reserves the right to consider informal any bid not prepared and submitted in accordance with the provisions of this Information for Bidders and the General Conditions and to waive any informalities in or to reject any or all bids either before or after opening. No bidder may withdraw a bid within forty-five (45) business days after the actual date of the opening thereof.

2. PREPARATION OF PROPOSAL

- (A) Bidders shall prepare their bids on the "Lump Sum Bid Form" sheets furnished by the Owner. All blank spaces pertinent to the Contract category proposal must be filled in, in both words and figures, with the unit price for the item or the lump sum for which the proposal is made.
- (B) All bids together with bid security must be submitted in sealed envelopes bearing on the outside of the envelope the name of the bidder, his address, the name of the project and the branch of work covered by the bid. If forwarded by mail or other form of courier, the sealed envelope containing the proposal, marked as above, must be enclosed in another envelope addressed to the Owner. Each bidder shall assume the risk of any delay in the mail or in handling of mail by employees of the Owner or others.
- (C) IMPORTANT: In the event that a prospective bidder, after securing drawings and specifications, decides not to present a proposal for the work, it is requested that the Owner be so notified at earliest possible moment prior to the date of receipt of bids. All drawings and specifications shall be returned to the Owner's Office and if returned in good condition within 30 days following the award of the Contract covered by such Plans and Specifications, a partial reimbursement in an amount equal to the full amount of such deposit less the actual cost of reproduction of the Plans and Specifications, and less postage and handling, shall be made.

3. BID PROPOSALS AND BIDDERS

- (A) The Owner and Construction Manager reserves the right to reject any or all bid proposals and to waive any informalities or defects in such proposals whether before or after the time of opening of bids.
- (B) Bidders may not withdraw proposals within forty-five (45) days following date of opening of bids.
- (C) All costs in connection with preparation and submission of bid proposals shall be borne by the bidders.
- (D) Bidders shall submit promptly upon request of the Owner or Construction Manager documentary evidence as to financial, technical, and practical ability to carry out the work.

4. QUALIFICATIONS OF BIDDERS

- (A) The Owner and Construction Manager may make such investigation as she/he deems necessary to determine the ability of the bidder to perform the work. The bidder shall furnish to the Owner all information and data for this purpose as the Owner may request including but not limited to current financial statements and a list of completed projects with comparable types of work, including stone masonry, stone pavement, ornamental steel handrails, concrete paving, water play features, poured-in-place safety surfacing, site layout of complex geometries, planting, and completion of projects in an expeditious manner (within the last three years) with names, addresses, email, and phone number of the Owners.
- (B) The Owner reserves the right to reject any bid if the evidence submitted by or investigation of such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein.
- (C) Conditional bids will not be accepted.

5. BID SECURITY

- (A) Each bid must be accompanied by certified check of the bidder or by a bid bond prepared on a standard approved form, duly executed by the bidder as principal, and having as surety thereon a surety company authorized to do business within the State of New York.
- (B) Bid security shall be in an amount **not less than 5% of the base bid** or not less than 5% of the sum of base bids where such base bids may be considered cumulative. Such checks will be returned to all except the three lowest formal bidders, within three working days after the formal opening of bids & the remaining cash or checks will be returned to the three lowest bidders within 48 hours after the City of Hudson and the accepted bidder have executed a contract. If no contract has been so executed within 45 days after the opening of bids, bid security will be returned upon demand of the bidder at any time thereafter so long as she/he has not been notified of the acceptance of his bid.

6. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

- (A) The successful low bidder, upon his failure or refusal to execute and deliver the contract and required bonds and insurance within 15 days after she/he has received notice of the acceptance of his bid, shall forfeit to the City of Hudson, as liquidated damages for such failure or refusal, the security deposited with his bid, as specified in Paragraph 5.

7. CONDITIONS OF WORK

- (A) Each bidder must inform himself fully of the conditions relating to the construction and labor under which the work is now being or will be performed. Failure to do so will not relieve a successful bidder of his obligations to furnish all material and labor necessary to carry out the provisions of the contract documents and to complete the contemplated work for the consideration set forth in his bid.
- (B) Insofar as possible, the Contractor in the carrying out of his work must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.

8. ADDENDA AND INTERPRETATIONS

- (A) No interpretations of the plans, specifications or other contract documents will be made to any bidder orally. **All requests for such interpretations shall submitted in writing to the Construction Manager (on the attached RFI Form).** To be given consideration a request for interpretation the RFI form must be received no later than the time and date listed in the NOTICE TO BIDDERS. Any and all interpretations and any supplemental instructions will be issued in the form of written addenda. If issued, the addenda will be posted to the on-line planroom described in the NOTICE TO BIDDERS. Failure of any Bidder to receive any such addenda shall not relieve said Bidder from any obligation under his Bid as submitted. All addenda so issued shall become part of the Contract Documents
- (B) Prospective Bidders are responsible for checking the on-line planroom for Addenda.

9. SECURITY FOR FAITHFUL PERFORMANCE

- (A) Simultaneously with his delivery of the executed contract, the successful bidder must deliver to the City of Hudson three (3) originals of an executed bond in the amount of 100% of the accepted bid as security for the faithful performance of the contract and for the payment of all persons performing labor or furnishing materials in connection therewith, prepared in the standard form of Performance Bond, Labor and Materials Payment Bond, AIA Form A-311 and having as surety thereon such surety company or companies as are acceptable to and approved by the City of Hudson, and as are authorized to transact business in New York State. Each Bidder must obtain and submit with his Bid the Statement of Surety's Intent attached to the Bid form, completed and signed by a duly authorized surety company licensed to do business in New York State. This requirement will not apply in the case of contracts for supplies only and involving no labor on the site.
- (B) All Certificates of Insurance and Surety Bonds shall be delivered to the Construction Manager following award and at least one (1) week before the initial Pre-Construction Meeting in order to provide a timely and proper review of these documents prior to execution of the Contracts.

10. POWER OF ATTORNEY

- (A) Attorneys in fact who sign bid bonds or contracts bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

11. STATE LAWS AND REGULATIONS

- (A) The Contractor and each and every sub-contractor performing the work at the site of the project to which this contract relates shall comply with the applicable provisions of the "Labor Law," as amended, of the State of New York, and all other applicable laws and regulations governing such activities.
- (B) Dust Hazards:
 - 1. If, in the construction of the work covered by the Contract, a harmful dust hazard is created for which appliances or methods for the elimination of the dust have been

approved by the Board of Standards and Appeals, such appliances or methods shall be installed and maintained and effectively operated by the Contractor at his expense.

2. The Contract shall be void and of no effect unless the Contractor complies with the provisions of this subdivision of the Contract and Labor Law Section 222-a.
- (C) Non-Collusion Certification: Each bidder shall complete the Non-Collusive Bidding Certification attached to the Bid form.
- (D) Worker's Compensation: This Contract shall be void and of no effect unless the person or corporation making or performing such contract shall secure compensation for the benefit of, and keep insured during the life of such contract, such employees, in compliance with the provision of the Worker's Compensation Law and General Municipal Law Section 108.
1. Effective September 9, 2007, all out-of-state employers (contractors and sub-contractors) working in New York State will be required to carry full, statutory New York State Workers' Compensation Insurance Policy. New York must be listed in Item 3A on the Information Page of the employer's workers' compensation policy in order to meet this requirement.
- (E) Lien Law:
1. The attention of the Contractor is invited to the provisions of the Lien Law of the State of New York, wherein funds received by a contractor for a public improvement are declared to constitute trust funds in the hands of such contractor to be applied first to the payment of certain claims.
- (F) The November 9, 1997 guidelines set forth by the New York State Department of Labor regarding Certified Payrolls are as follows:
1. "Every contractor and sub-contractor shall submit to the department of jurisdiction within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll record, as provided by this article, subscribed and affirmed as true under penalties of perjury. The DEPARTMENT OF JURISDICTION shall be required to receive and maintain such payroll records. The original payrolls or transcripts shall be preserved for three years from the completion of the work on the awarded project." *Excerpted from "The Fair Contractor"*
 2. Payroll shall be sent directly to the City of Hudson. Construction Managers cannot accept the certified payrolls. Please provide CONSTRUCTION MANAGER with a copy of the transmittal to the City of Hudson.
- (G) This provision is an addition to the existing prevailing wage rate law, Labor Law 220, Section 220-h. It requires that on all public work projects of at least \$250,000.00, all laborers, workers and mechanics working on the site, be certified as having successfully completed the OSHA 10-hour construction safety and health course. It further requires that the advertised bids and contracts for every public work contract of at least \$250,000.00, contain a provision of this requirement.

12. STATUTORY REQUIREMENTS FOR THE UTILIZATIONS OF MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES

- (A) Pursuant to Section 313 of Article 15-A of the Executive Law of the State of New York, the Director of the Division of Minority and Women's Business Development has promulgated rules and regulations (Parts 140 through 145 of Subtitle N of Title 9 New York Code of Rules and Regulations) (the "Regulations") for the purposes of ensuring that certified Minority and Women owned Business Enterprises shall be given the opportunity for meaningful participation in the performance of State contracts and to facilitate the award of a fair share of State contracts and subcontracts to such business enterprises.
- (B) The Contractor shall make a good faith effort to solicit active participation in the Work by enterprises identified in the directory of certified businesses obtainable from the Division of Minority and Women's Business Development, New York State Department of Economic Development.
- (C) The Contractor agrees, as a material condition of this contract, to be bound by the provisions of Section 316 of Article 15-A of the Executive Law of the State of New York, which relates to the resolution of disputes, which may arise under this Article.
- (D) The Contractor agrees to include the provisions of Section B and C of these General Conditions in every subcontract it enters into as to Work in connection with this Contract in such a manner that the provisions will be binding upon such Subcontractor. However, the provisions of this paragraph shall not be binding upon the Contractor or its subcontractors in the performance of work or the provision of services that are unrelated, separate or distinct from this Contract as expressed by its terms.
- (E) The Regulations referred to in Section A of these General Conditions **require**, among other things, that a bidder or proposer for a State contract **submit a utilization plan** which shall identify certified Minority or Women Owned Business Enterprises which the bidder/proposer intends to use in connection with the performance of the proposed State contract. **Such a utilization plan shall be submitted after bids are opened but prior to contract award.**
- (F) Pursuant to the Regulations: (1) the Commissioner may require the submission by the Contractor of compliance reports relating to the implementation of and adherence to the utilization plan in performing the Contract; (2) the Commissioner shall allow the Contractor to apply for a partial or total waiver of the Minority and Women Owned Business participation requirements; (3) the Contractor may file a complaint with the Executive Director of the Division of Minority and Women's Business Development regarding a denial of a request for waiver of Minority and Women Owned Business participation requirements; (4) the Commissioner may file a complaint with the Executive Director of the Division of Minority and Women's Business Development in the event the Contractor fails to comply with the Minority and Women Owned Business participation requirements set forth in this Contract; and (5) the Commissioner may disqualify the Contractor's bid or proposal as being non-responsive for failure to remedy notified deficiencies contained in the Contractor's utilization plan after an administrative hearing on the record, reviewing all grounds for disqualification stated by the Commissioner and taking into consideration all the criteria set forth in Section 313 of the Executive Law.

- (G) The Contractor is referred to the entirety of the provisions of Section 316 of Article 15-A of the Executive Law of the State of New York and of the Regulations for the Contractor's full familiarization with their applicable provisions as terms of this Contract.

13. FEDERAL REGULATIONS

- (A) Each Contractor and every sub-contractor performing work (including but not limited to repair, renovation, reconstruction and painting) that will disturb lead based paint existing within the project that house children under the age of six (6) shall comply with US EPA 40 CFR 745.80 Subpart E (also known as Lead Renovation, Repair and Painting Rule) effective April 22, 2010. The contractor (firm) and the individuals completing the work shall be certified in accordance with the US EPA requirements and shall provide copies of such certification to the City of Hudson prior to the commencement of all work.

14. OBLIGATION OF BIDDER

- (A) At the time of the opening of bids each bidder will be presumed to have inspected the each gateway location and to have read and to be thoroughly familiar with the drawings and contract documents including all Addenda. The failure or omission of any bidder to receive or examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect to his bid.

15. EXEMPTION FROM SALES AND COMPENSATING USE TAXES

- (A) The City of Hudson is exempt from payment of sales and compensation taxes of the State of New York and of cities, counties and other sub-divisions of the State, of materials sold to it pursuant to the provisions of this contract. These taxes are not to be included in bids.
- (B) Contractor's purchases of tangible personal property which do not become an integral component part of the exempt organization's real property, and are consumed by the Contractor as well as purchases of taxable services, are subject to tax.

16. TIME OF COMPLETION

- (A) Bidders are advised that time of completion is of the essence and shall be taken into account, by the Bidders, in the preparation of the proposals.
- (B) See NOTICE TO BIDDERS for completion date.
- (C) Refer to NOTICE TO BIDDERS of the Supplementary Conditions for information concerning damages for stretch out and delay.

17. POST BID INFORMATION

- (A) Within 96 hours of the Bid Opening the apparent low bidder shall furnish in writing, the following information to the Construction Manager if so requested.
1. Statement that project can be completed within established time.

2. Preliminary progress schedule showing dates for major elements of construction and dates by which major sub-contracts will be awarded.
3. List of proposed major sub-contractors.
4. AIA - Contractor Qualification Statement.
5. Financial Statement.
6. List of References.

18. APPROVAL OF SUB-CONTRACTORS

- (A) Requests for approval of major sub-contractors, and other sub-contractors as may be designated by the Construction Manager, shall include a written statement by the proposed sub-contractor that delivery and installation of materials and equipment can and will be performed in accordance with the approved progress schedule.
- (B) After bid opening, if the Construction Manager or the City of Hudson require the identity of certain Subcontractors, Suppliers or other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted, the apparent Successful Bidder, and any other Bidder so requested, shall within seven (7) days after the request submit to the Construction Manager a list of all such Subcontractors, Suppliers, and other persons or organizations proposed for those portions of the work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification.
- (C) Subcontractors must be persons or firms that perform work with persons either in their direct employ or over whom they have personal and direct subdivision.

19. EXAMINATION OF PROJECT SITE

- (A) Bidders shall be presumed to have visited the project location prior to submission of proposals and to have familiarized themselves with surface and sub-surface conditions, existing structures and any and all conditions that may in any way affect the work. Failure to have so acted shall in no way relieve bidders from any obligations in respect to their bids.

20. EQUIVALENT/ "OR EQUAL" ITEMS

- (A) City of Hudson has specified each of the products to be utilized for each contract, or approved equivalent. If further clarification is required with any specified product, the Contractor shall submit a RFI requesting the additional information.

21. HAZARDOUS WASTES

- (A) It shall be the responsibility of all Contractors and subcontractors to strictly adhere to all Federal, State and Local Regulations pertaining to the use, transportation and disposal of hazardous wastes. These are to include, but not be limited to, the following:

1. Asbestos-containing materials
 2. Contamination of the atmosphere
 3. Contamination of soil surface or subsurface
 4. Contamination of water or water courses
 5. Contamination of objects or any other intangible matter
- (B) At the time of project close-out, each Contractor will be required to submit a post-construction certification that they have complied with the requirements as outlined.
- (C) It shall be the responsibility of all contractors and subcontractors to furnish materials free of hazardous materials including but not limited to lead, asbestos, PCBs, and any and all material deemed hazardous by the EPA.

22. AWARD OF CONTRACT

- (A) The City of Hudson reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time or changes in the work and to negotiate contract terms with the Successful Bidder, and the right to disregard all non-conforming, non-responsive, unbalanced, or conditional Bids. Also, the City of Hudson reserves the right to reject the Bid of any Bidder if the City of Hudson believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the bid is not responsive, or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the City of Hudson.
- (B) In evaluating Bids, the City of Hudson will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such supplier alternatives, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- (C) The City of Hudson may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. The City of Hudson may also consider the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment to be submitted prior to the Notice of Award.
- (D) The City of Hudson may conduct such investigations as the City of Hudson deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, and other personal and organizations to perform and furnish the work in accordance with the Contract Documents to the satisfaction of the City of Hudson within the prescribed time.

23. BID REQUIREMENTS AND CONSIDERATIONS

- (A) If the Bid is made by a corporation, the official corporation name shall be given, and the Bid

shall be signed by an authorized officer of the corporation, and the corporate seal affixed. If the Bid is made by a partnership, the official name as it appears on the Assumed Name Certificate shall be given and the Bid shall be signed by a general partner. If the Bid is made by a sole proprietorship, the Bid shall be signed by the individual proprietor.

- (B) All attachments, certifications or acknowledgments attached to the Bid shall be executed in the same manner as the Bid.
- (C) Where noted in the Bid, Bidders must submit a separate price for all materials and supplies required for the construction of the project, and a separate price, exclusive of materials and supplies, for all work and labor required for the construction of the Project. In such cases, Bidders must also submit a total Bid for the entire Project which is computed by adding together the Bid for materials and supplies and the Bid for work and labor.

24. MINIMUM WAGE RATE SCHEDULE

- (A) Wage Rates: In accordance with Sections 220, Sub-division 3, and 220-D of the New York State Labor Law, there shall be paid each employee engaged in work on the project under this contract in the trades or occupations, not less than the prevailing rate set for the trade or occupation in which she/he is engaged.
- (C) In the event that the Contractor wishes to employ occupations other than that listed in these specifications, she/he shall request the establishment of a rate for that occupation and they shall pay the rate so established. This payment shall be retroactive if applicable.
- (D) Wage Rate Redetermination: New Wage Rates may be re-determined during the course of work under this contract by the New York State Department of Labor; Contractors shall use the re-determined Wage Rates when applicable and shall compensate for this increase in their bid proposal. The contract will not be changed nor will the City of Hudson pay for any Wage Rate increase after the bid proposals have been submitted. 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.state.ny.us. Updated PDF copies of your schedule can be accessed by entering the assigned PRC# at <https://apps.labor.ny.gov/wpp/showFindProject.do?method=showIt>
- (E) The Promenade Hill Park Renovations project has been assigned the prevailing wage number of **PRC# 2021000789**.

END OF SECTION: Information to Bidders

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Promenade Hill Park Renovation
Project No. DRI C1001294

REQUEST FOR INFORMATION

Submit to Daniel Proper, Construction Manager, Proper & O'Leary Engineers

Daniel Proper by email to **dproper@po-eng.com**

SUBJECT LINE: "Promenade Hill Park Renovation, Pre-BID RFI"

Attention (Project Manager): Dan Proper, Construction Manager

Drawing Reference: _____ Detail Reference: _____

Date: _____ Request No.: _____

Description of RFI: _____

Contractor: _____

Name: _____

Email: _____
(required)

Phone: _____ Fax: _____

Response: _____

Landscape Architect or Construction Manager

Signed: _____

Date: _____

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**FORM OF PROPOSAL
CITY OF HUDSON
PROMENADE HILL PARK RENOVATIAON**

BID DESCRIPTION

CONTRACT NO. 1 – GENERAL CONSTRUCTION

City of Hudson, Promenade Hill Park Renovation

Located at the foot of Warren Street at the intersection of Front Street, City of Hudson, New York.

DRI Project No. C1001294

This project is funded by the New York State Downtown Revitalization Initiative.

Work under this Contract may generally be described to include, but not be limited to the following:

General Construction Contract (GC): A general description of the primary work elements is listed below for reference. Contractor is responsible for reviewing all the drawings, specifications, and addenda (that may be issued) to obtain a complete understanding of the entire work scope. The Scope of Work includes all work indicated in the Contract Documents including:

- A. This project consists of the renovation of a community park in the City of Hudson, New York. The work shall consist of furnishing all work and materials incidental to, and including, but not limited to, the following:
1. Installation of construction fencing and temporary facilities including tree protection,
 2. Installation of temporary erosion and sediment control measures,
 3. Locate and work with care around existing high voltage electric duct bank,
 4. Installation of pedestrian light footings, bases, and poles.
 - a. City of Hudson will install conduit and National Grid will install wires, luminaires, and the commission lighting. Contractor to coordinate the work.
 5. Selective demolition and removals of items not demolished and removed by the City of Hudson.
 6. Clean, cut and install salvaged granite curbs,
 - a. City of Hudson will provide stockpile of salvaged curbs.
 7. Tree removals, (by City of Hudson)
 8. Stump removals, (by City of Hudson)
 9. Selective tree pruning,
 10. Project layout including establishing and maintaining all necessary horizontal and vertical controls.
 11. Earthwork, grading and fine grading,
 12. Installation of new drainage structures including new cast iron grates,
 13. Reconstruction of existing drainage structures including new manhole covers,
 14. Furnish and install landscape boulders and stone block benches.
 15. Furnish and install concrete pavement base,
 16. Furnish and install reinforced colored concrete curbs and pavement,
 17. Furnish concrete stair foundations and walls with stone veneer and coping,
 18. Furnish and install bluestone stair treads and copings,
 19. Furnish and install bluestone mow strip, and salvaged granite curbs.
 20. Furnish and install limestone unit pavers and granite sett pavers,
 21. Furnish and install painted ornamental steel handrails,
 22. Furnish and install drinking fountain/bottle filler including connection to water supply,
 23. Furnish and install site furniture, (benches, and trash receptacles),
 24. Furnish and install reinforced concrete slab for water play features.

**FORM OF PROPOSAL
CITY OF HUDSON
PROMENADE HILL PARK RENOVATIAON**

25. Furnish and install spray shower elements including connection to water supply,
26. Furnish and install double check valve at water play area,
27. Furnish and install spray shower mechanical activator at water play area,
28. Furnish and install poured-in-place resilient surfacing (wearing course only) at water play area,
29. Furnish and install installation soil and compost materials,
30. Furnish and install sod,
31. Planting of trees, shrubs, ground covers and bulbs,
32. Installation of shredded bark mulch, and
33. Site restoration and cleanup.

ADD ALTERNATE

B. Play Area improvements, including the following:

1. Furnish and Install Engineered Wood Fiber Playground Safety Surfacing.
2. Play area landscaping planting-trees and ground cover,
3. Play area seating, Colored Concrete Pavement with Salvaged Granite Curb.

This outline is a general indication of the requirements of this Contract and is not intended to be all inclusive. The complete Contract Documents in their entirety, to include any and all addenda, form the basis of the responsibility of this Contract. Contractor shall follow New York State Department of Labor Prevailing Wage Guidelines.

All work of this Contract shall be properly coordinated. All work shall be done in strict accordance with the Contract Documents and in compliance with all applicable Local, State and Federal Codes. Prior to the Bid Date of this project, the Contractor shall be responsible for visiting the project sites to become completely familiar with the scope of this project, shall completely understand that the use of asbestos containing materials in this project is strictly forbidden, and that all materials shall be provided in accordance with the Federal Asbestos Hazard Emergency Response Act (AHERA), and the New York State Asbestos Safety Act (SASA).

The Contractor shall sub-divide his bid proposal as described in the following bid form. The Contractor shall include all of the work of this Contract included in the Bid Items. The City of Hudson reserves the right to accept any and/or all of the Bid Items or any combination thereof and to waive any informalities or defects in the bid proposals either before or after opening.

The Undersigned _____
Contractor

Address

Zip Code

hereby certifies that she/he has examined and fully comprehends the requirements and intent of the drawings and specifications as prepared by Starr Whitehouse Landscape Designers & Planners, PLLC for **CONTRACT NO. 1 – GENERAL CONSTRUCTION** to furnish all labor, materials, supplies, plant and equipment and other facilities to properly perform the work for the total as indicated on the appended 100% Construction Documents – BID SUMMARY.

SEE ATTACHED

**FORM OF PROPOSAL
CITY OF HUDSON
PROMENADE HILL PARK RENOVATIAON**

Receipt of the following Addenda is hereby acknowledged:

No. _____ dated _____

No. _____ dated _____

No. _____ dated _____

No. _____ dated _____

(Name of Bidder)

Signed _____

Title _____

Street _____

City/State _____

Zip Code _____

Telephone _____

Fax _____

Cell Phone _____

Email _____

Date _____, 20__

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH THE BID

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**FORM OF PROPOSAL
CITY OF HUDSON
PROMENADE HILL PARK RENOVATIAON**

| | | |
|---|---|---------------------------------|
| GENERAL CONSTRUCTION PROMENADE HILL PARK RENOVATION | | DRI PROJECT NO: C1001284 |
| CITY OF HUDSON, NEW YORK | | |
| CONTRACTOR NAME & ADDRESS: | | |
| | | |
| SIGNATURE: | DATE: | |
| | | |
| 100% Bid Documents -- FORM OF PROPOSAL | | |
| 1 | MOBILIZATION & DEMOBILIZATION (N.T.E. 3%) | _____ |
| 2 | GENERAL CONDITIONS & SELECT REMOVALS | _____ |
| 3 | TREE PROTECTION & EROSION CONTROL | _____ |
| 4 | EARTHWORK & SITE DRAINAGE | _____ |
| 5 | CONCRETE FOUNDATIONS, CURBS & PAVEMENTS | _____ |
| 6 | STONE PAVEMENTS, STAIRS & COPINGS | _____ |
| 7 | PLAY AREA PLUMBING & SPRAY SHOWER | _____ |
| 8 | SITE FURNISHINGS | _____ |
| 9 | UTILITIES - PEDESTRIAN LIGHTING AND WATER SERVICE | _____ |
| 10 | DECORATIVE METAL RAILINGS | _____ |
| 11 | LANDSCAPE PLANTING | _____ |
| 12 | ALLOWANCE FOR UNFORSEEN SITEWORK (N.T.E.) | \$10,000.00 |
| TOTAL (WITHOUT ALTERNATES) | | |
| ALTERNATES | | |
| 13 | PLAY AREA - TREE PROTECTION AND PRUNING | _____ |
| 14 | PLAY AREA - FURNISH AND INSTALL FIBAR SAFETY SURFACING | _____ |
| 15 | PLAY AREA - FURNISH AND INSTALL INTEGRAL COLORED CONCRETE PATHS | _____ |
| 16 | PLAY AREA - FURNISH AND INSTALL SITE FURNISHINGS | _____ |
| 17 | PLAY AREA - LANDSCAPE PLANTING | _____ |
| TOTAL (ALTERNATES) | | |
| TOTAL (WITH ALTERNATES) | | |
| <p><small>NOTE: Lump sum bid shall include all items necessary to complete the work as shown in the contract plans and specifications. The contractor shall provide the following unit costs for potential allowance items.</small></p> | | |

Continued next page.

**FORM OF PROPOSAL
CITY OF HUDSON
PROMENADE HILL PARK RENOVATIAON**

| PROMENADE HILL PARK ALLOWANCE UNIT COSTS | | | | | |
|--|-----|----------|-------------------------|----------------------------|---------------------|
| CONTRACTOR NAME & ADDRESS: | | | | | |
| | | | | | |
| SIGNATURE: | | | DATE: | | |
| | | | | | |
| Description of Work | Qty | Unit | Unit Price Materials | Unit Price Installation | Total Unit Price |
| Site Preparation & Removals | | | | | |
| SAW CUT PAVEMENT | 1 | LF | | | |
| ROCK EXCAVATION | 1 | CY | | | |
| Earthwork & Drainage | | | | | |
| CLEAN CRUSHED AGGREGATE-#57 | 1 | CY | | | |
| CLEAN CRUSHED AGGREGATE-3/4" | 1 | CY | | | |
| CLEAN CRUSHED AGGREGATE-#3 | 1 | CY | | | |
| UNCLASSIFIED EXCAVATION | 1 | CY | | | |
| SERVICES OF A LICENSED LAND SURVEYOR | 1 | Crew Day | | | |
| COMPOST | 1 | CY | | | |
| TOPSOIL | 1 | CY | | | |
| Concrete foundations, pavements & curbs | | | | | |
| CAST IN PLACE CONCRETE- (4000 psi) | 1 | CY | | | |
| CAST IN PLACE CONCRETE (INTEGRALLY COLORED, W/WWM) | 1 | CY | | | |
| STEEL BAR REINFORCEMENT | 1 | LB | | | |
| Granite Sett pavement & Stone Block Bench | | | | | |
| GRANITE SETTS - 4" x 4" x 4" MOUTAIN GREEN | 1 | SF | | | |
| GRANITE SETTS - 4" x 4" x 4" PRAIRIE BROWN | 1 | SF | | | |
| LIMESTONE PAVER - 2'x 2' Burned/Brushed Top S4S | 1 | SF | | | |
| STONE BLOCK BENCH (L: 4'-6"- 6'-0" H: 24" W: 22"- 28") | 1 | EA | | | |
| SITE FURNISHINGS | | | | | |
| BENCH-CENTRAL PARK SETEE (4' LENGTH) | 1 | EA | | | |
| BENCH-CENTRAL PARK SETEE (6' LENGTH) | 1 | EA | | | |
| SIGNAGE-ADA | 1 | EA | | | |
| TRASH RECEPTACLE | 1 | EA | | | |
| UTILITIES - PEDESTRIAN LIGHTING AND WATER SERVICE | | | | | |
| WATER LINE - 1" Cu Pipe | 1 | LF | | | |
| LANDSCAPE PLANTING | | | | | |
| TREE-CANOPY 2.5" CALIPER | 1 | EA | | | |
| TREE-UNDERSTORY 8' HT. B & B | 1 | EA | | | |
| SHRUB-ORNAMENTAL- 5 GALLON | 1 | EA | | | |
| SHREDDED BARK MULCH | 1 | CY | | | |
| SOD | 1 | SF | | | |

Continued next page

New York State Certifications

A. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY, AND OUTSTANDING DEBTS

The undersigned, as a duly sworn representative of the contractor/vendor, hereby attests and certifies that:

No principal or executive officer of the contractor's/vendor's company, its subcontractor(s) and/or successor(s) is presently suspended or debarred; and

The contractor/vendor, its subcontractor(s) and/or its successor(s) is not ineligible to submit a bid on, or be awarded, any public work contract or sub-contract with the State, any municipal corporation or public body for reason of debarment for failure to pay the prevailing rate of wages, or to provide supplements, in accordance with Article 8 of the New York State Labor Law.

B. NON-COLLUSIVE BIDDING CERTIFICATE

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his knowledge and belief:

- (1) the prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
- (2) unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly to any other bidder or to any competitor; and
- (3) no attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.

(Signed) _____

Title

RESOLUTION - for corporate bidders only

RESOLVED that _____ be authorized to sign and submit the bid or proposal
(individual)
of this corporation for the following project

(describe project)

and to include in such bid or proposal the certificate as to non-collusion required by Section 103-d of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution adopted by _____ corporation
at a meeting of its Board of Directors held on the _____ day of _____, 20__.

SEAL OF CORPORATION)

Secretary

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH THE BID

City of Hudson, New York
Promenade Hill Park Renovation
DRI Project No. C1001294

Form of Proposal
CONTRACT NO. 1 - GENERAL
Page - 6 of 14

**Bidder's Affirmation of Understanding of and Agreement pursuant
to State Finance Law §139-j (3) and §139-j (6) (b)**

Pursuant to State Finance Law § 139-j(6)(b), NYAP requires written affirmation from all Bidders as to the Bidder's understanding of, and agreement to comply with, NYAP's policy relating to permissible contacts during a Governmental Procurement pursuant to subdivision three of this section.

Therefore, to participate in this procurement, the Bidder must provide the following Affirmation of Understanding and Agreement.

Bidder affirms that it understands and agrees to comply with the procedures of the Government Entity relative to permissible Contacts as required by State Finance Law §139-j (3) and §139-j (6) (b).

By: _____ Date: _____

Name: _____

Title: _____

Contractor Name: _____

Contractor Address: _____

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH THE BID

**Statement Concerning Authority to do Business
in the State of New York for non-New York State Companies**

Please complete all requested information in both sections below.

A certificate of authority is required of out of state companies if the company has property, employees or agents used in conducting its business activities within the state of New York. Generally, business activities are defined as having an office in the state, making sales or promotional calls within the state, delivering products or merchandise and/or making service calls within the state.

Companies conducting mail order activities with New York customers are not considered doing business within New York State if the company **has no property, employees, agents and/or representatives in or, traveling into the state.**
[company name] _____ is such a mail order company, and as such, is not required to hold a Certificate of Authority.

Performance under the attached bid will not result in any action that would result in a requirement to obtain a Certificate as all commerce will be conducted by mail. It is the opinion of the legal counsel for this firm:

Name _____
Address _____ (Complete the information)
Address _____
Telephone _____

that this firm is not required to file an Authority to do Business in New York State as required by Section 1301 of the NYS Business Corporate Law.

Complete one of the following two acknowledgements in addition to above information.

Individual Acknowledgment for Sole Proprietors or Partnerships

Signature

State of _____
County of _____ ss.

On this _____ day of _____ two thousand and _____ before me, the subscriber, personally appeared _____ to me personally known and known to me to be the same person described in and who executed the within Instrument, and she/he acknowledged to me that she/he executed the same.

Notary Public

Corporate Acknowledgment for corporations or LLC's

Signature

State of _____
County of _____ ss.

On this _____ day of _____ two thousand and _____ before me personally known, who, being by me duly sworn did depose and say that she/he resides in _____ that she/he is the _____ of _____ the corporation described in, and which executed, the above Instrument; that she/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 she/he signed his/her name thereto by like order.

Notary Public

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH THE BID (by non-New York Companies)

FEDERAL LAW CERTIFICATION

I, _____ [insert name], the _____ [insert title] of
_____ [name of company], _____ [Nine Digit DUNS
Number] hereby swear or affirm that the following is true:

1. The company, its principles or entities related to the company named above, is not now, nor ever has been, debarred from contracting with the United States Government or any State government.
2. The company is not now under investigation by any agency of the Federal Government or the government of any State for any actions by the company, its principles or any related entity, for any alleged malfeasance or misfeasance of any kind or nature which could lead to a debarment from governmental contracting or criminal prosecution, as well as render any contracts signed in reliance on this certification voidable by the party relying on this certification. This includes any violations related to the Davis-Bacon Act, the federal prevailing wage statute, the Copeland Act and the Contract Hours and Safety Standards Act which covers hours of work and safety standards in federal public contracting.
3. I have full legal authority under my company's organizational documents or bylaws to make this certification on the company's behalf.
4. I understand that submission of a false statement on this document will subject me to criminal prosecution.

(Date)

(Signature)

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH THE BID

STATEMENT OF SURETY'S INTENT

To:

(City of Hudson)

We have reviewed the Bid of _____

(Contractor)

of _____

(Address)

for _____

(Project)

Bids for which will be received on _____

(Bid Opening Date)

and wish to advise that should this Bid of the Contractor be accepted, and the Contract awarded to him, it is our present intention to become surety on the performance bond and labor and material bond required by the Contract.

Any arrangement for the bonds required by the Contract is a matter between the Contractor and ourselves and we assume no liability to you or third parties if, for any reason, we do not execute the requisite bonds.

We are duly authorized to do business in the State of New York.

Attest:

(Surety's Authorized Signature)

Attach Power of Attorney

**(Corporate Seal, if any.
If no seal, write "No Seal"
across this place and sign.)**

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH THE BID

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

As a result of the Iran Divestment Act of 2012 (the "Act"), Chapter 1 of the 2012 Laws of New York, a new provision has been added to State Finance Law (SFL) § 165-a and New York General Municipal Law § 103-g, both effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list of "persons" who are engaged in "investment activities in Iran" (both are defined terms in the law) (the "Prohibited Entities List"). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act's effective date at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, each Bidder/Contractor, any person signing on behalf of any Bidder/Contractor and any assignee or subcontractor and, in the case of a joint bid, each party thereto, certifies, under penalty of perjury, that once the Prohibited Entities List is posted on the OGS website, that to the best of its knowledge and belief, that each Bidder/Contractor and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to SFL § 165-a(3)(b).

Additionally, Bidder/Contractor is advised that once the Prohibited Entities List is posted on the OGS Website, any Bidder/Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to this solicitation must certify at the time the Contract is renewed, extended or assigned that it is not included on the Prohibited Entities List.

During the term of the Contract, should the School District receive information that a Bidder/Contractor is in violation of the above-referenced certification, the School District will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that she/he/it has ceased engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the School District shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages or declaring the Bidder/Contractor in default. The School District reserves the right to reject any bid or request for assignment for a Bidder/Contractor that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any Bidder/Contractor that is awarded a contract and subsequently appears on the Prohibited Entities List.

I, _____, being duly sworn, deposes and says that she/he is the _____ of the _____ Corporation and that neither the Bidder/ Contractor nor any proposed subcontractor is identified on the Prohibited Entities List.

SIGNED

SWORN to before me this

_____ day of _____

20____

Notary Public: _____

**EITHER THIS FORM OR THE “DECLARATION OF BIDDER’S INABILITY TO PROVIDE
CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT” FORM ON THE
FOLLOWING PAGE MUST BE COMPLETED AND SUBMITTED WITH THE BID**

**DECLARATION OF BIDDER'S INABILITY TO PROVIDE CERTIFICATION OF COMPLIANCE
WITH THE IRAN DIVESTMENT ACT**

Bidders shall complete this form if they cannot certify that the bidder /contractor or any proposed subcontractor is not identified on the Prohibited Entities List. The District reserves the right to undertake any investigation into the information provided herein or to request additional information from the bidder.

Name of the Bidder: _____

Address of Bidder: _____

Has bidder been involved in investment activities in Iran? _____

Describe the type of activities including but not limited to the amounts and the nature of the investments (e.g. banking, energy, real estate)

If so, when did the first investment activity occur? _____

Have the investment activities ended? _____

If so, what was the date of the last investment activity? _____

If not, have the investment activities increased or expanded since April 12, 2012? _____

Has the bidder adopted, publicized, or implemented a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran? _____

If so, provide the date of the adoption of the plan by the bidder and proof of the adopted resolution, if any and a copy of the formal plan. _____

In detail, state the reasons why the bidder cannot provide the Certification of Compliance with the Iran Divestment Act below (additional pages may be attached):

I, _____ being duly sworn, deposes and says that she/he is the _____ of

the _____ Corporation and the foregoing is true and accurate.

SIGNED

SWORN to before me this

_____ day of _____

20____

Notary Public: _____

DRAFT AIA® Document A132™ – 2009

Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

«City of Hudson»« City Hall »
«520 Warren Street»
«Hudson, New York 12534 »
«Telephone Number: (516) 828-7217 »

and the Contractor:
(Name, legal status, address and other information)

« »« »
« »
« »
« »

for the following Project:
(Name, location and detailed description)

«Promenade Hill Renovation »
«2 Warren Street, Hudson, New York 12534 »
«Project DRI C1001294 »

The Construction Manager:
(Name, legal status, address and other information)

«Proper and O'Leary, Engineering. »« »
«dba »
«1915 Fifth Avenue, PO 246 »
«Troy, New York 12181 »
«Telephone Number: (518) 610-8331»

The Landscape Architect:
(Name, legal status, address and other information)

«Starr Whitehouse Landscape Architects & Planners, PLLC »« »
«80 Broad Street, Suite 1700 »
«New York, New York 10004 »
«Telephone Number: (212) 487-3272 »

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232™-2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™-2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™-2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser. ^AIA Document A232™-2009 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

| | |
|----|---|
| 1 | THE CONTRACT DOCUMENTS |
| 2 | THE WORK OF THIS CONTRACT |
| 3 | DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION |
| 4 | CONTRACT SUM |
| 5 | PAYMENTS |
| 6 | DISPUTE RESOLUTION |
| 7 | TERMINATION OR SUSPENSION |
| 8 | MISCELLANEOUS PROVISIONS |
| 9 | ENUMERATION OF CONTRACT DOCUMENTS |
| 10 | INSURANCE AND BONDS |

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

«As noted in Specification Section 00 3113 – Milestone Construction Schedule (attached). »

If, prior to the commencement of the Work, the Owner requires time to file mortgages, mechanics' liens and other security interests, the Owner's time requirement shall be as follows:

«Not applicable. »

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than « » (« 240 ») days from the date of commencement, or as follows:

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

« »

Portion of the Work

As noted in Specification Section 00 3113 – Milestone Construction Schedule (attached)

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

« »

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:

(Check the appropriate box.)

☒ [**«X»**] Stipulated Sum, in accordance with Section 4.2 below

☐ [**« »**] Cost of the Work plus the Contractor's Fee without a Guaranteed Maximum Price, in accordance with Section 4.3 below

☐ [**« »**] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below. Based on the selection above, also complete either Section 5.1.4, 5.1.5 or 5.1.6 below.)

§ 4.2 Stipulated Sum

§ 4.2.1 The Stipulated Sum shall be « Dollars and Cents » (\$« »), subject to additions and deletions as provided in the Contract Documents.

§ 4.2.2 The Stipulated Sum is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

« »

§ 4.2.3 Unit prices, if any:

(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)

Item

Units and Limitations

Price per Unit (\$0.00)

§ 4.2.4 Allowances included in the Stipulated Sum, if any:

(Identify allowance and state exclusions, if any, from the allowance price.)

Item

Allowance

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and upon certification and issuance of the Project Application and Project Certificate for Payment or Application for Payment and Certificate for Payment by the Construction Manager and issuance by the Construction Manager, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the «first» day of a month, the Owner shall make payment of the certified amount in the Application for Payment to the Contractor not later than 35 days after receipt. the « » day of the « » month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment shall be made by the Owner not later than «seventy» («70») days after the Construction Manager receives the Application for Payment. (Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum

§ 5.1.4.1 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager may require. This schedule, unless objected to by the Construction Manager, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of «five» percent («5» %). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Section 7.3.9 of the General Conditions;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of «five» percent («5» %);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Construction Manager has withheld or nullified a Certificate for Payment as provided in Section 9.5 of the General Conditions.

§ 5.1.4.4 The progress payment amount determined in accordance with Section 5.1.4.3 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to «ninety-five» percent («95» %) of the Contract Sum, less such amounts as the Construction Manager recommends and the Engineer determines for incomplete Work and unsettled claims; and
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of the General Conditions.

§ 5.1.4.5 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.4.3.1 and 5.1.4.3.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

« »

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2 of AIA Document A232–2009, and to satisfy other requirements, if any, which extend beyond final payment;
- .2 the Contractor has submitted a final accounting for the Cost of the Work, pursuant to Exhibit A, Determination of the Cost of the Work when payment is on the basis of the Cost of the Work, with or without a Guaranteed Maximum payment; and
- .3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Construction Manager; such final payment shall be made by the Owner not more than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

« »

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Construction Manager will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A232–2009, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

« »

« »

« »

« »

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A232–2009, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

☒ Arbitration pursuant to Section 15.4 of AIA Document A232–2009.

☐ Litigation in a court of competent jurisdiction.

☐ Other: *(Specify)*

« »

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2009.

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2009.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232–2009 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

« » % « » **Shall be per City of Hudson, Municipal Law 106B**

§ 8.3 The Owner's representative:

(Name, address and other information)

«Michael Chamedies, Mayoral Aid »
«City of Hudson, City Hall »
«520 Hudson Street »
«Hudson, New York 12534 »
«Telephone Number: (518) 828-7217 »

§ 8.4 The Contractor's representative:

(Name, address and other information)

« »
« »
« »
« »
« »
« »

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

«None. »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A132–2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition.

§ 9.1.2 The General Conditions are AIA Document A232–2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition.

§ 9.1.3 The Specifications:

(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

« »

| Section | Title | Date | Pages |
|---------|-------|------|-------|
| | | | |

§ 9.1.4 The Drawings:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

« »

| Number | Title | Date |
|--------|-------|------|
| | | |

§ 9.1.5 The Addenda, if any:

| Number | Date | Pages |
|--------|------|-------|
| | | |

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.6 Additional documents, if any, forming part of the Contract Documents are:

.1 Other documents, if any, listed below:

(List here any additional documents which are intended to form part of the Contract Documents. AIA Document A232–2009 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor’s bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

«Specification Section 00 3113 – Milestone construction Schedule
Project Manual Table of Contents
List of Drawings
Contractor’s Form of Proposal and related documents
Contractor’s Bonds and Insurances »

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A232–2009.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A232–2009.)

| Type of Insurance or Bond | Limit of Liability or Bond Amount (\$0.00) |
|---------------------------|--|
| | |

This Agreement is entered into as of the day and year first written above.

City of Hudson, Hudson, New York

OWNER (Signature)

« »« »

(Printed name and title)

CONTRACTOR (Signature)

« »« »

(Printed name and title)

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DRAFT AIA® Document A232™ – 2009

General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

for the following PROJECT:

«Promenade Hill Park Renovation»
«2 Warren Street, Hudson, NY 12534»
Project # DRI # C1001294»

THE CONSTRUCTION MANAGER:

«Proper and O’Leary, Engineering, dpc»
« 1915 Fifth Avenue, PO 246 »
Troy, New York 12181»
Telephone Number: (518) 610 8331»

THE OWNER: Project Sponsor

«City of Hudson, New York »« City Hall»
«520 Warren Street»
«Hudson, New York 102543 »
«Telephone Number: (516) 403-7418 »

THE ARCHITECT:

«Starr Whitehouse Landscape Architects & Planners, PLLC »
«80 Broad Street, Suite 1700 »
«New York, New York 10004 »
«Telephone Number: (212) 487-3272»

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TABLE OF ARTICLES

- 1 GENERAL PROVISIONS
- 2 OWNER
- 3 CONTRACTOR
- 4 ARCHITECT AND CONSTRUCTION MANAGER
- 5 SUBCONTRACTORS
- 6 CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS
- 7 CHANGES IN THE WORK
- 8 TIME
- 9 PAYMENTS AND COMPLETION
- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES



INDEX

(Topics and numbers in bold are section headings.)

Acceptance of Nonconforming Work

9.6.6, 9.9.3, **12.3**

Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, **12.3**

Access to Work

3.16, 6.2.1, **12.1**

Accident Prevention

10

Acts and Omissions

3.2.1, 3.2.2, 3.3.2, 3.12.8, 3.18, 8.3.1, 9.5.1, 10.1, 10.2.5, 13.4.2, **13.7**

Addenda

1.1.1, 3.11, 4.2.14

Additional Costs, Claims for

3.2.4, 3.7.4, 3.7.5, 6.1.1, 7.3, 9.10.3, 9.10.4, 10.3, 10.4, 15.1.4

Additional Inspections and Testing

4.2.8, 12.2.1, **13.5**

Additional Insured

11.1.4

Additional Time, Claims for

3.7.4, 3.7.5, 6.1.1, 7.3, 8.3, **10.3**

Administration of the Contract

3.10, **4.2**

Advertisement or Invitation to Bid

1.1.1

Aesthetic Effect

4.2.19

Allowances

3.8, 7.3.8

All-risk Insurance

11.3.1, 11.3.1.1

Applications for Payment

4.2.7, 4.2.15, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.7, 9.8.3, 9.10.1, 9.10.3, 9.10.5, 11.1.3, 14.2.4

Approvals

2.1.1, 2.2.2, 2.4, 3.1.4, 3.10.1, 3.10.2, 3.12.4 through 3.12.10, 3.13.2, 3.15.2, 4.2.9, 9.3.2, 13.4.2, **13.5**

Arbitration

8.3.1, 11.3.10, 13.1, 15.3.2, **15.4**

ARCHITECT

4

Architect, Certificates for Payment

9.4

Architect, Definition of

4.1.1

Architect, Extent of Authority

5.2, 7.1.2, 7.3.7, 7.4, 9.3.1, 9.4, 9.5, 9.8.3, 9.8.4, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.5.1, 13.5.2, 15.1.3, 15.2.1

Architect, Limitations of Authority and Responsibility

2.1.1, 3.12.8, 4.2.1, 4.2.2, 4.2.8, 4.2.13, 5.2.1, 9.6.4, **15.2**

Architect's Additional Services and Expenses

2.4, 11.3.1.1, 12.2.1, 12.2.4, **13.5.2**

Architect's Administration of the Contract

4.2, 9.4, 9.5, **15.2**

Architect's Approvals

3.12.8

Architect's Authority to Reject Work

4.2.8, 12.1.2, 12.2.1

Architect's Copyright

1.5

Architect's Decisions

4.2.8, 7.3.9, 7.4, 8.1.3, 8.3.1, 9.2, 9.4, 9.5, 9.8.3, 9.9.2, 13.5.2, 14.2.2, 14.2.4, **15.2**

Architect's Inspections

3.7.4, 4.2, 9.8.3, 9.9.2, 9.10.1, **13.5**

Architect's Instructions

3.2.4, 7.4, 9.4

Architect's Interpretations

4.2.8, 4.2.17, 4.2.18

Architect's On-Site Observations

4.2.2, 9.4, 9.5.1, 9.10.1, 12.1.1, 12.1.2, **13.5**

Architect's Project Representative

4.2.16

Architect's Relationship with Contractor

1.1.2, 1.5, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.9.2, 3.9.3, 3.10, 3.11, 3.12.8, 3.16, 3.18, 4.2, 5.2, 6.2.2, 8.2, 11.3.7, 12.1, **13.5**

Architect's Relationship with Construction Manager

1.1.2, 9.3 through 9.10, 10.3, **13.5.1**, 10.3, 11.3.7, 13.4.2, **13.5.4**

Architect's Relationship with Subcontractors

1.1.2, 4.2.8, 5.3, 9.6.3, 9.6.4

Architect's Representations

9.4, 9.5, 9.10.1

Architect's Site Visits

4.2.2, 9.4, 9.5.1, 9.8.3, 9.9.2, 9.10.1, **13.5**

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 9.10.2, 10.3.3

Award of Other Contracts

6.1.1, 6.1.2

Award of Subcontracts and Other Contracts for Portions of the Work

5.2

Basic Definitions

1.1

Bidding Requirements

1.1.1, 5.2.1, 11.4.1

Binding Dispute Resolution

9.7, 11.3.9, 11.3.10, 13.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.4.1

Boiler and Machinery Insurance

11.3.2

BONDS, INSURANCE AND

11

Bonds, Lien

7.3.7.4, 9.10.3

Bonds, Performance and Payment

7.3.7.4, 9.6.7, 9.10.3, 11.3.9, 11.4

Building Permit

2.2.2, 3.7.1

Capitalization

1.3

Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

Certificates for Payment

4.2.2, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3,

15.1.3

Certificates of Inspection, Testing or Approval

13.5.4

Certificates of Insurance

9.3.2, 9.10.2, 11.1.3

Change Orders

1.1.1, 2.4, 3.4.2, 3.7.4, 3.8.2, 3.11, 3.12.8, 4.2.12,

4.2.13, 4.2.14, 5.2.3, 7.1.1, 7.1.2, **7.2**, 7.3.2, 7.3.4,

7.3.6, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2,

11.3.1.2, 11.3.4, 11.3.9, 12.1.2, 15.1.3

Change Orders, Definition of

7.2

Changes

7.1

CHANGES IN THE WORK

2.2.1, 3.4.2, 3.11, 3.12.8, 4.2.13, 4.2.14, **7**, 8.3.1,

9.3.1.1

Claims, Definition of

15.1.1

CLAIMS AND DISPUTES

1.1.8, 3.2.4, 3.7.5, 6.1.1, 7.3.9, 8.3.2, 9.3.3, 9.10.3,

9.10.4, 10.3.3, **15**, 15.4

Claims for Additional Cost

3.2.4, 3.7.5, 6.1.1, 7.3.9, 9.10.3, 9.10.4, 10.3.2, 10.4,

15.1.4

Claims for Additional Time

3.2.4, 3.7.5, **7**, 8.3.2, 10.4, **15.1.5**

Concealed or Unknown Conditions, Claims for

3.7

Claims for Damages

3.2.4, 3.18, 6.1.1, 6.2.5, 8.3.2, 9.3.3, 9.5.1.2, 9.10.2,

9.10.5, 10.3.3, 11.1.1, 11.3.5, 11.3.7, 15.1.6

Cleaning Up

3.15, 6.3

Commencement of Statutory Limitation Period

13.7

Commencement of the Work, Definition of

8.1.2

Communications, Owner to Architect

2.2.6

Communications, Owner to Construction Manager

2.2.6

Communications, Owner to Contractor

2.2.6

Communications Facilitating Contract

Administration

3.9.1, **4.2.6**

COMPLETION, PAYMENTS AND

9

Completion, Substantial

4.2.15, 8.1.1, 8.1.3, 8.2.3, 9.4.3.3, **9.8**, 9.9.1, 9.10.3,

12.2.1, 12.2.2, 13.7

Concealed or Unknown Conditions

3.7.4, 4.2.8, 8.3.1, 10.3

Conditions of the Contract

1.1.1

Consolidation or Joinder

15.4.4

CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS

1.1.4, **6**

Construction Change Directive, Definition of

7.3.1

Construction Change Directives

1.1.1, 3.4.2, 3.12.8, 4.2.12, 4.2.13, 7.1.1, 7.1.2, 7.1.3,

7.3, 9.3.1.1

Construction Manager, Building Permits

2.2.2

Construction Manager, Communications through

4.2.6

Construction Manager, Construction Schedule

3.10.1, 3.10.3

CONSTRUCTION MANAGER

4

Construction Manager, Definition of

4.1.2

Construction Manager, Documents and Samples at the Site

3.11

Construction Manager, Extent of Authority

3.12.7, 3.12.8, 4.1.3, 4.2.1, 4.2.4, 4.2.5, 4.2.9, 7.1.2,

7.2, 7.3.1, 8.3, 9.3.1, 9.4.1, 9.4.2, 9.4.3, 9.8.2, 9.8.3,

9.8.4, 9.9.1, 12.1, 12.2.1, 14.2.2, 14.2.4

Construction Manager, Limitations of Authority and Responsibility

4.2.5, 4.2.8, 13.4.2

Construction Manager, Submittals

4.2.9

Construction Manager's Additional Services and Expenses

12.2.1

Construction Manager's Administration of the

Contract

4.2, 9.4, **9.5**

Construction Manager's Approval

2.4, 3.10.1, 3.10.2

Construction Manager's Authority to Reject Work

4.2.8, 12.2.1

Construction Manager's Decisions

7.3.7, 7.3.9, 9.4.1, 9.5.1

Construction Manager's Inspections

4.2.8, 9.8.3, 9.9.2

Construction Manager's On-Site Observations

9.5.1

Construction Manager's Relationship with Architect

1.1.2, 4.2.1, 4.2.7, 4.2.8, 4.2.9, 4.2.13, 4.2.15, 4.2.16, 4.2.20, 9.2.1, 9.4.2, 9.5, 9.6.1, 9.6.3, 9.8.2, 9.8.3, 9.8.4, 9.9.1, 9.10.1, 9.10.2, 9.10.3, 11.1.3, 12.2.4, 13.5.1, 13.5.2, 13.5.4, 14.2.2, 14.2.4

Construction Manager's Relationship with Contractor

3.2.2, 3.2.3, 3.3.1, 3.5, 3.10.1, 3.10.2, 3.10.3, 3.11, 3.12.5, 3.12.6, 3.12.7, 3.12.8, 3.12.9, 3.12.10, 3.13.2, 3.14.2, 3.15.2, 3.16, 3.17, 3.18.1, 4.2.4, 4.2.5, 4.2.6, 4.2.9, 4.2.14, 4.2.17, 4.2.20, 5.2, 6.2.1, 6.2.2, 7.1.2, 7.2, 7.3.5, 7.3.7, 7.3.10, 8.3.1, 9.2, 9.3.1, 9.4.1, 9.4.2, 9.7, 9.8.2, 9.8.3, 9.8.4, 9.9.1, 9.10.1, 9.10.2, 9.10.3, 10.1, 10.3, 11.3.7, 12.1, 13.5.1, 13.5.2, 13.5.3, 13.5.4

Construction Manager's Relationship with Owner

2.2.2, 4.2.1, 10.3.2

Construction Manager's Relationship with Other Contractors and Owner's Own Forces

4.2.4

Construction Manager's Relationship with Subcontractors

4.2.8, 5.3, 9.6.3, 9.6.4

Construction Manager's Site Visits

9.5.1

Construction Schedules, Contractor's

3.10, 3.12.1, 3.12.2, 6.1.2, 15.1.5.2

Contingent Assignment of Subcontracts

5.4, 14.2.2.2

Continuing Contract Performance

15.1.3

Contract, Definition of

1.1.2

CONTRACT, TERMINATION OR SUSPENSION OF THE

5.4.1.1, 11.3.9, 14

Contract Administration

3.1.3, 4.2, 9.4, 9.5

Contract Award and Execution, Conditions Relating to

3.7.1, 3.10, 5.2, 6.1, 11.1.3, 11.3.6, 11.4.1

Contract Documents, Copies Furnished and Use of

1.5.2, 2.2.5, 5.3

Contract Documents, Definition of

1.1.1

Contract Performance During Arbitration

15.1.3

Contract Sum

3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.2, 7.3, 7.4, 9.1, 9.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.3.1.1, 12.3, 14.2.4, 14.3.2, 15.1.4, 15.2.5

Contract Time

3.7.4, 3.7.5, 4, 3.10.2, 5.2.3, 7.2.3, 7.3.1, 7.3.5, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 14.3.2, 15.1.5.1, 15.2.5

Contract Time, Definition of

8.1.1

CONTRACTOR

3

Contractor, Definition of

3.1.1

Contractor's Construction Schedules

3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.5.2

Contractor's Employees

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.1.1, 11.3.7, 14.1, 14.2.1.1

Contractor's Liability Insurance

11.1

Contractor's Relationship with Other Contractors and Owner's Own Forces

3.12.5, 3.14.2, 4.2.6, 6, 11.3, 12.1.2, 12.2.4

Contractor's Relationship with Subcontractors

1.2.2, 3.3.2, 3.18, 5, 9.6.2, 9.6.7, 9.10.2, 11.3.1.2, 11.3.7, 11.3.8, 14.2.1.2

Contractor's Relationship with the Architect

1.1.2, 1.5, 3.2.2, 3.2.3, 3.2.4, 3.4.2, 3.5, 3.7.4, 3.10.1, 3.11, 3.12, 3.16, 3.18, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3.7, 12, 13.5, 15.1.2, 15.2.1

Contractor's Relationship with the Construction Manager

1.1.2, 3.2.2, 3.2.3, 3.3.1, 3.5, 3.10.1, 3.10.2, 3.10.3, 3.11, 3.12.5, 3.12.7, 3.12.9, 3.12.10, 3.13.2, 3.14.2, 3.15.1, 3.16, 3.17, 3.18.1, 4.2.4, 4.2.5, 5.2, 6.2.1, 6.2.2, 7.1.2, 7.3.5, 7.3.7, 7.3.10, 8.3.1, 9.2, 9.3.1, 9.4.1, 9.4.2, 9.8.2, 9.9.1, 9.10.1, 9.10.2, 9.10.3, 10.1, 10.2.6, 10.3, 11.3.7, 12.1, 13.5.1, 13.5.2, 13.5.3, 13.5.4

Contractor's Representations

3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2

Contractor's Responsibility for Those Performing the Work

3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8

Contractor's Review of Contract Documents

3.2

Contractor's Right to Stop the Work

9.7

Contractor's Right to Terminate the Contract

14.1

Contractor's Submittals

3.10.2, 3.11, 3.12, 4.2.9, 9.2, 9.3, 9.8.2, 9.9.1, 9.10.2, 9.10.3, 11.1.3, 11.4.2

Contractor's Superintendent

3.9, 10.2.6

Contractor's Supervision and Construction Procedures

1.2.2, 3.3, 3.4, 4.2.5, 4.2.7, 6.1, 6.2.4, 7.1.3, 7.3.5, 7.3.7, 8.2, 10, 12, 14, 15.1.3

Contractual Liability Insurance

11.1.1.8, 11.2, 11.3.1.5

Coordination and Correlation

1.2, 3.2, 3.3.1, 3.10, 3.12.6, 6.1.2, 6.2.1

Copies Furnished of Drawings and Specifications

1.5, 2.2.5, 3.11

Copyrights

1.5, 3.17

Correction of Work

2.3, 2.4, 9.4.1, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**

Correlation and Intent of the Contract Documents

1.2

Costs

2.4, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 11.3.1.2, 11.3.1.3, 11.3.4, 11.3.9, 12.1, 12.2.1, 13.5, 14

Cutting and Patching

3.14, 6.2.5

Damage to Construction of Owner or Other

Contractors

3.14.2, 6.2.4, 9.5.1.5, 10.2.1.2, 10.2.5, 10.4, 11.1.1, 11.3, 12.2.4

Damage to the Work

3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 11.3.1, 12.2.4

Damages, Claims for

3.2.4, 3.18, 6.1.1, 8.3.2, 10.3.3, 11.1.1, 11.3.5, 11.3.7, 14.2.4, 15.1.6

Damages for Delay

6.1.1, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 15.1.5

Date of Commencement of the Work, Definition of

8.1.2

Date of Substantial Completion, Definition of

8.1.3

Day, Definition of

8.1.4

Decisions of the Architect

3.7.4, 4.2.7, 4.2.8, 4.2.10, 4.2.11, 4.2.13, 4.2.15, 4.2.16, 4.2.17, 4.2.18, 4.2.19, 4.2.20, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5, 9.8.3, 9.8.4, 9.9.1, 10.1.2, 13.5.2, 14.2.2, 14.2.4, 15.1, 15.2

Decisions of the Construction Manager

7.3.7, 7.3.8, 7.3.9, 15.1, 15.2

Decisions to Withhold Certification

9.4.1, **9.5**, 9.7, 14.1.1.3

Defective or Nonconforming Work, Acceptance, Rejection and Correction of

2.3, 2.4, 3.5, 4.2.8, 6.2.5, 9.5.1, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1, 12.2.2

Definitions

1.1, 2.1.1, 3.1.1, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 4.1.2, 7.2, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1

Delays and Extensions of Time

3.2, 3.7.4, 5.2.3, 7.2, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.5, 15.2.5

Disputes

7.3.8, 7.3.9, 9.3, 15.1, 15.2

DISPUTES, CLAIMS AND

3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, **15**, 15.4

Documents and Samples at the Site

3.11

Drawings, Definition of

1.1.5

Drawings and Specifications, Ownership and Use

1.1.1, **1.5**, 2.2.5, 3.11, 5.3

Duty to Review Contract Documents and Field Conditions

3.2

Effective Date of Insurance

8.2.2, 11.1.2

Emergencies

10.4, 14.1.1.2, 15.1.4

Employees, Contractor's

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.1, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.1.1, 11.3.7, 14.1, 14.2.1.1

Equipment, Labor, Materials and or

1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12.2, 3.12.3, 3.13.1, 3.15.1, 4.2.8, 4.2.7, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.2

Execution and Progress of the Work

1.1.3, 1.2.1, 1.2.2, 2.2.3, 2.2.5, 3.1, 3.3.1, 3.4.1, 3.5, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.5, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.2, 14.2, 14.3.1, 15.1.3

Extensions of Time

3.2.4, 3.7.4, 5.2.3, 7.2.3, 7.4, 8.3, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.5, 15.2.5

Failure of Payment

9.5.1.3, **9.7**, 13.6, 14.1.1.3, 14.1.3, 14.2.1.2, 15.1.4

Faulty Work (See Defective or Nonconforming Work)

Final Completion and Final Payment

4.2.1, 4.2.15, 9.8.2, **9.10**, 11.1.2, 11.1.3, 11.3.1, 11.3.5, 12.3, 15.2.1

Financial Arrangements, Owner's

2.2.1

GENERAL PROVISIONS

1

Governing Law

13.1

Guarantees (See Warranty and Warranties)

Hazardous Materials

10.2.4, **10.3**

Identification of Contract Documents

1.2.1

Identification of Subcontractors and Suppliers

5.2.1

Indemnification

3.18, 9.10.2, 10.3.3, 10.3.5, 10.3.6, 11.3.1.2, 11.3.7

Information and Services Required of the Owner

2.1.2, **2.2**, 4.2.6, 6.1.2, 6.2.5, 9.6.1, 9.6.4, 9.8, 9.9.1, 9.10.3, 10.3.2, 10.3.3, 11.2, 11.3.4, 13.5.1, 13.5.2, 14.1.1.4, 14.1.3, 15.1.2

Initial Decision

15.2

Initial Decision Maker, Definition of

1.1.8

Initial Decision Maker, Extent of Authority

14.2.2, 14.2.4, 15.1.3, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Injury or Damage to Person or Property

3.18.1, 10.2.1, 10.2.2, **10.2.8**, 10.3, 10.3.3, 10.4, 11.1.1

Inspections

3.1.3, 3.7.1, 4.2.2, 9.8.2, 9.9.2, 9.10.1, 13.5

Instructions to Bidders

1.1.1

Instructions to the Contractor

3.1.4, 3.3.3, 3.7.1, 4.2.4, 5.2.1, 7, 8.2.2, 12.1, 13.5.2

Instruments of Service, Definition of

1.1.7, 1.5, 1.6

Insurance

6.1.1, 7.3.7, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5, 11

Insurance, Boiler and Machinery

11.3.2

Insurance, Contractor's Liability

11.1

Insurance, Effective Date of

8.2.2, 11.1.2

Insurance, Loss of Use

11.3.3

Insurance, Owner's Liability

11.2

Insurance, Property

10.2.5, 11.3

Insurance, Stored Materials

9.3.2, 11.3.1

INSURANCE AND BONDS

11

Insurance Companies, Consent to Partial Occupancy

9.9.1, 11.3.1.5

Insurance Companies, Settlement with

11.3.10

Intent of the Contract Documents

1.2, 4.2.18, 4.2.19, 7.4

Interest

9.7, 13.6

Interpretation

1.4, 4.2.8, 4.2.17, 4.2.18

Interpretations, Written

4.2.17, 4.2.18, 4.2.20

Joinder and Consolidation of Claims Required

15.4.4

Judgment on Final Award

15.4.2

Labor and Materials, Equipment

1.1.3, 1.1.6, 3.4, 3.8.2, 3.8.3, 3.12.2, 3.12.3, 3.12.6, 3.12.10, 3.13.1, 3.15.1, 5.2.1, 6.2.1, 7.3.7, 9.3.2, 9.3.3, 9.5.1.3, 9.6, 9.10.2, 10.2.1.2, 11.3.1, 14.2.1, 14.2.2

Labor Disputes

8.3.1

Laws and Regulations

3.2.3, 3.2.4, 3.7, 3.13.1, 10.2.2, 10.2.3, 13.5.1, 14.2.1

Liens

2.1.2, 9.3.3, 9.10.2, 9.10.4, 15.2.8

Limitation on Consolidation or Joinder

15.4.4

Limitations, Statutes of

15.4.1

Limitations of Authority

3.12.4, 4.1.3, 4.2.16

Limitations of Liability

9.6.7, 11.1.1, 12.2

Limitations of Time

3.10.1, 4.2.17, 4.2.20, 8.2.1, 9.3.3, 9.6.1, 9.8.4, 9.10.2, 10.2, 11.1.3, 12.1.1, 12.2.2.2, 12.2.5, 13.7, 14.1.1, 15.2.6.1

Loss of Use Insurance

11.3.3

Material Suppliers

1.5.1, 1.5.2, 3.12, 4.2.6, 4.2.8, 9.3.1, 9.3.1.2, 9.3.3, 9.5.3, 9.6.4, 9.6.5, 9.6.7, 9.10.5, 11.3.1

Materials, Hazardous

10.2.4, 10.3

Materials, Labor, Equipment and

1.1.3, 1.1.6, 1.5.1, 1.5.2, 3.4, 3.5, 3.8.2, 3.8.3, 3.12.2, 3.12.3, 3.12.6, 3.12.10, 3.13.1, 5.2.1, 6.2.1, 9.3.1, 9.3.2, 9.3.3, 9.5.1, 9.5.3, 9.6.4, 9.6.5, 9.6.7, 9.10.2, 9.10.5, 10.2.1, 10.2.4, 10.3

Means, Methods, Techniques, Sequences and Procedures of Construction

3.3.1, 3.12.10, 4.2.5, 4.2.11

Mechanic's Lien

2.1.2, 15.2.8

Mediation

8.3.1, 10.3.5, 15.2.1, 15.2.5, 15.2.6, 15.3, 15.4.1

Minor Changes in the Work

1.1.1, 3.12.8, 4.2.13, 7.1, 7.4

MISCELLANEOUS PROVISIONS

13

Modifications, Definition of

1.1.1

Modifications to the Contract

1.1.1, 1.1.2, 3.11, 4.1.3, 4.2.14, 5.2.3, 7, 11.3.1

Mutual Responsibility

6.2

Nonconforming Work, Acceptance of

9.4.3, 9.8.3, 12.3

Nonconforming Work, Rejection and Correction of
2.3, 2.4, 3.2.3, 3.7.3, 9.4.3.3, 9.8.2, 9.8.3, 9.9.1, 11.1.1, 12.2.2.1, 12.2.3, 12.2.4, 12.2.5

Notice

1.5, 2.1.2, 2.2.1, 2.4, 3.2.4, 3.3.1, 3.7.1, 3.7.2, 3.7.5, 3.9.2, 3.12.9, 5.2.1, 6.3, 9.4.1, 9.7, 9.10.1, 9.10.2, 10.2.2, 10.2.6, 10.2.8, 10.3.2, 11.3.6, 12.2.2.1, 13.3, 13.5.1, 13.5.2, 14.1.2, 14.2.2, 14.4.2, 15.1.2, 15.1.4, 15.1.5.1, 15.2, 15.4.1

Notice of Claims

3.7.2, 10.2.8, 15.1.2, 15.4.1

Notice of Testing and Inspections

13.5.1, 13.5.2

Notices, Permits, Fees and

3.7, 7.3.7, 10.2.2

Observations, On-Site

3.2.1, 9.5.1, 12.1.1

Occupancy

2.2.2, 9.6.6, 9.9, 11.3.1.5

On-Site Inspections

4.2.2, 9.10.1, 9.4.4, 9.5.1

Orders, Written
4.2.7, 4.2.18, 4.2.20
Other Contracts and Contractors
1.1.4, 3.14.2, 4.2.9, 6, 11.3.7, 12.1.2
OWNER
2
Owner, Definition of
2.1.1
Owner, Information and Services Required of the
2.1.2, **2.2**, 4.2, 6.1.2, 6.1.3, 6.2.5, 9.3.2, 9.6.1, 9.6.4,
9.9.2, 9.10.2, 10.3.3, 11.2, 11.3, 13.5.1, 13.5.2,
14.1.1, 14.1.3, 15.1.3
Owner's Authority
1.5, 2.1.1, 2.3, 2.4, 3.4.2, 3.12.10, 3.14.2, 4.1.2, 4.1.3,
4.2.8, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2, 7.3.1,
8.2.2, 9.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2,
11.3.3, 11.3.10, 12.2.2.1, 12.3, 13.5.2, 14.2, 14.3.1,
14.4, 15.2.7
Owner's Financial Capability
2.2.1, 13.2.2, 14.1.1
Owner's Liability Insurance
11.2
Owner's Relationship with Subcontractors
1.1.2, 5.2.1, 5.3, 5.4.1, 9.6.4, 9.10.2, 14.2.2
Owner's Right to Carry Out the Work
2.4, 12.2.4, 14.2.2
Owner's Right to Clean Up
6.3
Owner's Right to Perform Construction with Own
Forces and to Award Other Contracts
6.1
Owner's Right to Stop the Work
2.3
Owner's Right to Suspend the Work
14.3
Owner's Right to Terminate the Contract
14.2
Ownership and Use of Drawings, Specifications
and Other Instruments of Service
1.1.1, 1.1.5, **1.5**, 1.6, 3.11, 3.12.10, 3.17, 4.2.14,
4.2.18, 4.2.20
Partial Occupancy or Use
9.9, 11.3.1.5
Patching, Cutting and
3.14, 6.2.5
Patents and Copyrights, Royalties
3.17
Payment, Applications for
4.2.1, 4.2.7, 4.2.15, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.7,
9.10.1, 9.10.3, 9.10.5, 11.1.3
Payment, Certificates for
4.2.15, 7.3.9, 9.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1,
9.10.3, 14.1.1.3, 15.1.3
Payment, Failure of
9.4.1, 9.5, **9.7**, 14.1.1.3
Payment, Final
4.2.1, 9.8.2, **9.10**, 11.1.2, 11.3.1, 11.3.5, 12.3, 15.2.1

Payment Bond, Performance Bond and
5.4.1, 7.3.7, 9.6.7, 9.10.2, 9.10.3, 11, **11.4**
Payments, Progress
9.3.1, 9.4.2, **9.6**
PAYMENTS AND COMPLETION
9, 14
Payments to Subcontractors
5.4.2, 9.3, 9.5.1.3, 9.5.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7,
9.10.5, 14.2.1.2
PCB
10.3.1
Performance Bond and Payment Bond
5.4.1, 7.3.7, 9.6.7, 9.10.2, 9.10.3, 11, **11.4**
Permits, Fees, Notices and Compliance with Laws
2.2.2, **3.7**, 7.3.7.4, 10.2.2
PERSONS AND PROPERTY, PROTECTION
OF
10
Polychlorinated Biphenyl
10.3.1
Product Data, Definition of
3.12.2
Product Data and Samples, Shop Drawings
3.11, **3.12**, 4.2.9, 4.2.10, 4.2.14
Progress and Completion
8.2, 9.3.1, 9.4.2, 9.6, 9.8, 9.10, 14.2.4, 15.1.6
Progress Payments
9.3.1, 9.4.2, **9.6**
Project, Definition of
1.1.4
Project Representatives
4.2.16
Property Insurance
10.2.5, **11.3**
Project Schedule
3.10.1, 3.10.3, 3.10.4, 4.2.2, 4.2.3, 4.2.4
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
1.5, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 4.1.1, 9.6.4, 9.9.1,
10.2.2, 11.1, 11.4, 13.1, 13.4, 13.5.1, 13.5.2, 13.6,
14.1.1, 14.2.1, 15.2.8, 15.4
Rejection of Work
3.5, 4.2.8, 12.2.1
Releases of and Waivers and of Liens
9.10.2
Representations
1.3, 2.2.1, 3.5, 3.12, 6.2.2, 8.2.1, 9.3.3, 9.4.3, 9.5.1,
9.8.2, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.1, 4.2.2, 4.2.10, 5.1.1,
5.1.2, 13.2.1
Requests for Information
4.2.20
Resolution of Claims and Disputes
15

Responsibility for Those Performing the Work
3.3.2, 3.7.3, 3.12.8, 3.18, 4.2.2, 4.2.5, 4.2.8, 5.3,
6.1.2, 6.2, 6.3, 9.5.1, 9.8.2, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
**Review of Contract Documents and Field
Conditions by Contractor**
1.2.2, **3.2**, 3.7.3, 3.12.7
Review of Contractor's Submittals by Owner,
Construction Manager and Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 5.2, 9.2, 9.8.2
Review of Shop Drawings, Product Data and
Samples by Contractor
3.12.5
Rights and Remedies
1.1.2, 2.3, 2.4, 3.7.4, 3.15.2, 4.2.8, 5.3, 5.4, 6.1, 6.3,
7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.2,
12.2.4, **13.4**, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4
Safety of Persons and Property
10.2, 10.3, 10.4
Safety Precautions and Programs
3.3.1, 3.12, 4.2.5, 5.3, **10.1**, 10.2, 10.3, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and
3.11, **3.12**, 4.2.9, 4.2.10
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.2, 15.1.5.2
Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.6, 4.2.11, 6, 8.3.1, 12.1.2
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, **3.12**, 4.2.9, 4.2.10, 4.2.14
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2.2, 4.2.3, 4.2.15, 9.4.3.3,
9.8.3, 9.9.2, 9.10.1, 13.5
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.15, 9.8.3, 9.9.2, 9.10.1, 13.5
Special Inspections and Testing
4.2.8, 12.2.1, 13.5
Specifications, Definition of
1.1.6
Specifications
1.1.1, **1.1.6**, 1.2.2, 1.5, 3.11, 3.12.10, 3.17, 4.2.14
Staffing Plan
4.2.3

Statute of Limitations
12.2.5, 13.7, 15.4.1.1
Stopping the Work
2.3, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 4.2.5, 5.2.3, 5.3, 5.4, 9.3.1.2,
9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6.2, 9.6.3, 9.10, 10.2.1, 14.1, 14.2
Submittals
3.2.3, 3.10, 3.11, 3.12, 4.2.9, 4.2.10, 4.2.11, 5.2.1,
5.2.3, 7.3.7, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3, 11.1.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.9, 4.2.10
Subrogation, Waivers of
6.1.1, **11.3.7**
Substantial Completion
8.1.1, 8.1.3, 8.2.3, 9.4.3.3, **9.8**, 9.9.1, 9.10.3, 12.2.1,
12.2.2, 13.7
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitution of Architect
4.1.4
Substitution of Construction Manager
4.1.4
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2
Subsurface Conditions
3.7.4
Successors and Assigns
13.2
Superintendent
3.9, 10.2.6
Supervision and Construction Procedures
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.3, 4.2.5, 4.2.8,
4.2.9, 4.2.10, 4.2.11, 6.1.3, 6.2.4, 7.1.3, 7.3.7, 8.2,
8.3.1, 9.4.3.3, 10, 12, 14, 15.1.3
Surety
5.4.1.2, 9.8.5, 9.10.2, 9.10.3, 14.2.2, 15.2.7
Surety, Consent of
9.10.2, 9.10.3
Surveys
1.1.7, 2.2.3
Suspension by the Owner for Convenience
14.3
Suspension of the Work
5.4.2, 14.3

Suspension or Termination of the Contract
5.4.1.1, 14
Taxes
3.6, 3.8.2.1, 7.3.7.4
Termination by the Contractor
14.1, 15.1.6
Termination by the Owner for Cause
5.4.1.1, 14.2, 15.1.6
Termination by the Owner for Convenience
14.4
Termination of the Contractor
14.2.2
TERMINATION OR SUSPENSION OF THE CONTRACT
14
Tests and Inspections
3.1.4, 3.3.3, 4.2.2, 4.2.6, 4.2.8, 9.4.3.3, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, 13.5
TIME
8
Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2, 7.3.1, 7.4, 8.3, 9.5.1, 10.3.2, 14.3.2, 15.1.5, 15.2.5
Time Limits
2.1.2, 2.2, 2.4, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.1, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.4.2, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 11.1.3, 11.4, 12.2, 13.5, 13.7, 14, 15
Time Limits on Claims
3.7.4, 10.2.8, 13.7, 15.1.2
Title to Work
9.3.2, 9.3.3
Transmission of Data in Digital Form
1.6
UNCOVERING AND CORRECTION OF WORK
12
Uncovering of Work
12.1
Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3

Unit Prices
7.3.3.2, 7.3.4
Use of Documents
1.1.1, 1.5, 2.2.5, 3.12.6, 5.3
Use of Site
3.13, 6.1.1, 6.2.1
Values, Schedule of
9.2, 9.3.1
Waiver of Claims by the Architect
13.4.2
Waiver of Claims by the Construction Manager
13.4.2
Waiver of Claims by the Contractor
9.10.5, 13.4.2, 15.1.6
Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.4.2, 14.2.4, 15.1.6
Waiver of Consequential Damages
14.2.4, 15.1.6
Waiver of Liens
9.10.2, 9.10.4
Waivers of Subrogation
6.1.1, 11.3.7
Warranty
3.5, 4.2.15, 9.3.3, 9.8.4, 9.9.1, 9.10.4, 12.2.2
Weather Delays
15.1.5.2
Work, Definition of
1.1.3
Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.3, 9.3.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 10.3.2, 11.4.1, 13.2, 13.4.2, 15.4.4.2
Written Interpretations
4.2.17, 4.2.18
Written Notice
2.3, 2.4, 3.3.1, 3.9, 3.12.9, 3.12.10, 5.2.1, 5.3, 5.4.1.1, 8.2.2, 9.4, 9.5.1, 9.7, 9.10, 10.2.2, 10.3, 11.1.3, 12.2.2, 12.2.4, 13.3, 13.5.2, 14, 15.4.1
Written Orders
1.1.1, 2.3, 3.9, 7, 8.2.2, 12.1, 12.2, 13.5.2, 14.3.1, 15.1.2

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents. The Contract Documents include the Notice to Bidders, Information to Bidders, Form of Proposals, General Conditions, Specifications, Drawings, Addenda issued prior to execution of the Contract, Agreement between Owner and Contractor (“Agreement”), other Documents listed in the Agreement, and Modifications issued or negotiated after receipt of bids or execution of the Agreement, and when required by Governmental Agencies or Departments, appropriately inserted Certifications, Regulations, and Wage Rate Schedules.”

§ 1.1.2 The Contract. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect’s consultants, (2) between the Owner and the Construction Manager or the Construction Manager’s consultants, (3) between the Owner and the Architect or the Architect’s consultants, (4) between the Contractor and the Construction Manager or the Construction Manager’s consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

Subcontractors shall assume the same obligations to the Contractors as the Contractor has to the Owner and the Architect under General Conditions AIA A232-2009 relationships and responsibilities of the Contractor to the Owner or Architect as defined in General Conditions AIA A232-2009 shall become those of the Subcontractor to the Contractor.”

§ 1.1.2.1 Where the term “Agreement”, “Contract” or “Prime Contract” is used in the General Conditions, and other Contract Documents, it shall mean the separate Owner-Contractor Agreement between the Owner and each individual Prime Contractor identified in Conditions of the Contract (General and other conditions).”

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

§ 1.1.4 The Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Multiple Prime Contractors and by the Owner’s own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 1.1.5 The Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 The Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service. Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect’s consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker. The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.1.9 Miscellaneous Definitions:

- .1 The term “Herein” shall mean the contents of the Contract Documents and/or the contents of the particular section where this term appears.

- .2 The term “Indicated” as used herein shall mean shown on the Drawings or described in the Contract Documents. Terms such as “Shown”, “Noted”, “Scheduled” and “Specified” have the same meaning as “As Indicated”.
- .3 The term “Concealed” as used herein shall mean items hidden from sight in such locations as trenches, chases, shafts, furred spaces, walls, slabs, above ceilings and in crawl spaces or service tunnels.
- .4 The term “Exposed” as used herein shall mean not “concealed” as defined herein and the spaces behind normally closed doors such as interiors of cabinets.
- .5 The term “Product” as used herein shall include materials, systems and/or equipment.
- .6 The term “Furnish” as used herein shall mean furnish and deliver to the job site all products necessary that are connected with the Work including unloading, handling, transporting, unwrapping and inspecting those products to be installed.
- .7 The term “Install” as used herein shall mean furnish all labor and perform all operations connected with assembly, erection, anchoring, installation of products or Work, curing, finishing, cleaning and similar operations including supplying all necessary tools, rigging and equipment to do the Work, and connect up, test, place in operation and service such products.
- .8 The term “Provide” as used herein shall mean furnish and install, without limitation, all labor, products, materials, equipment, transportation, services, etc., required to install, complete the Work, and/or to test and place in operation/service.
- .9 The term “Piping” as used herein shall mean pipe, rigid conduit, fittings, valves, hangers and other accessories, which comprise a system.
- .10 The terms “proper”, “satisfactory”, “workmanlike” and words of similarly implied interpretation, judgment or opinion, shall be understood to mean “in the opinion of the Architect or Construction Manager”.
- .11 As used herein, the terms “General Contractor”, “GC” and “General Construction Contractor” have the same meaning.
- .12 The term “project site” shall mean the space available to contractors at location of the project either exclusively or to be shared with other contractors for performance of Work.
- .13 The term “minimum requirements” shall mean indicated requirements are for a specific minimum acceptable level of quality/quantity, as recognized in the Industry. Actual Work shall comply (within specified tolerances) or may exceed minimums within reasonable limits. Refer uncertainties to the Construction Manager before proceeding.
- .14 The term “labeled” refers to classification by an approved Standards Agency.
- .15 The term “General Conditions” shall mean the General Conditions of the Construction Contract (AIA Document AIA A232-2009 Edition).

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 In the event of conflict or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

- .1 Contract (Agreement).
- .2 Modifications.
- .3 Addenda, with those of later date having precedence over those of earlier date.
- .4 Special Conditions.
- .5 Instructions to Bidders.
- .6 General Conditions of the Contract for Construction.
- .7 Division 1 of the specifications.
- .8 Divisions 2 thru 49 of the specifications and drawings.
- .9 Other documents specifically enumerated in the Contract as part of the Contract Documents.

In the case of conflict or discrepancies between drawings and Divisions 2 thru 49 of the specifications or within or among the Contract Documents and not clarified by addendum, the Construction Manager will determine which takes precedence.

§ 1.2.1.2 Scaling Drawings for dimensions, if done, is done at the Contractor’s own risk. All dimensions shown on the Drawings are subject to verification of actual dimensions by the Contractor. It is the responsibility of the

Contractor to verify all dimensions in the field to insure proper and accurate fit of materials and items to be installed. Before ordering any materials or doing any Work, the Contractor and each Subcontractor shall verify all existing conditions and measurements. No extra charge or compensation will be allowed on account of differences between actual dimensions and the dimensions indicated on the Drawings. Any differences which may be found shall be submitted to the Construction Manager for resolution before proceeding with the Work.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.2.4 Where items are specified by the use of a reference standard not bound in the specifications, the date of the reference standard shall be the latest edition as outlined in the Building Codes of New York State and/or except as specifically indicated otherwise.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§1.4.1 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be as outlined under § 1.2.1.1.

§ 1.4.2 In the event of inconsistencies within or between parts of the Contract Documents, or between the Contract Documents and applicable standards, codes and ordinances, the Contractor shall: (1) provide the better quality or greater quantity of Work, (2) comply with the more stringent requirement, or (3) either or both in accordance with the Construction Manager’s interpretation. The terms and conditions of this § 1.4.2, however, shall not relieve the Contractor of any of the obligations set forth in § 3.2 and § 3.7.

§ 1.4.2.1 On the Drawings, given dimensions shall take precedence over scaled measurements and large-scale drawings over small-scale drawings. Scaling Drawings for dimensions, if done, is done at the Contractor’s own risk.

§ 1.4.2.2 Before ordering any materials or doing any Work, the Contractor and each Subcontractor shall verify measurements at the project site and shall be responsible for the correctness of such measurements. No extra charge or compensation will be allowed on account of differences between actual dimensions and the dimensions indicated on the Drawings. Any difference, which may be found, shall be submitted to the Construction Manager for resolution before proceeding with the Work.

§ 1.4.2.3 If a minor change in the Work is found necessary due to actual field conditions, the Contractor shall submit detailed drawings of such departure for review by the Construction Manager before initiating the change.

§ 1.4.3 The terms “knowledge”, “recognize” and “discover”, their respective derivatives and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows (or should know), recognizes (or should recognize) and discovers (or should discover) in exercising the care, skill and diligence required by the Contract Documents. The expression “reasonably inferable” and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a Contractor familiar with the Project and exercising the care, skill and diligence required of the Contractor by the Contract Documents.

§ 1.4.4 The phrase “persistently fails” and other similar expressions, as used in reference to the Contractor, shall be interpreted to mean any combination of acts or omissions, which causes the Owner or the Construction Manager to reasonably conclude that the Contractor will not complete the Work within the Contract Time, for the Contract Sum or in substantial compliance with the requirements of the Contract Documents.

§ 1.4.5 In the event of inconsistencies within or between parts of the Contract Documents, or between the Contract Documents and applicable standards, codes and ordinances, the Construction Manager shall be the sole and final interpreter and will issue a written decision to the Owner and the Contractor within a reasonable time of written notification. The Construction Manager's decision shall be conclusive and final."

§ 1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect, or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 Transmission of Data in Digital Form

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Article 4, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Information and Services Required of the Owner

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, through the Construction Manager, shall secure and pay for the building permit.

§ 2.2.3 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.4 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.2.5 The Owner shall endeavor to forward all communications to the Contractor through the Construction Manager and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents.

§ 2.2.6 The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, the Contractors' means, methods, techniques, sequences, or procedures of construction or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with laws or regulations applicable to the furnishing or performance of the Work. Owner will not be responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

§ 2.3 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Construction Manager. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

In the event Contractor fails, refuses or neglects to perform closeout obligations, including without limitation performance of incomplete items as attached to the Certificate of Substantial Completion, within forty-five (45) days following the date of Substantial Completion or time frame mutually agreed upon between Owner and Prime Contractor, the Owner may, without further notice (except to inform the Contractor its attempt to cure is inadequate) and without prejudice to other remedies the Owner may have, correct such deficiencies. In such case, an appropriate Change Order shall be issued deducting from Payments then or thereafter due to Contractor the cost of correcting such deficiencies. Contractor shall be liable to the Owner for any additional costs, including without limitation, those charged by Architect, Attorneys, or others attributable to such failure, refusal or neglect.

§ 2.5 OWNER'S RIGHTS FOR USE OF PREMISES

§ 2.5.1 Whether Work of various Contractors is or is not partially or fully completed, the premises (site) are the property of the Owner who shall have certain rights and privileges in connection with use of same.

§ 2.5.2 In such event, Contractor whose unfinished Work is performed subsequently shall be responsible for the prevention of any damage to such Owner's installation. Such use or occupancy by the Owner shall in no instance constitute acceptance of any of the Work.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.1.1 Where the words “Contractor”, “Prime Contractor”, or any reference to “each Contractor” occurs in the Contract Documents, they shall mean the person, firms or organization having a Contract for the Work as set forth in the Agreement.

§ 3.1.1.2 The Contractor represents to the Owner that it possesses the skill, experience and resources to competently and diligently perform the Work in an orderly and safe fashion and in accordance with the anticipated milestone and/or completion date(s) as applicable.”

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor’s review is made in the Contractor’s capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect or Construction Manager issues in response to the Contractor’s notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor’s best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instruction concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and the Construction Manager and shall not proceed with that portion of the Work without further written

instructions from the Construction Manager. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Construction Manager in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

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

§ 3.5.1 Neither final payment, nor provision in Contract Documents, nor partial or entire occupancy of premises by Owner shall constitute an acceptance of Work not done in accordance with Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

§ 3.5.2 In emergencies occurring during the guarantee period, the Owner may correct any defect immediately and charge the cost to the Contractor. The Owner shall at once notify the Contractor, who may take over the Work and make any corrections remaining after his forces arrive at the Work. Any repair work not started within seven (7) days following notice to the Contractor of any defect shall be considered an emergency."

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. **The City of Hudson is Tax Exempt and shall provide the Contractor with Tax Exemption Form for his/her use. The City of Hudson is not permitted to pay sales tax, not is it permitted to reimburse for same.**

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.2 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.3 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, and Construction Manager, before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Construction Manager will promptly investigate such conditions and determine they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Construction Manager shall promptly notify the Owner, and Contractor in writing, stating the reasons. If the Owner or Contractor disputes the Construction Manager's determination or recommendation, either party may proceed as provided in Article 15.

§ 3.7.4 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Superintendent

§ 3.8.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.8.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner and Construction Manager, the name and qualifications of a proposed superintendent. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager has reasonable objection to the proposed superintendent or (2) that any of them require additional time to review. Failure of the Construction Manager to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.8.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Construction Manager has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.8.4 The Contractor shall not reduce or terminate supervision of the Work.

§ 3.8.5 If, for any reason, the Contractor takes an action resulting in any of the changes noted in § 3.9, which negatively affects the projects progress or quality, or resulting in additional work by the Owner or their agents, the Owner has the right to charge the Contractor all costs associated with these efforts including the costs of legal, Construction Management Services, and Architectural services. The Owner shall notify the Contractor in writing of their intent to back charge as a result of lack of supervision.

§ 3.9 Contractor's Construction Schedules

§ 3.9.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information and the Construction Manager's approval a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project schedule to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. The Contractor shall cooperate with the Construction Manager in scheduling and performing

the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Multiple Prime Contractors or the construction or operations of the Owner's own forces.

§ 3.9.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter update it as necessary to maintain a current submittal schedule and shall submit the schedule(s) for the Construction Manager's and Architect's approval. The Architect and Construction Manager's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.9.3 The Contractor shall participate with other Contractors, the Construction Manager and Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.9.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Construction Manager and incorporated into the approved Project schedule.

§ 3.10 Documents and Samples at the Site

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These documents shall be available to the Architect and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.11 Shop Drawings, Product Data and Samples

§ 3.11.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.11.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.11.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.11.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.9 through 4.2.11. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.11.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Construction Manager Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the Project submittal schedule approved by the Construction Manager and Architect, or in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Multiple Prime Contractors or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples and similar submittals with related documents submitted by other Multiple Prime Contractors.

§ 3.11.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so

and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.11.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed and approved by the Architect.

§ 3.11.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Construction Manager and Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.11.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Construction Manager and Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.11.10 The Contractor shall not be required to provide professional services that constitute the practice of Architecture or Engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.12 Use of Site

§ 3.12.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.12.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.13 Cutting and Patching

§ 3.13.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.13.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner's own forces by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner's own forces except with written consent of the Construction Manager, Owner; such consent shall not be unreasonably withheld.

§ 3.14 Cleaning Up

§ 3.14.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.14.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.15 Access to Work

The Contractor shall provide the Owner, Construction Manager and Architect access to the Work in preparation and progress wherever located.

§ 3.16 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner, Architect, or Construction Manager. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect through the Construction Manager.

§ 3.17 Indemnification

§ 3.17.1 To the fullest extent permitted by law, the Contractor hereby assumes the entire responsibility and liability for any and all damage (direct or consequential) and injury (including death), disease or sickness of any kind or nature whatsoever, to all persons, whether or not employees of the Contractor, and to all property and business and businesses, caused by, resulting from, arising out of, or occurring in connection with:

- a. the Work;
- b. the performance or intended performance of the Work;
- c. the performance or failure to perform the Contractor; or
- d. any occurrence which happens in or about the area where the Work is being performed by the Contractor, either directly or through a Subcontractor, or while any of Contractor's property, equipment or personnel is in or about such area; or
- e. New York State Labor Law, Article 10, including without limitation sections 240, 241, 241-a and 241-b, thereof, as amended, regardless of whether or not such Claim, damage, loss and expense is caused in part by a party indemnification hereunder.

Except to the extent, if any, expressly prohibited by law, should any such damage or injury be sustained, suffered, or incurred by Owner Construction Manager or Architect, or should any Claim for such damage or injury to be made or asserted against any of them, whether or not such Claim is based upon Owner's Construction Manager's or Architect's alleged active or passive negligence or participation in the wrong or upon any alleged breach of any statutory duty or obligation on the part of the Owner Construction Manager, or Architect, Contractor shall indemnify and hold harmless Owner, Construction Manager, or Architect, their Board, Administration officers, agents, partners, and employees (hereinafter collectively referred to as "Indemnitees"), of, from and against any and all other loss, cost, expense, and liability, including without limitation, legal fees and disbursements, that Indemnitees may directly or indirectly sustain, suffer or incur as a result of such damages, injuries and Claims; and Contractor agrees to assume, on behalf of any and all Indemnitees the defense (with counsel satisfactory to the party indemnified) or any action at law or in equity, or other legal proceeding, which may be brought against any Indemnitee upon or by reason of such damage, injury or Claim and to pay on behalf of every Indemnitee, the amount of any judgment, decree, award, or order that may be entered against each said Indemnitee in any such action or proceeding. In the event that any such Claim, loss, cost, expense, liability, damage or injury is sustained, suffered, or incurred by, or is made, asserted or threatened against any Indemnitee, Owner shall, in addition to all other rights and remedies, have the right to withhold from any payments due and to become due to Contractor an amount sufficient in Owner's judgment to protect and indemnify the Indemnitee(s) from and against any and all such Claim, loss, cost, expense, liability, damage or injury, including legal fees and disbursements; or Owner, in its discretion, may require Contractor to furnish a Surety bond satisfactory to Owner guaranteeing such protection which bond shall be furnished by Contractor within 5 days after written demand has been made therefore. In the event more than one Contractor is connected with an event or occurrence (or series of events or occurrences)

covered by this indemnification, then all such Contractors shall be jointly and severely responsible to the Indemnatee, and the ultimate responsibility among such indemnifying Contractors shall be settled or otherwise determined by separate proceedings and without loss, expense or damage to any Indemnatee.”

§ 3.17.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers’ compensation acts, disability benefit acts or other employee benefit acts.

§ 3.18 LOCAL CONDITIONS, EXISTING FEATURES AND UNDERGROUND DATA

§ 3.18.1 The Contractor acknowledges he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing on transportation, disposal, handling and storage of materials, availability of labor, materials, equipment, utilities, roads, weather, ground water table, character of surface and subsurface materials and conditions, the facilities needed to prosecute the Work, and all other factors which in any way affect the Work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with the available information concerning these conditions will not relieve him from the responsibility of successfully performing work. See Section § 1.2.2.1.

§ 3.18.2 The location of existing features shown on plans is intended for general information only. The Contractor is solely responsible for accurate determination of the location of all structures and shall not be entitled to any extra payment due to any unforeseen difficulties or distances encountered in the Work.

§ 3.18.3 The locations, depths and data as to underground conditions have been obtained from records, surface indications and data furnished by others. The information furnished is solely for the convenience of the Contractor without any warranty, expressed or implied as to its accuracy or completeness. To the extent permitted by law, the Contractor shall make no claim against the Owner or Architect with respect to the accuracy or completeness of such information if erroneous, or if the conditions found at the time of construction.

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

§ 4.1 General

§ 4.1.1 The Owner shall retain an Architect lawfully licensed to practice Architecture or an entity lawfully practicing Architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 The Owner shall retain a construction manager lawfully licensed to practice construction management or an entity lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.3 Duties, responsibilities and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Construction Manager, Architect. Consent shall not be unreasonably withheld.

§ 4.1.4 If the employment of the Construction Manager or Architect is terminated, the Owner shall employ a successor construction manager or Architect.

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner’s representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the

site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner and Construction Manager (1) known deviations from the Contract Documents and from the most recent Project schedule prepared by the Construction Manager, and (2) defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide a staffing plan to include one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner reasonably informed of the progress of the Work, and will report to the Owner and Architect (1) known deviations from the Contract Documents and the most recent Project schedule, and (2) defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, or charge of, construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of or be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 **Communications Facilitating Contract Administration.** Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Construction Manager and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. .

§ 4.2.7 The Construction Manager will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents and will notify each other about the rejection. The Construction Manager shall determine in general whether the Work of the Contractor is being performed in accordance with the requirements of the Contract Documents and notify the Owner, Contractor and Architect of defects and deficiencies in the Work. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require additional inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, upon written authorization of the Owner, whether or not such Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data and Samples. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.10 The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance

with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.11 Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.2, 3.4 and 3.11. The Construction Manager and Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Construction Manager and Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.12 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.13 The Construction Manager will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7. and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Construction Manager will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.14 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor and will be delivered to the Owner upon completion of the Project.

§ 4.2.15 The Construction Manager will assist the Architect in conducting inspections to determine the dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.16 The Construction Manager will interpret and decide matters concerning performance under, and requirements of the Contract Documents on written request of the Owner or Contractor through the Construction Manager. The Construction Manager's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.17 Interpretations and decisions of the Construction Manager will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Construction Manager will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

§ 4.2.18 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.19 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing to the Construction Manager to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include other Multiple Prime Contractors or subcontractors of other Multiple Prime Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Construction Manager for review by the Owner, Construction Manager and Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager or the Architect has reasonable objection to any such proposed person or entity or, (2) that the Construction Manager, Architect or Owner requires additional time for review. Failure of the Construction Manager, Owner, or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts not administered by the Construction Manager, and to award other contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces including persons or entities under separate contracts not administered by the Construction Manager, the Owner shall provide for coordination of such forces with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11 and 12.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.1.1 Construction Change Directive: Construction Manager may issue a document, on AIA Form G714, signed by Owner, instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. The Document shall describe the changes in the Work and designates method of determining any change in Contract Sum or Contract Time.

1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract time.
2. Promptly execute the change.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor; a Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect/Construction Manager.

§ 7.1.2.1 Proposal Request: Construction Manager may issue a document which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications. Contractor shall prepare and submit a fixed price quotation within 7 calendar days.

§ 7.1.2.2 Submit to the Construction Manager the Name of the Individual Authorized to receive change documents and who will be responsible for informing others in contractor's employ or subcontractors of changes to the Contract Documents.

§ 7.1.2.3 Contractor may propose a change by submitting a request for change to The Construction Manager, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract time with full documentation and a statement describing the effect on Work by separate or other contractors. .

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

§ 7.1.4 Changes in the Work involving additional Work or deletion of Work whether or not resulting in an addition to or subtraction from the Contract Sum shall not be made until the Contractor submits to the Construction Manager the cost of the added or deleted Work with a complete and detailed listing of all Subcontractors involved, all materials, labor and equipment.

§ 7.1.4.1 Overhead and profit as described in § 7.1.7.1 and § 7.1.7.2-a may be added to the cost of a Claim for additional Work *only* when the source of monies for such additional Work is not an Allowance included in the Contract Sum or any other monies for Work included in the Contract Sum.

§ 7.1.4.2 Changes in the Work whether or not involving additions or deductions from the Contract Sum shall not be made until an appropriate Change Order or Change Directive have been issued.

§ 7.1.4.3 ALL CHANGE ORDERS MUST HAVE THE APPROVAL OF THE OWNER AND CONSTRUCTION MANAGER IN WRITING.

§ 7.1.5 Actual cost of labor and material shall be defined as the amount paid for the following items, to the extent determined reasonable and necessary:

- .1 Cost of materials delivered to the job site for incorporation into the contract work.
- .2 Wage paid to workers and foreman and wage supplements paid to labor organizations in accordance with current labor agreements.
- .3 Premiums or taxes paid by the Contractor for worker's compensation insurance, unemployment insurance, FICA tax and other payroll taxes as required by law, net of actual and anticipated refunds and rebates. (Not to be included in calculation of overhead and profit.)
- .4 Sales taxes as required by law.
- .5 Allowance for use of construction equipment (exclusive of hand tools and minor equipment), as approved for use by the Construction Manager. The rate on self-owned equipment used for periods of under 1 week will be the Associated Equipment Distributor's published monthly rate divided by 22 days to establish a daily rate and divided again by 8 hours to establish an hourly rate. Equipment used for periods of 5 days or more will be billed at a rate equal to 45 percent of the published monthly rate. In the alternative, the Construction Manager may approve the reimbursement of a rate representing the allocable costs of ownership. Self-owned equipment is defined to include equipment rented from controlled or affiliated companies. Rented equipment will be paid for at the actual rental cost. Gasoline, oil and grease required for operation and maintenance will be paid for at the actual cost. When, in the opinion of the Contractor and as approved by the Construction Manager, suitable equipment is not available on the site, the moving of said equipment to and from the site will be paid for at actual cost.

§ 7.1.6 Overhead shall include insurance other than those incidental to labor mentioned above, premiums on bonds required by the Contractor, Contractor's Supervisory employees, office management, home and field office expenses, transportation costs and both manual and power small tools and manual and power small equipment.

§ 7.1.6.1 For Work done by the Prime Contractor's own forces, mark-up for combined overhead and profit on materials and on cost of labor shall not exceed 15%.

§ 7.1.6.2 For Work done by the Subcontractors, mark-up of costs as defined herein by Subcontractor's for combined overhead and profit on materials and on cost of labor shall not exceed 10%.

- a. To this amount, 5% may be added for the Prime Contractor's combined overhead and profit.

§ 7.1.7 Regardless of the method used to determine the value of any change, the Contractor will be required to submit evidence satisfactory to the Construction Manager to substantiate each and every item that constitutes his proposal of the value of the change. The amounts allowed for overhead and profit shall not exceed the applicable percentages as established in the two (2) following paragraphs:

§ 7.1.7.1 If the Work is done directly by the Contractor, overhead and profit in the amount of 15% may be added if method (b), (c) or (d) is used. The percentages for overhead and profit may vary according to the nature, extent and complexity of the work involved, but in no case shall exceed the percentages set forth in the paragraph. Overhead and profit percentages are not to be applied to Item 3 of § 11.5 or the premium portion of overtime pay.

§ 7.1.7.2 If the Work is done by a subcontractor, subcontractor's overhead and profit in the amount of 10% may be added to the cost of labor and materials if method (b), (c) or (d) is used and to the cost of labor and materials. To this amount, there may be added 5 percent for the Contractor's combined overhead and profit. Overhead and profit percentages are not to be applied to Item 3 of § 11.5 or the premium portion of overtime pay.

§ 7.1.8 Whenever the cost of any Work is to be determined pursuant to § 7.1.1 thru § 7.1.8, Contractor will submit in form acceptable to Construction Manager an itemized cost breakdown together with supporting data.

§ 7.1.8.1 In computing the value of a change order which involves additions and deductions of work and the added work exceed the omitted work, overhead and profit shall be computed on the amount by which the cost of additional labor and materials exceeds the cost of the omitted labor and material, except no additional overhead and profit shall be allowed on value of work determined by method (a).

§ 7.1.8.2 In computing the value of a change order which involved deductions and additions and the Work omitted exceeds the added Work, the Contractor will be allowed to retain the overhead and profit on the amount by which the omitted Work exceeds the added Work, except that no overhead and profit shall be retained on value of work determined by method (a).

§ 7.1.8.3 The Contractor may retain overhead and profit on a change order which involved deductions only, except that no overhead and profit shall be considered on value of Work determined by method (a).

§ 7.2 Change Orders

A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager and Contractor, stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner and Construction Manager directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Construction Manager has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order issued through the Construction Manager and shall be binding on the Owner and Contractor.

§ 7.5 UNIT PRICES

§ 7.5.1 Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of § 7.1.1.1 through § 7.5.1.4 inclusive).

§ 7.5.1.1 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Construction Manager in accordance with § 7.5.4.

§ 7.5.1.2 Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

§ 7.5.1.3 Where the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of work and if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may make a claim for an increase in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the amount of any such increase.

§ 7.5.1.4 Construction Manager will determine the actual quantities and classifications of unit price work performed by Contractor. Construction Manager will review with the Contractor Construction Manager's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Construction Manager's written decisions thereon will be final and binding upon Owner and Contractor unless, within 10 days after the date of any such decision, either Owner or Contractor delivers to the other party to the Agreement and to Construction Manager written notice of intention to appeal from such a decision."

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 TIME IS OF THE ESSENCE IN THE COMMENCEMENT, EXECUTION AND CONSTRUCTION OF THE WORK. Contractor shall be responsible for all direct and consequential damages to Owner, Construction Manager, and Architect arising from any delay of Contractor, its Subcontractors and suppliers, in performing or completing the Work in accordance with the time requirements. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 Contractor shall do all things necessary to ensure the prosecution of the Work in accordance with any one or more of the following as determined by the Construction Manager and the Owner, in their discretion:

- .1 Project schedules and revisions thereof;
- .2 The time requirements for various portions of Work;
- .3 The requirements of the Project including, but not limited to, coordination requirements as may from time to time be known to Contractor;

- .4 Schedules of the Work provided by Contractor to Construction Manager upon the Owner's request."

§ 8.2.4 If the Contractor does not achieve Substantial Completion within the Contract Time established in the Agreement between the Owner and the Contractor, or in a subsequent Change Order, the Contractor shall be liable to the Owner, in addition to any actual or consequential damages, for the costs of reimbursements to the Owner's Agents including, but not limited to, the Construction Manager, and Architect for their services attributable to this delay.

§ 8.2.5 Should the progress of the Work and/or other Work be delayed by any fault, neglect, act or failure to act of Contractor or any of its Subcontractors or suppliers so as to cause any additional cost, expense, liability or damage to Owner, Construction Manager, or Architect or for which Owner, Construction Manager, or Architect may become liable, Contractor shall hold Owner, Construction Manager, and Architect harmless from and indemnify Owner, Construction Manager, and Architect against all such additional cost, expense liability or damage in accordance with the provisions of Article 11.

§ 8.2.6 The Work shall be performed during designated working hours, except that in the event of emergency or when necessary to perform the Work in accordance with the requirements of § 8.2, Work shall be performed at Contractor's cost and expense on other shifts, overtime, Saturdays, Sundays, Holidays and at other times, if permission to do so has been obtained in writing from Owner. Without limiting the requirements of the preceding sentence, if the progress of the Work or of the Project has been delayed by any fault, neglect, act or failure to act of Contractor or any of its Subcontractors or suppliers, Contractor shall work such overtime, at Contractor's cost and expense as aforesaid, as Construction Manager shall deem necessary or desirable to make up for all time lost and to avoid delay in the completion of the Work and of the Project. The failure by Construction Manager to direct Contractor to engage in such overtime shall not relieve Contractor of the consequences of its delay.

§ 8.2.7 Unless otherwise noted, the date of commencement of the Work is the date established in the Agreement. Contractor shall organize construction schedules as specified in § 3.10, Contractor's Construction Schedules. The commencement date shall not be postponed by the failure to act of the Contractor or of persons or entities for which the Contractor is responsible.

§ 8.2.8 The Construction Manager may direct acceleration of the Work so that it may be performed in advance of the schedules, time requirements and Project requirements. If so directed, Contractor shall increase its staff and/or work overtime. Contractor will not be entitled to additional compensation for Work performed outside of designated working hours, except as approved by Owner. Provided that Contractor is not in default under the Contract, and Owner has issued the aforesaid authorization, there shall be added to the Contract Sum as actual out-of-pocket amount equal to:

- .1 Additional premiums on wages actually paid, at rates that have been accepted by Construction Manager;
- .2 Taxes imposed by law on such additional wages;
- .3 Premiums for worker's compensation and liability insurance if required to be paid on such additional wages.

Written authorization for overtime work that exceeds \$500.00 for which Contractor intends to charge the Owner in any one week shall be invalid unless confirmed in writing by the Owner, it being understood that Owner's Site Representative shall not have authority to authorize such overtime which exceeds \$500.00 in any one week.

§ 8.2.9 In no case shall the contractor delay the progress of the Work or any part thereof on account of changes in the Work or disputes caused by proposed or ordered changes in the Work or any disputes or disagreements as to the equitable value of such changes.

§ 8.2.10 Contractor and Contractor's Surety shall be strictly accountable for completion as a condition to satisfactorily contractual performance.

§ 8.3 Delays and Extensions of Time

§8.3.1 Should Contractor be obstructed or delayed in the commencement, prosecution or completion of the Work, without fault on its part, by reason of failure to act, direction, order, neglect, delay or default of the Owner, Construction Manager, or the Architect; by changes in the Work; fire, lightning, earthquake, enemy action, act of God or similar catastrophe; by Governmental restrictions with respect to materials or labor, or by an industry-wide strike beyond Contractor's reasonable control, then Contractor shall be entitled to an extension of time lost by reason of any and all causes aforesaid, but no Claim for extension of time on account of delay shall be allowed unless a Claim in writing therefore is presented to Construction Manager with reasonable diligence but in any event

not later than fifteen (15) days after the commencement of such claimed delay. Except for the causes specifically listed above in this subparagraph, no other cause or causes of delays shall give rise to an extension of time to perform the Work. The granting of an extension of time is conditioned upon Contractor's timely submission of the aforesaid written notice. Except to the extent, if any, expressly prohibited by law, Contractor expressly agrees not to make, and hereby waives, any Claim for damages, including those resulting from increased labor or material cost, on account of any delay, obstruction or hindrance for any cause whatsoever, whether or not foreseeable and whether or not anticipated including but not limited to the aforescribed causes, and agrees that the sole right and remedy therefore shall be extension of time, provided the requisite condition as to written Claim has been met.

§ 8.3.2 If Contractor claims an increase in the Contract Sum or an extension in the completion time required by reason of a change in the Work, Contractor shall give Construction Manager and Architect written notice within fifteen (15) days after Contractor's knowledge of the occurrence of the matter giving rise to such Claim. This notice shall be given by Contractor before proceeding to execute the changed Work, except in an emergency endangering life or property in which case Contractor shall proceed in accordance with § 10.3. No such Claim will be valid unless notice is given as required in this paragraph. Contractor shall proceed to execute the Work, even though the increase or time extension has not been agreed upon.

§ 8.3.2.1 Extension of time, if requested by the Contractor, shall only be considered after the Contractor has made reasonable effort to recover the lost time. These efforts shall be documented by the Contractor and submitted to the Construction Manager.

§ 8.3.2.2 An extension, or extensions, of time may be granted subject to the provisions of this article, but only after written application therefore by the contractor in accordance with Article 15.

§ 8.3.2.3 An extension of time shall be only for the number of days of delay that the Construction Manager may determine to be due solely to the causes set forth in the application for extension of time. The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently; but if at all, only the actual period of delay as determined by the Construction Manager.

§ 8.3.3 Contractor shall not be allowed an extension of time unless Contractor has established to the satisfaction of the Owner, Construction Manager, and Architect that the delay claimed by Contractor is to a portion of the Work on the critical path of the work schedule.

§ 8.3.4 Under no circumstances will Contractor look to or make a Claim against Owner, Construction Manager, or Architect for the consequences of any delay resulting from directions given or not given by Construction Manager including scheduling and coordination of the Work or resulting from Architect's preparation of Drawings and Specifications or review of Shop Drawings.

§ 8.3.5 When the Contract Time has been extended, such extension of time shall not be considered as justification for extra compensation to the Contractor for administrative costs or other similar reasons.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 Schedule of Values

Where the Contract is based on a Stipulated Sum or Guaranteed Maximum Price, the Contractor shall submit to the Construction Manager, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager may require. This schedule, unless objected to by the Construction Manager, shall be used as a basis for reviewing the Contractor's Applications for Payment. In the event there is one Contractor, the Construction Manager shall forward to the Architect the Contractor's schedule of values. If there are Multiple Prime Contractors responsible for performing different portions of the Project, the Construction Manager shall forward the Multiple Prime Contractors' schedules of values only if requested by the Architect.

§ 9.2.1 Submit a printed schedule on AIA form G703 – Application and Certificate for Payment Continuation Sheet. Submit in duplicate to the Construction Manager within 15 days after date of Owner-Contractor Agreement.

§ 9.2.2 Format: Utilize the Table of Contents of the Project Manual. Identify each line item with number and title of the Specification Section for each Project site. Provide breakdown of both labor and materials.

§ 9.2.3 Include within each line item a direct proportional amount of contractor's overhead and profit.

§ 9.2.4 Line item for Record Drawings which are to be turned over to the Owner at the end of the Project shall not be less than 0.15 percent of the Contract price.

§ 9.2.5 Schedule of Contract Values

- .1 The list of items shall include all items included in all Divisions and Sections of the specifications and shall be shown as separate line items.
- .2 The following items shall also be listed separately as line items (with their respective values):
 - Bond and Project Insurance.
 - Mobilization and Demobilization. **Not to Exceed 3% Total.**
 - Superintendence.
 - Training, Operations and Maintenance Manual, Construction Record Documents.
 - Each Allowance associated with the Contract.
 - Each Alternate accepted.
 - Each Change Directive as it is issued; to be listed below the associated allowance.
 - Each Change Order as it is issued.
 - Warranties.
 - Records Drawings.
 - Temporary Facilities.
 - Cleaning.
 - Submittals.
 - Items to be Completed List.
- .3 Contractor shall maintain and keep current all changes to the Schedule of Values caused by Change Orders, Construction Change Directives or other authorized changes. Such revised Schedule of Values shall be presented monthly with the Application for Payment."

§ 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner, Construction Manager or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.1.3 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

§ 9.3.1.4 All supporting data requested by the Construction Manager and Architect from Subcontractors and material suppliers necessary to substantiate the Contractor's right to payment shall be furnished by the Contractor.

§ 9.3.1.5 Until the Contract-scheduled date of Substantial Completion (including authorized adjustment), the Owner shall pay 95% of the amount due the Contractor on account of progress payments, less an amount equal to 200% of the amount of any Claims, liens, or judgments against the Contractor which have not been satisfactorily discharged.

- .1 Retainage resulting from § 9.3.1.5 shall be 5% plus an amount equal to 200% of the amount of any Claims, liens, or judgments against the Contractor which have not been satisfactorily discharged.
- .2 At Substantial Completion, when satisfied with the progress of the Work, the Owner, with Consent of Surety, may adjust the amount retained from previous progress payments in accordance with § 9.8.3.

- 3 The full retainage may be reinstated if the manner of completion of the Work and its progress do not remain satisfactory to the Owner and the Construction Manager, if the Surety withholds his consent or for other good and sufficient reasons.

§ 9.3.1.6 Each Contractor shall submit three (3) final copies of their Application for Payment, incorporating those revisions noted on the pencil copies, to the Construction Manager within two (2) days after being notified that the draft copy, with revisions, is acceptable.

§ 9.3.1.7 The final copies of each Application for Payment (AIA Form G702) shall be signed by an officer of the Contractor whose signature shall be notarized in the space provided.

§ 9.3.1.8 Applications shall be based on the completed Work as described above less retainage, and less the aggregate of previous payments. Change Orders when approved shall be listed at the bottom of the last sheet of the payment application.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.3.3.1 The Contractor shall keep the Owner and the Owner's property (including funds for payment under the Project) free from all liens, legal or equitable, arising out of Contractor's Work hereunder. If any such lien is filed with the Owner by anyone claiming by, through or under the Contractor, the Contractor shall discharge the lien within 10 days of the filing thereof. The Contractor further expressly agrees to defend the Owner, at the Contractor's sole expense, against any actions, lawsuits or proceedings brought against the Owner as a result of liens filed against payments due the Contractor or the Work, the site of any of the Work, the Project site and any improvements thereon or any portion of the property of the Owner. The Contractor hereby agrees to indemnify and hold the Owner harmless against any such liens or Claims of lien and agrees to pay any judgment or lien resulting from any such actions, lawsuits or proceedings. The Owner agrees to release any payments with as a result of a duly filed lien, upon compliance by the Contractor with the applicable discharge or vacatur provisions of the Lien Law.

§ 9.3.4 Every Prime Contractor and subcontractors shall submit to the Owner, within thirty (30) days after issuance of their first payroll and every thirty (30) days thereafter, a transcript of the original payroll record, as provided by the Labor Law, subscribed and affirmed as true under the penalties of perjury for the Prime Contractor and all his Subcontractors. Failure to do so shall be cause for the Owner to withhold payment until such records are received.

§ 9.3.5 When the Construction Manager requires substantiating information, submit data justifying dollar amount in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description."

§ 9.4 Certificates for Payment

§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount is due the Contractor. Within seven days after the Construction Manager certifies the Contractor's Application for Payment, the Construction Manager will either issue to the Owner a Certificate for Payment for such amount as the Construction Manager determines is properly due.

§ 9.4.2 Within twenty one days after the Construction Manager receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment, the Construction Manager will either issue to the Owner a Project Certificate for Payment, for such amount as the Construction Manager

determines is properly due, or notify the Owner in writing of the Construction Manager's reasons for withholding certification in whole or in part as provided in Section 9.5.1. The Construction Manager will promptly forward the notice of withholding certification to the Contractors.

§ 9.4.3 The Construction Manager's certification of an Application for Payment or, shall be based upon the Construction Manager's evaluation of the Work and the information provided as part of the Application for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information and belief, the Work has progressed to the point indicated and the quality of the Work is in accordance with the Contract Documents. The certification will also constitute a recommendation to the Owner that the Contractor be paid the amount certified.

§ 9.4.5 The representations made pursuant to Sections 9.4.4 and 9.4.5 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Construction Manager or Architect.

§ 9.4.6 The issuance of a separate Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed the Contractor's construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's opinion the representations to the Owner required by Section 9.4.4 and 9.4.5 cannot be made. If the Construction Manager is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.3. If the Contractor and Construction Manager cannot agree on a revised amount, the Construction Manager will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Construction Manager is able to make such representations to the Owner. The Construction Manager may also withhold a Certificate for Payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Construction Manager and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Construction Manager has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within 30 days after receipt, and shall so notify the Construction Manager.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner, Construction Manager shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Upon Substantial Completion of the entire Work, the Contractor shall submit a requisition for the "contract balance". The Owner shall pay the remaining amount less the greater value of a lump sum of \$10,000 OR the sum of two times the value of any items to be completed plus an amount necessary to satisfy any outstanding Claims, liens or judgments against the Contractor. Until all remaining items of Work are satisfactory completed or corrected, the Owner may hold all retainage, including monies for all "uncompleted" items, until all items are completed and closeout submittals are complete.

§ 9.6.8.1 Contractors' requests for discontinuance of retainages shall be accompanied by a properly executed copy of the "Consent of Surety to Reduction in or Partial Release of Retainage", AIA Document G707A."

§ 9.7 Failure of Payment

If the Construction Manager persistently fails to issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner fails persistently to pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Construction Manager, then the Contractor may, upon thirty additional days' written notice to the Owner, Construction Manager, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Construction Manager a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Construction Manager's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the requirements of the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Construction Manager. In such case, the Contractor shall then submit a request for another inspection by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Construction Manager, determines that the Work or designated portion thereof is substantially complete, the Construction Manager will prepare, and the Construction Manager shall execute a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion or this Agreement.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Construction Manager as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a written notice that the Work is ready for final inspection and acceptance and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager will evaluate the completion of Work of the Contractor and then forward the notice and Application, to the Construction Manager who will

promptly make such inspection. When the Construction Manager, finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.1.1 If the Work is not accepted by the Owner after final inspection and additional time is required to complete items identified during the final inspection, the date starting the one-year correction period described in Article 12 shall be set by the Construction Manager at his discretion.

§ 9.10.1.2 If the Construction Manager is required to perform additional inspections subsequent to the "final inspection" because the Work fails to comply with the requirements of the Contract, the amount of compensation paid to the Construction Manager by the Owner for additional services shall be deducted from the final payment to the Contractor.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager so confirms, the Owner shall, upon application by the Contractor and certification by the Construction Manager, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.
- .4 costs, loss or damages sustained, either prior to or subsequent to such payment, as a result of any breach of the Contract, or any wrongful act or omission of the Contractor or any Subcontractor."

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to

the Construction Manager for review and coordination The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.1.1 Contractor is fully responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work and the Work site consistent with applicable laws and regulations, and generally accepted standards in the construction industry. Contractor acknowledges and agrees that it is fully responsible for the supervision and control of the Work and of Contractor's employees, subcontractors and/or suppliers, (and any party employed directly or indirectly by any of them, or for whom any of them are legally responsible) and the means, methods and manner in which the Work is performed.

§ 10.1.2 Contractor specifically agrees to provide all necessary equipment, give all required notices, perform all required tests, and to employ all necessary safety measures and procedures to protect its employees, agents, subcontractors, and all other persons at the Project site from any hazards created directly or indirectly by Contractor's operation or performance of the Work, and any hazards which are not created by Contractor's operations or performance of the Work to which such parties are exposed at the Project site as a result of Contractor's operations or performance of the Work. In the event that equipment or safety devices are required, Contractor agrees that it will obtain such equipment or safety devices and employ same at its sole expense, and will strictly adhere to all provisions of the Occupational Safety and Health Act, as well as any State statutes, codes, rules and regulations pertaining to the safety or property as may be deemed applicable to the Contractor's work or the work of any person or party directly or indirectly employed by Contractor or for whom contractor is responsible. Contractor agrees that it shall be Contractor's sole responsibility to ensure that each of its employees, subcontractors and suppliers are also fully aware and in compliance with all such statutes, codes, rules and regulations at all times.

§ 10.1.3 From the commencement until the acceptance of the Work, Contractor shall be solely responsible for the care of the Work covered by the Contract and for the materials, supplies and equipment delivered at the Site intended to be used in the Work, and all injury or damage to the same from whatever cause shall be made good at this expense before the final payment is made. He shall provide suitable means of protection for and shall protect all materials intended to be used in the Work, all work in progress, and all completed work. He shall take all necessary precautions to prevent injury or damage to the Work by flood, fire freezing or from inclemencies of the weather.

§ 10.1.4 Not by way of limitation of the foregoing, at the end of each work day, Contractor shall secure all power tools and other potentially dangerous tools and equipment and shall remove means of access to areas of the Work site, so as to further protect the safety of occupants of the premises during such off-work hours.

§ 10.1.5 Contractor's obligations under this paragraph are not dependent upon any question of negligence on his part or on the part of his officers, agents, servants or employees, and neither the approval by the Construction Manager or the Owner to Construction Manager to call attention to improper or inadequate methods or to require a change in methods nor the neglect of the Construction Manager or the Owner to direct Contractor to take any particular precautions or to refrain from doing any particular thing shall excuse the Contractor from his obligations hereunder in case of any such injury to person or damage to property. The provisions of this paragraph are intended for the sole benefit and protection of the Owner and shall not create any cause of action in favor of any person, corporation entity, other than the Owner."

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
- .4 construction or operations by the Owner or other Contractors.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

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

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

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4, except damage or loss attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Restoration. If during the construction, public or private property is damaged or destroyed during the course of his Work, the Prime Contractor responsible shall, at his own expense, restore such property to a condition equal to that existing before such damage or injury was done, by cleaning up, repairing, rebuilding or replacing it, or otherwise making good such damage or destruction in an acceptable manner.

§ 10.2.9 OSHA. In addition to all requirements set forth herein, all Contractors and Subcontractors who perform any Work under this Contract will fully comply with the provisions of the Federal Occupational Safety and Health Act (OSHA) of 1970 and with any rules and regulations pursuant to the Act. This requirement shall apply continuously and not be limited to normal Working hours. The duty of the Construction Manager to conduct construction review of the Contractor's or his Subcontractor's performance is not intended to include review of the adequacy of the Contractor's or his Subcontractor's safety measures in, on or near the construction site or buildings.

§ 10.2.10 Open Burning. Open burning on the site is prohibited. All possible precautions shall be taken to prevent fires.

§ 10.3 Hazardous Materials

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to, asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner, Construction Manager in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify a presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Construction Manager will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor or Construction Manager has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and, the Construction Manager have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resumed upon written agreement of the Owner and

Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

§ 10.4.1 In an emergency affecting life, the Work, or the Owner or Owner's property, Contractor, without special instructions or authorization from Construction Manager or Architect, shall take the action necessary to deal adequately with such emergency. Notice of any such action shall be given by Contractor to Construction Manager, Architect and Owner as soon as is practicable, but not later than 2 days following the occurrence.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Liability Insurance

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be submitted to the Construction Manager for transmittal to the Owner with a copy to the Architect prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness.

§ 11.1.3.1 The Contractor shall not commence Work at the project site under this Contract until Contractor has obtained all the insurance required herein and until such insurance has been accepted by the Owner, nor shall Work be commenced on their subcontracts until all similar insurance required of the Subcontractors has been obtained and accepted by the Owner.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Construction Manager, the Construction Manager's consultants, the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 Owner's Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 Property Insurance

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for the Architect's, Contractor's, and Construction Manager's services and expenses required as a result of such insured loss.

Each Contractor is responsible for all tools, equipment, materials, Work, etc., until Substantial Completion and possession by the Owner. Each Contractor shall provide insurance for theft as he may require for himself, his Subcontractors, and his employees' protection). The insurance coverage referred to in this subparagraph shall be in accordance with a standard Builder's Risk Policy used in the State where the project is located.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.3 **Loss of Use Insurance.** The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a Certificate of Insurance evidencing coverage required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 **Waivers of Subrogation.** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees each of the other, and (2) the Construction Manager, Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as the Owner and Contractor may have to the proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, Owner's separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.7.1 As relates to § 11.3, the Owner does not waive any rights of recovery or provide any waivers of subrogation for losses caused by negligent acts of the aforementioned parties. Any right of recovery or subrogation shall not affect payment of claims made by the Property Insurer to all the aforementioned parties including any negligent party.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved by the Owner and Contractor as set forth in the Agreement.

§ 11.4 Performance Bond and Payment Bond

§ 11.4.1 Each Contractor shall furnish Bonds covering the faithful performance of the Contract and the payment of all obligations arising thereunder in the amount of 100% of the accepted bid on the form indicated in the Information to Bidders, with such Sureties as may be agreeable to the Owner. The Premiums shall be paid by the Contractor.

§ 11.4.1.1 The Contractor shall deliver the required Bond dated as of the date of the Contract or applicable letter of intent, whichever is earlier, to the Owner no later than the date of execution of the Contract, or if the Work is commenced prior thereto in response to a Notice to Proceed, the Contractor shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such Bond will be issued."

§ 11.4.1.2 The Bonds shall be written on AIA Document A311, February 1970 Edition, Performance Bond and Labor and Material Payment Bond forms or such other forms as the Owner may approve. **NOTE:** *AIA Form A312 will not be accepted.*

§ 11.4.1.3 The Contractor shall require the attorney-in-fact who executes the required Bonds on behalf of the Surety to affix thereto a certified and current copy of the power of attorney.

§ 11.4.1.4 The Contractor Provide name and address of Surety for process of service as well as supply the contact information for the Surety representative responsible for the Bond, including the individual's name, address, telephone number, fax number and email address."

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their observation and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered which the Construction Manager or Architect has not specifically requested to observe prior to its being covered, the Construction Manager or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or one of the other Contractors in which event the Owner shall be responsible for payment of such costs.

§ 12.2 Correction of Work

§ 12.2.1 Before or After Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors or other Multiple Prime Contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

§ 12.3.1 The Owner, with the advice of the Construction Manager, shall determine the adjustment to the Contract Sum. The Contractor shall bear all direct, indirect and consequential costs attributable to the evaluation of and decision to accept such defective Work. Such costs for the efforts of the Architect (at their current billing rates) and any other costs to the Owner will be charged to the Contractor through Change Order procedures.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 Written Notice

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity or to an officer of the corporation for which it was intended; or if delivered at or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 Rights and Remedies

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Construction Manager, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

§ 13.5 Tests and Inspections

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Owner shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity, and shall bear all related costs of tests, inspections and approvals. The Contractor will be responsible for any retesting costs should the initial tests not meet the project requirements. The Contractor shall give the Construction Manager and Architect 48 hour notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may coordinate with the testing laboratory.

§ 13.5.2 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.3 If the Construction Manager or Architect is to observe tests, inspections or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.4 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at a rate of 1% per annum.

§ 13.7 Time Limits on Claims

The Owner and the Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the Agreement within the time period specified by applicable law. The Contractor waives all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .3 Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon twenty one days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.
- .5 files for bankruptcy or other debtor insolvency relief;
- .6 an act of omission by the Contractor that stops, delays, interferes with or damages the Work;
- .7 any other failure by the Contractor to perform any other terms and conditions of their Contract;
- .8 the authority of the Owner."

§ 14.2.2 When any of the above reasons exist, the Owner, after consultation with the Construction Manager, and upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and

- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

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

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

§ 14.4 Termination by the Owner for Convenience

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

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

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

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

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 **Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 **Notice of Claims.** Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Construction Manager and or Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.2.1 An additional Claim made after any initial Claim has been filed with the Owner and Architect will not be considered unless submitted in a timely manner and in accordance with Article 15."

§ 15.1.2.2 Any Claim shall be sufficiently detailed and descriptive to allow for a complete evaluation. The Contractor shall furnish any information requested by the Owner or Architect in connection with this investigation within ten (10) business days of that request. Failure to provide the requested information shall constitute a waiver of the Claim.

§ 15.1.2.3 All written Claims for additional cost, additional time, or damages shall include the time of occurrence, location and other identifying factors and shall be supported, at a minimum, by letters, photographs, journals and diaries, instructions or other pertinent and applicable records, as the Architect and Owner may require.”

§ 15.1.3 Continuing Contract Performance. Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Construction Manager will prepare Change Orders and the Architect will issue a Certificate for Payment or Project Certificate for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.3.

§ 15.1.5 Claims for Additional Time

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor’s Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 Claims for Consequential Damages. The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party’s termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.1.7 Limitation and Waiver of Money Damages. Notwithstanding anything else set forth in the Contract Documents or otherwise, the Owner shall not be liable to the Contractor and/or any Subcontractor for Claims or damages of any nature caused by or arising out of delays, impacts on schedule, schedule acceleration, schedule compression or by any breach of contract, delay in performance or other act of neglect by other Contractors or Subcontractors having Contracts for performance of any portion of Work. Except to the extent, if any, expressly prohibited by law the Contractor agrees not to make any Claim for such damages. The sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work, the amount of which shall be subject to the Claims procedure set forth herein. The Contractor understands that it hereby agrees not to make, and hereby waives, any Claim for damages for delay from any cause whatsoever, including but not limited to, those resulting from increased labor or material costs; schedule acceleration, schedule compression, directions given or not given by the Owner or Architect, including but not limited to scheduling and coordination of the Work; the Architect’s preparation of Drawings and Specifications; the Architect’s review of shop drawings and requests for instruction(2); or on account of any delay, obstruction or hindrance for any other cause whatsoever by the Owner, Architect or any other Contractor on the project whether or not foreseeable or anticipated. The Contractor agrees that no monetary recovery may be obtained by the Contractor for any of the foregoing against the Owner or the Architect based upon any reason, and it is emphasized that the Contractor’s sole remedy for any of the foregoing shall be an extension of time, if appropriate.”

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Construction Manager will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due or any Claims related to work performed prior to that date, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim or (6) submit a schedule to the parties indicating when the Construction Manager expects to take action.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect and Construction Manager, if the Architect or Construction Manager is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation to litigation.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 Claims that have not been satisfactorily resolved by other means shall be subject to litigation in accordance with law. The Contractor shall comply with any applicable statutory requirements regarding Notice of Claim and with any applicable Statute of Limitations provisions. In the event the Contractor serves a Notice of Claim to the Owner, the Owner may, as a condition precedent to litigation, require the Contractor to submit to an examination under oath by an attorney or other representative of the Owner, and to provide documentary evidence reasonably requested in connection with the examination. The venue of any litigation shall be New York State Supreme Court in the county in which the Project is located. The prevailing party of the litigation shall be entitled to reasonable attorneys' fees and necessary disbursements.

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APPENDIX A

STANDARD CLAUSES FOR NEW YORK STATE CONTRACTS

PLEASE RETAIN THIS DOCUMENT
FOR FUTURE REFERENCE.

TABLE OF CONTENTS

| | Page |
|--|-------------|
| 1. Executory Clause | 3 |
| 2. Non-Assignment Clause | 3 |
| 3. Comptroller's Approval | 3 |
| 4. Workers' Compensation Benefits | 3 |
| 5. Non-Discrimination Requirements | 3 |
| 6. Wage and Hours Provisions | 3-4 |
| 7. Non-Collusive Bidding Certification | 4 |
| 8. International Boycott Prohibition | 4 |
| 9. Set-Off Rights | 4 |
| 10. Records | 4 |
| 11. Identifying Information and Privacy Notification | 4 |
| 12. Equal Employment Opportunities For Minorities and Women | 4-5 |
| 13. Conflicting Terms | 5 |
| 14. Governing Law | 5 |
| 15. Late Payment | 5 |
| 16. No Arbitration | 5 |
| 17. Service of Process | 5 |
| 18. Prohibition on Purchase of Tropical Hardwoods | 5-6 |
| 19. MacBride Fair Employment Principles | 6 |
| 20. Omnibus Procurement Act of 1992 | 6 |
| 21. Reciprocity and Sanctions Provisions | 6 |
| 22. Compliance with Breach Notification and Data Security Laws | 6 |
| 23. Compliance with Consultant Disclosure Law | 6 |
| 24. Procurement Lobbying | 7 |
| 25. Certification of Registration to Collect Sales and Compensating Use Tax by Certain State Contractors, Affiliates and Subcontractors | 7 |
| 26. Iran Divestment Act | 7 |
| 27. Admissibility of Contract | 7 |

STANDARD CLAUSES FOR NYS CONTRACTS

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "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 other than the State, whether a contractor, licenser, licensee, lessor, lessee or any other party):

1. EXECUTORY CLAUSE. In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.

2. NON-ASSIGNMENT CLAUSE. In accordance with Section 138 of the State Finance Law, this contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or otherwise disposed of without the State's previous written consent, and attempts to do so are null and void. Notwithstanding the foregoing, such prior written consent of an assignment of a contract let pursuant to Article XI of the State Finance Law may be waived at the discretion of the contracting agency and with the concurrence of the State Comptroller where the original contract was subject to the State Comptroller's approval, where the assignment is due to a reorganization, merger or consolidation of the Contractor's business entity or enterprise. The State retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with the State. The Contractor may, however, assign its right to receive payments without the State's prior written consent unless this contract concerns Certificates of Participation pursuant to Article 5-A of the State Finance Law.

3. COMPTROLLER'S APPROVAL. In accordance with Section 112 of the State Finance Law (or, if this contract is with the State University or City University of New York, Section 355 or Section 6218 of the Education Law), if this contract exceeds \$50,000 (or the minimum thresholds agreed to by the Office of the State Comptroller for certain S.U.N.Y. and C.U.N.Y. contracts), or if this is an amendment for any amount to a contract which, as so amended, exceeds said statutory amount, or if, by this contract, the State agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds \$25,000, it shall not be valid, effective or binding upon the State until it has been approved by the State Comptroller and filed in his office. Comptroller's approval of contracts let by the Office of General Services is required when such contracts exceed \$85,000 (State Finance Law § 163.6-a). However, such pre-approval shall not be required for any contract established as a centralized contract through the Office of General Services or for a purchase order or other transaction issued under such centralized contract.

4. WORKERS' COMPENSATION BENEFITS. In accordance with Section 142 of the State Finance Law, 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 Workers' Compensation Law.

5. NON-DISCRIMINATION REQUIREMENTS. To the extent required by Article 15 of the 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, nor subject any individual to harassment, because of age, race, creed, color, national origin, sexual orientation, gender identity or expression, military status, sex, disability, predisposing genetic characteristics, familial status, 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 Section 220-e of the Labor Law, 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 Section 230 of the Labor Law, then, in accordance with Section 239 thereof, 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. Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

6. WAGE AND HOURS PROVISIONS. If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither 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 Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, 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 Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-

a of Section 220 of the Labor Law shall be a condition precedent to payment by the State of any State approved sums due and owing for work done upon the project.

7. NON-COLLUSIVE BIDDING CERTIFICATION. In accordance with Section 139-d of the State Finance Law, if this contract was awarded based upon the submission of bids, Contractor affirms, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to the State a non-collusive bidding certification on Contractor's behalf.

8. INTERNATIONAL BOYCOTT PROHIBITION. In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds \$5,000, the Contractor agrees, as a material condition of the 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. Sections 2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of 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 State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2 NYCRR § 105.4).

9. SET-OFF RIGHTS. The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State'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 to the State with regard to this contract, any other contract with any State department or agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by the State agency, its representatives, or the State Comptroller.

10. RECORDS. The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, the "Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the

agency or agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The State shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform an appropriate State official, in writing, that said records should not be disclosed; and (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 State's right to discovery in any pending or future litigation.

11. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION. (a) Identification Number(s). Every invoice or New York State Claim for Payment submitted to a New York State agency by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following: (i) the payee's Federal employer identification number, (ii) the payee's Federal social security number, and/or (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System. Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

(b) Privacy Notification. (1) 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 Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the State 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 Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law. (2) The personal information is requested by the purchasing unit of the agency contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN. In accordance with Section 312 of the Executive Law and 5 NYCRR Part 143, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of

\$25,000.00, whereby a contracting agency 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 contracting agency; or (ii) a written agreement in excess of \$100,000.00 whereby a contracting agency 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 \$100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this agreement 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, shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State 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. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;

(b) at the request of the contracting agency, 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; and

(c) the Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State 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.

Contractor will include the provisions of "a," "b," and "c" above, in every subcontract over \$25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the 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 State shall consider compliance by a contractor or subcontractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this clause. The

contracting agency 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 contracting agency shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will 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 hereto.

13. 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.

14. GOVERNING LAW. This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

15. LATE PAYMENT. Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.

16. 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.

17. SERVICE OF PROCESS. In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

18. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS. The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of Section 165 of the State Finance Law, (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 State.

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 § 165 State Finance Law. Any such use must meet with the approval of the State; 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 State.

19. 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 Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.

20. 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
Albany, New York 12245
Telephone: 518-292-5100
Fax: 518-292-5884
email: opa@esd.ny.gov

A directory of certified minority- and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
633 Third Avenue
New York, NY 10017
212-803-2414
email: mwbecertification@esd.ny.gov
<https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp>

The Omnibus Procurement Act of 1992 (Chapter 844 of the Laws of 1992, codified in State Finance Law § 139-i and Public Authorities Law § 2879(3)(n)-(p)) requires that by signing this bid proposal or contract, as applicable, Contractors certify 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 State;

(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 New York State 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 State upon request; and

(d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

21. 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 (Chapter 684 and Chapter 383, respectively, codified in State Finance Law § 165(6) and Public Authorities Law § 2879(5))) require that they be denied contracts which they would otherwise obtain. 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.

22. COMPLIANCE WITH BREACH NOTIFICATION AND DATA SECURITY LAWS. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law § 899-aa and State Technology Law § 208) and commencing March 21, 2020 shall also comply with General Business Law § 899-bb.

23. COMPLIANCE WITH CONSULTANT DISCLOSURE LAW. If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental, health, and mental health services, accounting, auditing, paralegal, legal or similar services, then, in accordance with Section 163 (4)(g) of the State Finance Law (as amended by Chapter 10 of the Laws of 2006), the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to the agency that awarded the contract, the Department of Civil Service and the State Comptroller.

24. PROCUREMENT LOBBYING. To the extent this agreement is a "procurement contract" as defined by State Finance Law §§ 139-j and 139-k, by signing this agreement the contractor certifies and affirms that all disclosures made in accordance with State Finance Law §§ 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement.

25. 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 covered agency, 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 covered agency determines that such action is in the best interest of the State.

26. IRAN DIVESTMENT ACT. By entering into this Agreement, Contractor certifies in accordance with State Finance Law § 165-a that it is not on the "Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012" ("Prohibited Entities List") posted at: <https://ogs.ny.gov/list-entities-determined-be-non-responsive-biddersofferers-pursuant-nys-iran-divestment-act-2012>

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 State.

During the term of the Contract, should the state agency receive information that a person (as defined in State Finance Law § 165-a) is in violation of the above-referenced certifications, the state agency 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 state agency 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.

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

27. 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.

SPECIAL CONDITIONS INSURANCE REQUIREMENTS

In accordance with the insurance coverages described in Article 11 of the 2007 AIA Document A232 General Conditions of the Contract for Construction, the Contractor and each subcontractor shall procure and maintain at his own expense and without expense to the CITY OF HUDSON, insurance of at least the kinds and amounts as hereinafter specified.

Within the time period set by the CITY OF HUDSON after award of the Contract, and before the effective date of the Agreement, the Contractor shall cause the authorized representative of the insurance company to completely fill out and execute the Certificate of Insurance form which is bound with the Agreement section of the Contract Documents, such instrument certifying the kinds and amounts of insurance being issued, including statement that coverage provided under the policies will not be canceled or materially changed until at least 30 days prior written notice has been given to the CITY OF HUDSON. The Contractor shall also furnish the CITY OF HUDSON one (1) duplicate of the original policy covering each kind of insurance issued. Each subcontractor shall follow the identical procedure, and she/he shall not commence work until the Certificate of Insurance, including any requested duplicate policies, has been submitted to and approved by the CITY OF HUDSON. The Contractor shall furnish to the CITY OF HUDSON insurance certificates for all subcontractors with the amount of insurance as required herein. Contractor shall include New York Construction Certificate of Liability Insurance Addendum – Accord Form 855 with the Certificate of Insurance.

All claims against the Contractor or his subcontractors, arising from the performance of the work or conditions incidental thereto, must be investigated immediately by the insurance company furnishing the applicable coverage. The Contractor shall require the insurance company to furnish, to the Construction Manager and CITY OF HUDSON, written reports following the investigation and the disposition of each claim or demand by the CITY OF HUDSON; a status report shall be provided to the CITY OF HUDSON and Construction Manager on all claims more than two months outstanding.

All insurance coverage furnished by subcontractors shall remain in force until their work has been completed and the subcontractor does not intend to gain further access to the site, and the Contractor has released said subcontractor from further liability associated therewith. All liability insurance furnished by the Contractor shall remain in force during the time intervals defined Article 8 – Time in General Conditions of the Contract for Construction and Supplementary Conditions. All property insurance furnished by Contractor shall remain in force until CITY OF HUDSON approves Construction Manager's Certificate of Substantial Completion and has made final payment to Contractor.

The kinds and amounts of insurance are as follows:

1. Worker's Compensation and Employer's Liability

A policy shall be issued in compliance with the provisions of the Worker's Compensation Law.

Non-Occupational Disability Benefits

A policy shall be issued in compliance with the provisions of the Disability Benefits Law.

2. Comprehensive General Liability, having limits of not less than:

| | |
|---|-------------|
| General Aggregate (except Products Complete & Operations) | \$2,000,000 |
| Products Complete & Operations Aggregate | \$1,000,000 |

BODILY INJURY LIABILITY + PROPERTY DAMAGE LIABILITY

| | |
|-----------------------|--------------------------------|
| Combined single limit | \$1,000,000.00 Each Occurrence |
| | \$2,000,000.00 Aggregate |

for all damages arising during the life of the Contract, and shall include at least the following designated hazards:

- a) Premises and Operations
- b) Independent Contractors
- c) Completed Operations, including products

- d) Broad Form Property Damage, including "XCU" (explosion, collapse, and underground)
- e) Contractual Liability, covering indemnification assumed per requirements of Article 11 (paragraphs 11.1.1-11.1.4) of AIA Document A201 -2007 General Conditions of the Contract for Construction and Supplementary Conditions.
- f) Fire damage.
- g) Personal and Advertising Injury with Employment Exclusion deleted.
- h) Labor Law coverage is mandatory for all General Liability Policies.

Completed projects shall carry General Liability coverage for 2 years after substantial completion.

3. Pollution/Special Hazards Liability

Provide coverage for legal liability and expense for damage to property or bodily injury and death with respect to the removal, disturbance, handling, and disposal of contaminated or hazardous materials under this contract by the Contractor or any person or organization employed directly or indirectly by the Contractor. (NOTE: This coverage is required only for those contracts which contain work involving Asbestos Abatement Lead Hazard Control work, PCB Containing Material Removal, or Petroleum Remediation.)

Combined single limit \$1,000,000.00 Each Occurrence
\$2,000,000.00 Aggregate

4. Comprehensive Automobile Liability (including non-owned and hire automobiles), having limits of liability not less than \$1,000,000.00.

5. Excess Liability (mandatory)

\$ 2,000,000.00 for Contracts under \$2,000,000.00
\$ 5,000,000.00 for Contracts exceeding \$2,000,000.00
\$10,000,000.00 for Contracts exceeding \$7,000,000.00
\$15,000,000.00 for Contracts exceeding \$10,000,000.00

Labor Law Coverage is mandatory for all Excess Liability Policies

6. Property Insurance (Builders Risk/Installation Floater): To be provided by the CITY OF HUDSON.

7. CITY OF HUDSON's Protective Liability

Furnish to the CITY OF HUDSON complete CITY OF HUDSON's Protective Liability Insurance in the amounts specified in Coverage "2" (above) for Personal Bodily Injury Liability Insurance and for Property Damage Liability Insurance.

8. Additional Coverages

The CITY OF HUDSON, the Landscape Architect, and Construction Manager along with their respective officers, agents, and employees shall be named as additional insureds for ongoing operations and products/completed operations on all Contractors' commercial general liability policies which must be primary and non-contributory with respect to additional insured's.

9. Per Project Aggregate

Provide full aggregate general liability limits of each project.

10. Waiver of Subrogation

To the fullest extent permitted by state law, a waiver of subrogation clause shall be added to the general liability, auto, and worker's compensation policies in favor of the CITY OF HUDSON, his officers, agents, or employees with respect to this project.

END OF SECTION

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NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

You have selected the For-Profit Construction questionnaire, commonly known as the “CCA-2,” which may be printed and completed in this format or, **for your convenience, may be completed online using the [New York State VendRep System](#).**

COMPLETION & CERTIFICATION

The person(s) completing the questionnaire must be knowledgeable about the vendor’s business and operations. An owner or official must certify the questionnaire and the signature must be notarized.

NEW YORK STATE VENDOR IDENTIFICATION NUMBER (VENDOR ID)

The Vendor ID is a ten-digit identifier issued by New York State when the vendor is registered on the Statewide Vendor File. This number must now be included on the questionnaire. If the business entity has not obtained a Vendor ID, contact the IT Service Desk at ITServiceDesk@osc.state.ny.us or call 866-370-4672.

DEFINITIONS

All underlined terms are defined in the “New York State Vendor Responsibility Definitions List,” found at <http://www.osc.state.ny.us/vendrep/documents/questionnaire/definitions.pdf>. These terms may not have their ordinary, common or traditional meanings. Each vendor is strongly encouraged to read the respective definitions for any and all underlined terms. By submitting this questionnaire, the vendor agrees to be bound by the terms as defined in the “New York State Vendor Responsibility Definitions List” existing at the time of certification.

RESPONSES

Every question must be answered. Each response must provide all relevant information which can be obtained within the limits of the law. However, information regarding a determination or finding made in error which was subsequently corrected or overturned, and/or was withdrawn by the issuing government entity, is not required. Individuals and Sole Proprietors may use a Social Security Number but are encouraged to obtain and use a federal Employer Identification Number (EIN).

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

BUSINESS ENTITY INFORMATION

| | | | | |
|---|------|--|-----------------------------|--------|
| <u>Legal Business Name</u> | | <u>EIN</u> _____ | | |
| Address of the <u>Principal Place of Business</u> (street, city, state, zip code) | | <u>New York State Vendor Identification Number</u> | | |
| | | Telephone ext. | Fax | |
| | | Website | | |
| Authorized Contact for this Questionnaire | | | | |
| Name | | Telephone ext. | Fax | |
| Title | | Email | | |
| Additional <u>Business Entity</u> Identities: If applicable, list any other <u>DBA</u> , <u>Trade Name</u> , <u>Former Name</u> , Other Identity, or <u>EIN</u> used in the last five (5) years, the state or county where filed and the status (active or inactive). | | | | |
| Type | Name | EIN | State or County where filed | Status |
| | | | | |
| | | | | |

I. BUSINESS CHARACTERISTICS

| | | | |
|---|-----------------------------|---------------------------|--|
| 1.0 <u>Business Entity</u> Type – Check appropriate box and provide additional information: | | | |
| a) <input type="checkbox"/> <u>Corporation</u> (including <u>PC</u>) | Date of Incorporation | | |
| b) <input type="checkbox"/> <u>Limited Liability Company</u> (LLC or PLLC) | Date Organized | | |
| c) <input type="checkbox"/> <u>Limited Liability Partnership</u> | Date of Registration | | |
| d) <input type="checkbox"/> <u>Limited Partnership</u> | Date Established | | |
| e) <input type="checkbox"/> <u>General Partnership</u> | Date Established | County (if formed in NYS) | |
| f) <input type="checkbox"/> <u>Sole Proprietor</u> | How many years in business? | | |
| g) <input type="checkbox"/> Other | Date Established | | |
| If Other, explain: | | | |
| 1.1 Was the <u>Business Entity</u> formed in New York State? | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If “No,” indicate jurisdiction where the <u>Business Entity</u> was formed: | | | |
| <input type="checkbox"/> United States | State | | |
| <input type="checkbox"/> Other | Country | | |

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

| I. BUSINESS CHARACTERISTICS | | | |
|--|-------|--|--|
| 1.2 Is the <u>Legal Business Entity</u> publicly traded? | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If "Yes," provide the <u>CIK code</u> or Ticker Symbol: | | | |
| 1.3 Is the <u>Business Entity</u> currently <u>registered to do business in New York State</u> ? | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <i>Note: Select "Not Required" if the Business Entity is a Sole Proprietor or General Partnership</i> | | | <input type="checkbox"/> Not Required |
| If "No," explain why the <u>Business Entity</u> is not required to be <u>registered to do business in New York State</u> : | | | |
| 1.4 Is the responding <u>Business Entity</u> a <u>Joint Venture</u> ? Note: If the submitting <u>Business Entity</u> is a <u>Joint Venture</u> , also submit a separate questionnaire for each <u>Business Entity</u> comprising the <u>Joint Venture</u> . | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 1.5 If the <u>Business Entity's</u> <u>Principal Place of Business</u> is not in New York State, does the <u>Business Entity</u> maintain an office in New York State? | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <i>(Select "N/A" if <u>Principal Place of Business</u> is in New York State.)</i> | | | <input type="checkbox"/> N/A |
| If "Yes," provide the address and telephone number for one office located in New York State. | | | |
| 1.6 Is the Business Entity a New York State certified <u>Minority-Owned Business Enterprise</u> , or <u>Women-Owned Business Enterprise</u> , or <u>New York State Small Business</u> , or federally certified <u>Disadvantaged Business Enterprise</u> ? | | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If "Yes," check all that apply: <input type="checkbox"/> New York State certified <u>Minority-Owned Business Enterprise</u> (MBE) <input type="checkbox"/> New York State certified <u>Women-Owned Business Enterprise</u> (WBE) <input type="checkbox"/> <u>New York State Small Business</u> <input type="checkbox"/> Federally certified <u>Disadvantaged Business Enterprise</u> (DBE) | | | |
| 1.7 Identify each person or business entity that is, or has been within the past five (5) years, <u>Principal Owner</u> of 5.0% or more of the firm's shares; a Business Entity Official; or one of the five largest shareholders, if applicable. <i>(Attach additional pages if necessary.)</i> <u>Joint Ventures</u> : Provide information for all firms involved. | | | |
| Name <i>(For each person, include middle initial)</i> | Title | Percentage of ownership (Enter 0%, if not applicable) | Employment status with the firm |
| | | | <input type="checkbox"/> Current <input type="checkbox"/> Former |
| | | | <input type="checkbox"/> Current <input type="checkbox"/> Former |
| | | | <input type="checkbox"/> Current <input type="checkbox"/> Former |
| | | | <input type="checkbox"/> Current <input type="checkbox"/> Former |

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

II. AFFILIATE and JOINT VENTURE RELATIONSHIPS

| | |
|--|--|
| 2.0 Are there any other <u>construction</u> -related firms in which, now or in the past five years, the submitting <u>Business Entity</u> or any of the individuals or business entities listed in question 1.7 either owned or owns 5.0% or more of the shares of, or was or is one of the five largest shareholders or a director, officer, partner or proprietor of said other firm? <i>(Attach additional pages if necessary.)</i> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|--|--|

| | | |
|-------------------|------------------------------------|--|
| Firm/Company Name | Firm/Company EIN (If available) | Firm/Company's Primary Business Activity |
| | | |

Firm/Company Address

Explain relationship with the firm and indicate percent of ownership, if applicable (enter N/A, if not applicable):

| | |
|---|--|
| Are there any shareholders, directors, officers, owners, partners or proprietors that the submitting <u>Business Entity</u> has in common with this firm? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|---|--|

| | |
|---|----------------------------------|
| Individual's Name <i>(Include middle initial)</i> | Position/Title with Firm/Company |
|---|----------------------------------|

| | |
|--|--|
| 2.1 Does the <u>Business Entity</u> have any <u>construction</u> -related <u>affiliates</u> not identified in the response to question 2.0 above? <i>(Attach additional pages if necessary.)</i> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|--|--|

| | | |
|----------------|------------------------------|---------------------------------------|
| Affiliate Name | Affiliate EIN (If available) | Affiliate's Primary Business Activity |
|----------------|------------------------------|---------------------------------------|

Affiliate Address

Explain relationship with the affiliate and indicate percent of ownership, if applicable *(enter N/A, if not applicable)*:

| | |
|---|--|
| Are there any shareholders, directors, officers, owners, partners or proprietors that the submitting Business Entity has in common with this affiliate? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|---|--|

| | |
|---|----------------------------------|
| Individual's Name <i>(Include middle initial)</i> | Position/Title with Firm/Company |
|---|----------------------------------|

| | |
|---|--|
| 2.2 Has the <u>Business Entity</u> participated in any <u>construction-related Joint Ventures</u> within the past three (3) years? <i>(Attach additional pages if necessary.)</i> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|---|--|

| | | |
|--------------------|----------------------------------|---------------------------------------|
| Joint Venture Name | Joint Venture EIN (If available) | Identify parties to the Joint Venture |
|--------------------|----------------------------------|---------------------------------------|

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

III. CONTRACT HISTORY

3.0 Has the Business Entity completed any construction contracts? ☐ Yes ☐ No

If "Yes," list the ten most recent construction contracts the Business Entity has completed using Attachment A – Completed Construction Contracts, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3294s.doc.

If less than ten, include most recent subcontracts on projects up to that number.

3.1 Does the Business Entity currently have uncompleted construction contracts? ☐ Yes ☐ No

If "Yes," list all current uncompleted construction contracts by using Attachment B – Uncompleted Construction Contracts, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3295s.doc.

Note: Ongoing projects must be included.

IV. INTEGRITY – CONTRACT BIDDING

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

4.0 Been suspended or debarred from any government contracting process or been disqualified on any government procurement? ☐ Yes ☐ No

4.1 Been subject to a denial or revocation of a government prequalification? ☐ Yes ☐ No

4.2 Had any bid rejected by a government entity for lack of qualifications, responsibility or because of the submission of an informal, non-responsive or incomplete bid? ☐ Yes ☐ No

4.3 Had a proposed subcontract rejected by a government entity for lack of qualifications, responsibility or because of the submission of an informal, non-responsive or incomplete bid? ☐ Yes ☐ No

4.4 Had a low bid rejected on a government contract for failure to make good faith efforts on any Minority-Owned Business Enterprise, Women-Owned Business Enterprise or Disadvantaged Business Enterprise goal or statutory affirmative action requirements on a previously held contract? ☐ Yes ☐ No

4.5 Agreed to a voluntary exclusion from bidding/contracting with a government entity? ☐ Yes ☐ No

4.6 Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity? ☐ Yes ☐ No

For each "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, project(s), relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

V. INTEGRITY – CONTRACT AWARD

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

5.0 Defaulted on or been suspended, cancelled or terminated for cause on any contract? ☐ Yes ☐ No

5.1 Been subject to an administrative proceeding or civil action seeking specific performance or restitution (except any disputed work proceeding) in connection with any government contract? ☐ Yes ☐ No

5.2 Entered into a formal monitoring agreement, consent decree or stipulation settlement as specified by, or agreed to with, any government entity? ☐ Yes ☐ No

5.3 Had its surety called upon to complete any contract whether government or private sector? ☐ Yes ☐ No

5.4 Forfeited all or part of a standby letter of credit in connection with any government contract? ☐ Yes ☐ No

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

V. INTEGRITY – CONTRACT AWARD

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

For each “Yes,” provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity/owners involved, project(s), contract number(s), relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

VI. CERTIFICATIONS/LICENSES

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

- | | |
|--|--|
| 6.0 Had a revocation or <u>suspension</u> of any business or professional permit and/or license? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 6.1 Had a denial, decertification, revocation or forfeiture of New York State certification of <u>Minority-Owned Business Enterprise</u> , <u>Women-Owned Business Enterprise</u> or a federal certification of <u>Disadvantaged Business Enterprise</u> status, for other than a change of ownership? | <input type="checkbox"/> Yes <input type="checkbox"/> No |

For each “Yes,” provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

VII. LEGAL PROCEEDINGS/GOVERNMENT INVESTIGATIONS

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

- | | |
|--|--|
| 7.0 Been the subject of a criminal <u>investigation</u> , whether open or closed, or an indictment for any business-related conduct constituting a crime under local, state or <u>federal</u> law? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 7.1 Been the subject of: (i.) An indictment, grant of immunity, <u>judgment</u> or conviction (including entering into a plea bargain) for conduct constituting a crime; or (ii.) Any criminal <u>investigation</u> , felony indictment or conviction concerning the formation of, or any business association with, an allegedly false or fraudulent <u>Minority-Owned Business Enterprise</u> , <u>Women-Owned Business Enterprise</u> , or a <u>Disadvantaged Business Enterprise</u> ? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 7.2 Received any <u>OSHA</u> citation, which resulted in a final determination classified as <u>serious</u> or <u>willful</u> ? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 7.3 Had a <u>government entity</u> find a willful prevailing wage or supplemental payment violation? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 7.4 Had a New York State Labor Law violation deemed willful? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 7.5 Entered into a consent order with the New York State Department of Environmental Conservation, or a <u>federal</u> , state or local government enforcement determination involving a violation of <u>federal</u> , state or local environmental laws? | <input type="checkbox"/> Yes <input type="checkbox"/> No |

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

VII. LEGAL PROCEEDINGS/GOVERNMENT INVESTIGATIONS

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

| | |
|--|--|
| <p>7.6 Other than previously disclosed, been the subject of any <u>citations</u>, notices or violation orders; a pending administrative hearing, proceeding or determination of a violation of:</p> <ul style="list-style-type: none"> • <u>Federal</u>, state or local health laws, rules or regulations; • <u>Federal</u>, state or local environmental laws, rules or regulations; • Unemployment insurance or workers compensation coverage or <u>claim</u> requirements; • Any labor law or regulation, which was deemed willful; • Employee Retirement Income Security Act (ERISA); • <u>Federal</u>, state or local human rights laws; • <u>Federal</u>, state or local security laws? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|--|--|

For each "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

Note: Information regarding a determination or finding made in error, which was subsequently corrected or overturned, and/or was withdrawn by the issuing government entity, is not required.

VIII. LEADERSHIP INTEGRITY

If the Business Entity is a Joint Venture Entity, answer "N/A - Not Applicable" to questions in this section.

Within the past five (5) years has any individual previously identified or any individual currently or formerly having the authority to sign, execute or approve bids, proposals, contracts or supporting documentation on behalf of the Business Entity with any government entity been:

| | |
|--|--|
| <p>8.0 <u>Sanctioned</u> relative to any business or professional permit and/or license?</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| <p>8.1 <u>Suspended</u>, <u>debarred</u> or <u>disqualified</u> from any <u>government contracting process</u>?</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| <p>8.2 The subject of a criminal <u>investigation</u>, whether open or closed, or an indictment for any business-related conduct constituting a crime under local, state or <u>federal</u> law?</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| <p>8.3 Charged with a misdemeanor or felony, indicted, granted immunity, convicted of a crime or subject to a judgment for:</p> <ul style="list-style-type: none"> (i.) Any business-related activity, including but not limited to fraud, coercion, extortion, bribe or bribe-receiving, giving or accepting unlawful gratuities, immigration or tax fraud, racketeering, mail fraud, wire fraud, price-fixing or collusive bidding; or (ii.) Any crime, whether or not business-related, the underlying conduct of which related to truthfulness, including but not limited to the filing of false documents or false sworn statements, perjury or larceny | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |

For each "Yes," provide an explanation of the issue(s), the individual involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

IX. FINANCIAL AND ORGANIZATIONAL CAPACITY

9.0 Within the past five (5) years, has the Business Entity or any affiliate received any formal unsatisfactory performance assessment(s) from any government entity on any contract? ☐ Yes ☐ No

If "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.

9.1 Within the past five (5) years, has the Business Entity or any affiliate had any liquidated damages assessed over \$25,000? ☐ Yes ☐ No

If "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the contracting party involved, the amount assessed and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.

9.2 Within the past five (5) years, has the Business Entity or any affiliate had any liens, claims or judgments over \$25,000 filed against the Business Entity which remain undischarged or were unsatisfied for more than 90 days? (Note: Including but not limited to tax warrants or liens. Do not include UCC filings.) ☐ Yes ☐ No

If "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the Lien holder or Claimants' name(s), the amount of the lien(s) and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.

9.3 In the last seven (7) years, has the Business Entity or any affiliate initiated or been the subject of any bankruptcy proceedings, whether or not closed, or is any bankruptcy proceeding pending? ☐ Yes ☐ No

If "Yes," provide the Business Entity involved, the relationship to the submitting Business Entity, the bankruptcy chapter number, the court name and the docket number. Indicate the current status of the proceedings as "Initiated," "Pending" or "Closed." Provide answer below or attach additional sheets with numbered responses.

9.4 What is the Business Entity's Bonding Capacity?

a. Single Project

b. Aggregate (All Projects)

9.5 List Business Entity's Gross Sales for the previous three (3) Fiscal Years:

1st Year (Indicate year)
Gross Sales

2nd Year (Indicate year)
Gross Sales

3rd Year (Indicate year)
Gross Sales

9.6 List Business Entity's Average Backlog for the previous three (3) fiscal years:
(Estimated total value of uncompleted work on outstanding contracts)

1st Year (Indicate year)
Amount

2nd Year (Indicate year)
Amount

3rd Year (Indicate year)
Amount

9.7 Attach Business Entity's most recent annual financial statement and accompanying notes or complete Attachment C – Financial Information, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3296s.xls.
(This information must be attached.)

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR-PROFIT CONSTRUCTION (CCA-2)**

X. FREEDOM OF INFORMATION LAW (FOIL)

10.0 Indicate whether any information provided herein is believed to be exempt from disclosure under the Freedom of Information Law (FOIL).

☐ Yes ☐ No

Note: A determination of whether such information is exempt from FOIL will be made at the time of any request for disclosure under FOIL. Attach additional pages if necessary.

If "Yes," indicate the question number(s) and explain the basis for the claim.

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NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

Certification

The undersigned: (1) recognizes that this questionnaire is submitted for the express purpose of assisting New York State government entities (including the Office of the State Comptroller (OSC)) in making responsibility determinations regarding award or approval of a contract or subcontract and that such government entities will rely on information disclosed in the questionnaire in making responsibility determinations; (2) acknowledges that the New York State government entities and OSC may, in their discretion, by means which they may choose, verify the truth and accuracy of all statements made herein; and (3) acknowledges that intentional submission of false or misleading information may result in criminal penalties under State and/or Federal Law, as well as a finding of non-responsibility, contract suspension or contract termination.

The undersigned certifies that he/she:

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

Signature of Owner/Official _____

Printed Name of Signatory _____

Title _____

Name of Business _____

Address _____

City, State, Zip _____

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

_____ Notary Public

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NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT A – COMPLETED CONSTRUCTION CONTRACTS

Vendor Name:

NYS Vendor ID:

| Question 3.0: List the ten most recent construction contracts the Business Entity has completed. If less than ten, include most recent subcontracts on projects up to that number: | | | | | | | |
|---|----------------|--------------|--|--|------------|--------------------------|----------------|
| 1. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| 2. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| 3. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| 4. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| 5. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |

NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT A – COMPLETED CONSTRUCTION CONTRACTS

Vendor Name:

NYS Vendor ID:

| Question 3.0: List the ten most recent construction contracts the Business Entity has completed. If less than ten, include most recent subcontracts on projects up to that number: | | | | | | | |
|---|----------------|--------------|--|--|------------|--------------------------|----------------|
| 6. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| 7. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| 8. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| 9. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| 10. | Agency/Owner | | | | Award Date | Amount | Date Completed |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |

NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT B – UNCOMPLETED CONSTRUCTION CONTRACTS

Vendor Name:**NYS Vendor ID:****Question 3.1: List all current uncompleted construction contracts:**

| | | | | | | | |
|-----------|----------------|--------------|--|--|--|--------------------|--------------------------|
| 1. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | | EIN of JV, if applicable |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |
| 2. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | | EIN of JV, if applicable |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |
| 3. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | | EIN of JV, if applicable |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |
| 4. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | | EIN of JV, if applicable |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |

NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT B – UNCOMPLETED CONSTRUCTION CONTRACTS

Vendor Name:**NYS Vendor ID:****Question 3.1: List all current uncompleted construction contracts:**

| | | | | | | | |
|-----------|----------------|--------------|--|--|--|--------------------|--------------------------|
| 5. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | | EIN of JV, if applicable |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |
| 6. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | | EIN of JV, if applicable |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |
| 7. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | | EIN of JV, if applicable |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |
| 8. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | | EIN of JV, if applicable |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |

NEW YORK STATE
VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT B – UNCOMPLETED CONSTRUCTION CONTRACTS

Vendor Name:**NYS Vendor ID:****Question 3.1: List all current uncompleted construction contracts:**

| | | | | | | | |
|------------|----------------|--------------|--|--|--|--------------------------|-----------------|
| 9. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |
| 10. | Agency/Owner | | | | | Award Date | Completion Date |
| | Contact Person | | Telephone No. | Designer Architect and /or Design Engineer | | | |
| | Contract No. | Prime or Sub | Joint Venture (JV) Name, if applicable | | | EIN of JV, if applicable | |
| | | | Total Contract Amount | Amount Sublet to others | | Uncompleted Amount | |

| | |
|--|---------------|
| Grand Total All Uncompleted Contracts | \$0.00 |
|--|---------------|

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**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION**

NYS Vendor ID: _____

As of Date: _____

ASSETS

Current Assets

| | | | | |
|--|----|-------|-------|------------|
| 1. Cash | | \$ | _____ | - |
| 2. Accounts receivable - less allowance for doubtful accounts | \$ | _____ | - | |
| Retainers included in accounts receivable | \$ | _____ | - | |
| Claims included in accounts receivable not yet approved or in litigation | \$ | _____ | - | |
| Total Accounts Receivable | | \$ | _____ | - |
| 3. Notes receivable - due within one year | | \$ | _____ | - |
| 4. Inventory - materials | | \$ | _____ | - |
| 5. Contract costs in excess of billings on uncompleted contracts | | \$ | _____ | - |
| 6. Accrued income receivable | | | | |
| Interest | \$ | _____ | - | |
| Other (list) _____ | \$ | _____ | - | |
| _____ | \$ | _____ | - | |
| Total Accrued Income Receivable | | \$ | _____ | - |
| 7. Deposits | | | | |
| Bid and Plan _____ | \$ | _____ | - | |
| Other (list) _____ | \$ | _____ | - | |
| _____ | \$ | _____ | - | |
| Total Deposits | | \$ | _____ | - |
| 8. Prepaid Expenses | | | | |
| Income Taxes | \$ | _____ | - | |
| Insurance | \$ | _____ | - | |
| Other (list) _____ | \$ | _____ | - | |
| _____ | \$ | _____ | - | |
| Total Prepaid Expenses | | \$ | _____ | - |
| 9. Other Current Assets | | | | |
| Other (list) _____ | \$ | _____ | - | |
| _____ | \$ | _____ | - | |
| Total Other Current Assets | | \$ | _____ | - |
| 10. Total Current Assets | | | | \$ _____ - |
| 11. Investments | | | | |
| Listed securities-present market value | \$ | _____ | - | |
| Unlisted securities-present value | \$ | _____ | - | |
| Total Investments | | | | \$ _____ - |

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION

NYS Vendor ID: _____

12. Fixed Assets

| | | | |
|--------------------------------|----|----|------|
| Land | \$ | - | |
| Building and improvements | \$ | - | |
| Leasehold improvements | \$ | - | |
| Machinery and equipment | \$ | - | |
| Automotive equipment | \$ | - | |
| Office furniture and fixtures | \$ | - | |
| Other (list) _____ | \$ | - | |
| | \$ | - | |
| Total | | \$ | - |
| Less: Accumulated depreciation | | \$ | - |
| Total Fixed Assets - Net | | | \$ - |

13. Other Assets

| | | | |
|--|----|---|------|
| Loans receivable | | | |
| Officers | \$ | - | |
| Employees | \$ | - | |
| Shareholders | \$ | - | |
| Cash surrender value of officers' life insurance | \$ | - | |
| Organization expense – net of amortization | \$ | - | |
| Notes receivable - due after one year | \$ | - | |
| Other (list) _____ | \$ | - | |
| | \$ | - | |
| Total Other Assets | | | \$ - |

14. TOTAL ASSETS

\$ -

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION**

NYS Vendor ID: _____

LIABILITIES

Current Liabilities

| | | |
|--|----|------------|
| 15. Accounts payable | \$ | - _____ |
| 16 a. Loans from shareholders - due within one year | \$ | - _____ |
| 16 b. Other Loans - due within one year | \$ | - _____ |
| 17. Notes payable - due within one year | \$ | - _____ |
| 18. Mortgage payable - due within one year | \$ | - _____ |
| 19. Other payables - due within one year | | |
| Other (list) _____ | \$ | - _____ |
| | \$ | - _____ |
| Total Other Payables - due within one year | \$ | - _____ |
| 20. Billings in excess of costs and estimated earnings | \$ | - _____ |
| 21. Accrued expenses payable | | |
| Salaries and wages | \$ | - _____ |
| Payroll taxes | \$ | - _____ |
| Employees' benefits | \$ | - _____ |
| Insurance | \$ | - _____ |
| Other | \$ | - _____ |
| Total Accrued Expenses Payable | \$ | - _____ |
| 22. Dividends payable | \$ | - _____ |
| 23. Income taxes payable | | |
| State | \$ | - _____ |
| Federal | \$ | - _____ |
| Other | \$ | - _____ |
| Total Income Taxes Payable | \$ | - _____ |
| 24. Total current liabilities | \$ | - _____ |
| 25. Deferred income taxes payable | | |
| State | \$ | - _____ |
| Federal | \$ | - _____ |
| Other | \$ | - _____ |
| Total Deferred Income Taxes | \$ | - _____ |
| 26. Long Term Liabilities | | |
| Loans from shareholders - due after one year | \$ | - _____ |
| Other Loans - due within one year | | |
| Principle | \$ | - _____ |
| Interest | \$ | - _____ |
| Notes payable - due after one year | \$ | - _____ |
| Mortgage - due after one year | \$ | - _____ |
| Other payables - due after one year | \$ | - _____ |
| Other (list) _____ | \$ | - _____ |
| | \$ | - _____ |
| Total Long Term Liabilities | \$ | - _____ |

**NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION**

NYS Vendor ID: _____

27. Other Liabilities

| | | |
|--------------|-------|----------|
| Other (list) | _____ | \$ _____ |
| | _____ | \$ _____ |

Total Other Liabilities \$ _____

28. TOTAL LIABILITIES \$ _____

NET WORTH

29. Net Worth (if proprietorship or partnership) \$ _____

30. Stockholders' Equity

| | |
|-------------------------------------|----------|
| Common stock issued and outstanding | \$ _____ |
|-------------------------------------|----------|

| | |
|--|----------|
| Preferred stock issued and outstanding | \$ _____ |
|--|----------|

| | |
|-------------------|----------|
| Retained earnings | \$ _____ |
|-------------------|----------|

| | |
|-------|----------|
| Total | \$ _____ |
|-------|----------|

| | |
|----------------------|----------|
| Less: Treasury stock | \$ _____ |
|----------------------|----------|

31. TOTAL STOCKHOLDERS' EQUITY \$ _____

32. TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY \$ _____

**CONTRACTOR REQUIREMENTS AND PROCEDURES FOR BUSINESS PARTICIPATION OPPORTUNITIES FOR
NEW YORK STATE CERTIFIED MINORITY- AND WOMEN-OWNED BUSINESS ENTERPRISES AND EQUAL
EMPLOYMENT OPPORTUNITIES FOR MINORITY GROUP MEMBERS AND WOMEN**

NEW YORK STATE LAW

Pursuant to New York State Executive Law Article 15-A, the Department of State (hereinafter "DOS") recognizes its obligation under the law to promote opportunities for maximum feasible participation of certified minority-and women-owned business enterprises and the employment of minority group members and women in the performance of DOS contracts.

In 2006, the State of New York commissioned a disparity study to evaluate whether minority and women-owned business enterprises had a full and fair opportunity to participate in state contracting. The findings of the study were published on April 29, 2010, under the title "The State of Minority and Women-Owned Business Enterprises: Evidence from New York" ("Disparity Study"). The report found evidence of statistically significant disparities between the level of participation of minority-and women-owned business enterprises in state procurement contracting versus the number of minority-and women-owned business enterprises that were ready, willing and able to participate in state procurements. As a result of these findings, the Disparity Study made recommendations concerning the implementation and operation of the statewide certified minority- and women-owned business enterprises program. The recommendations from the Disparity Study culminated in the enactment and the implementation of New York State Executive Law Article 15-A, which requires, among other things, that DOS establishes goals for maximum feasible participation of New York State Certified minority-and women – owned business enterprises ("MWBE") and the employment of minority groups members and women in the performance of New York State contracts.

Business Participation Opportunities for MWBEs

For purposes of this solicitation, DOS hereby establishes an overall goal of 30% for MWBE participation, 15% for Minority-Owned Business Enterprises ("MBE") participation and 15% for Women-Owned Business Enterprises ("WBE") participation (based on the current availability of qualified MBEs and WBEs). A contractor ("Contractor") on the subject contract ("Contract") must document good faith efforts to provide meaningful participation by MWBEs as subcontractors or suppliers in the performance of the Contract and Contractor agrees that DOS may withhold payment pending receipt of the required MWBE documentation. The directory of New York State Certified MWBEs can be viewed at:

<http://www.esd.ny.gov/mwbe.html>.

For guidance on how DOS will determine a Contractor's "good faith efforts," refer to 5 NYCRR §142.8.

I. MWBE Utilization

By submitting a bid or proposal, a bidder on the Contract ("Bidder") agrees to submit the following documents and information as evidence of compliance with 5 NYCRR §142.8:

- A. Bidders are required to submit a MWBE Utilization Plan on Form A with their bid or proposal. Any modifications or changes to the MWBE Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised MWBE Utilization Plan and submitted to DOS.
- B. DOS will review the submitted MWBE Utilization Plan and advise the Bidder of DOS acceptance or issue a notice of deficiency within 30 days of receipt.
- C. If a notice of deficiency is issued, Bidder agrees that it shall respond to the notice of deficiency within seven (7) business days of receipt by submitting to the DOS:
Office of Affirmative Action Programs
99 Washington Avenue, Albany, New York 12231
Phone: (518) 473-2507; Fax (518) 473-9211
a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by DOS to be inadequate, DOS shall notify the Bidder and direct the Bidder to submit, within five (5) business days, a request for a partial or total waiver of MWBE participation goals on Form B. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or proposal.

- D. DOS may disqualify a Bidder as being non-responsive under the following circumstances:
- a) If a Bidder fails to submit a MWBE Utilization Plan;
 - b) If a Bidder fails to submit a written remedy to a notice of deficiency;
 - c) If a Bidder fails to submit a request for waiver; or
 - d) If DOS determines that the Bidder has failed to document good faith efforts.

Contractors shall attempt to utilize, in good faith, any MBE or WBE identified within its MWBE Utilization Plan, during the performance of the Contract. Requests for a partial or total waiver of established goal requirements made subsequent to Contract Award may be made at any time during the term of the Contract to DOS, but must be made no later than prior to the submission of a request for final payment on the Contract.

II. Non-Compliance

- A. In accordance with 5 NYCRR §142.13, Contractor acknowledges that if it is found to have willfully and intentionally failed to comply with the MWBE participation goals set forth in the Contract, such finding constitutes a breach of Contract and DOS may withhold payment from the Contractor as liquidated damages. 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.
- B. In addition, failure to comply with the foregoing requirements may result in a finding of non-responsiveness, non-responsibility and/or a breach of the Contract, leading to the withholding of funds, suspension or termination of the Contract or such other actions or enforcement proceedings as allowed by the Contract.

Equal Employment Opportunity Requirements

By submission of a bid or proposal in response to this solicitation, the Bidder/Contractor agrees with all of the terms and conditions of Appendix A including Clause 12 - Equal Employment Opportunities for Minorities and Women. The Contractor is required to ensure that it and any subcontractors awarded a subcontract over \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor, shall undertake or continue programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, equal opportunity shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, and rates of pay or other forms of compensation. This requirement does not apply to: (i) work, goods, or services unrelated to the Contract; or (ii) employment outside New York State.

Bidder further agrees, where applicable, to submit with the bid a staffing plan (Form C) identifying the anticipated work force to be utilized on the Contract and if awarded a Contract, will, upon request, submit to the DOS, a workforce utilization report identifying the workforce actually utilized on the Contract if known.

Further, pursuant to Article 15 of the Executive Law (the "Human Rights Law"), all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor and sub-contractors will 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.

FORM A

M/WBE UTILIZATION PLAN

INSTRUCTIONS: This form must be submitted with any bid, proposal, or proposed negotiated contract or within a reasonable time thereafter, but prior to contract award. This Utilization Plan must contain a detailed description of the supplies and/or services to be provided by each certified Minority and Women-owned Business Enterprise (M/WBE) under the contract. Attach additional sheets if necessary.

| | | | | |
|--|--|---|---|---|
| Offeror's Name: Address: City, State, Zip Code: Telephone No.: Region/Location of Work: | | Federal Identification No.: Project/Contract No.: M/WBE Goals in the Contract: MBE 10% WBE 10% | | |
| 1. Certified M/WBE Subcontractors/Suppliers Name, Address, Email Address, Telephone No. | 2. Classification | 3. Federal ID No. | 4. Detailed Description of Work (Attach additional sheets, if necessary) | 5. Dollar Value of Subcontracts/ Supplies/Services and intended performance dates of each component of the contract. |
| A. | NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE | | | |
| B. | NYS ESD CERTIFIED <input type="checkbox"/> MBE <input type="checkbox"/> WBE | | | |
| 6. IF UNABLE TO FULLY MEET THE MBE AND WBE GOALS SET FORTH IN THE CONTRACT, OFFEROR MUST SUBMIT A REQUEST FOR WAIVER FORM C. | | | | |
| PREPARED BY (Signature): DATE: NAME AND TITLE OF PREPARER (Print or Type): SUBMISSION OF THIS FORM CONSTITUTES THE OFFEROR'S ACKNOWLEDGEMENT AND AGREEMENT TO COMPLY WITH THE M/WBE REQUIREMENTS SET FORTH UNDER NYS EXECUTIVE LAW, ARTICLE 15-A, 5 NYCRR PART 143, AND THE ABOVE-REFERENCED SOLICITATION. FAILURE TO SUBMIT COMPLETE AND ACCURATE INFORMATION MAY RESULT IN A FINDING OF NONCOMPLIANCE AND POSSIBLE TERMINATION OF YOUR CONTRACT. | | | TELEPHONE NO.: | |
| | | | EMAIL ADDRESS: | |
| | | | FOR M/WBE USE ONLY | |
| | | | REVIEWED BY: | |
| | | | DATE: | |
| | | | UTILIZATION PLAN APPROVED: <input type="checkbox"/> YES <input type="checkbox"/> NO Date: Contract No.: Project No. (if applicable): | |
| | | | Contract Award Date: Estimated Date of Completion: Amount Obligated Under the Contract: Description of Work: | |
| | | | NOTICE OF DEFICIENCY ISSUED: <input type="checkbox"/> YES <input type="checkbox"/> NO Date: _____ | |
| | | | NOTICE OF ACCEPTANCE ISSUED: <input type="checkbox"/> YES <input type="checkbox"/> NO Date: _____ | |

FORM B **REQUEST FOR WAIVER**

| | | |
|---|--|-----------------------|
| INSTRUCTIONS: SEE PAGE 2 OF THIS ATTACHMENT FOR REQUIREMENTS AND DOCUMENT SUBMISSION INSTRUCTIONS. | | |
| Offeror/Contractor Name: | Federal Identification No.: | |
| Address: | Solicitation/Contract No.: | |
| City, State, Zip Code: | M/WBE Goals: MBE 10% WBE 10% | |
| By submitting this form and the required information, the offeror/contractor certifies that every Good Faith Effort has been taken to promote M/WBE participation pursuant to the M/WBE requirements set forth under the contract. | | |
| Contractor is requesting a: 1. <input type="checkbox"/> MBE Waiver – A waiver of the MBE Goal for this procurement is requested. <input type="checkbox"/> Total <input type="checkbox"/> Partial 2. <input type="checkbox"/> WBE Waiver – A waiver of the WBE Goal for this procurement is requested. <input type="checkbox"/> Total <input type="checkbox"/> Partial 3. <input type="checkbox"/> Waiver Pending ESD Certification – (Check here if subcontractors or suppliers of Contractor are not certified M/WBE, but an application for certification has been filed with Empire State Development.) Date of such filing with Empire State Development: _____ | | |
| PREPARED BY (Signature): <small>SUBMISSION OF THIS FORM CONSTITUTES THE OFFEROR/CONTRACTOR'S ACKNOWLEDGEMENT AND AGREEMENT TO COMPLY WITH THE M/WBE REQUIREMENTS SET FORTH UNDER NYS EXECUTIVE LAW, ARTICLE 15-A AND 5 NYCRR PART 143. FAILURE TO SUBMIT COMPLETE AND ACCURATE INFORMATION MAY RESULT IN A FINDING OF NONCOMPLIANCE AND/OR TERMINATION OF THE CONTRACT.</small> | Date: | |
| Name and Title of Preparer (Printed or Typed): | Telephone Number: | Email Address: |
| Submit with the bid or proposal or if submitting after award submit to: New York State Department of State Office of Affirmative Action Programs 99 Washington Ave., Ste. 1150 Albany, New York 12231 | ***** FOR M/WBE USE ONLY ***** | |
| | REVIEWED BY: | DATE: |
| | Waiver Granted: <input type="checkbox"/> YES MBE: <input type="checkbox"/> WBE: <input type="checkbox"/> <input type="checkbox"/> Total Waiver <input type="checkbox"/> Partial Waiver <input type="checkbox"/> ESD Certification Waiver <input type="checkbox"/> *Conditional <input type="checkbox"/> Notice of Deficiency Issued _____ *Comments: _____ | |

REQUIREMENTS AND DOCUMENT SUBMISSION INSTRUCTIONS

When completing the Request for Waiver Form please check all boxes that apply. To be considered, the Request for Waiver Form must be accompanied by documentation for items 1 – 11, as listed below. If box # 3 has been checked above, please see item 11. Copies of the following information and all relevant supporting documentation must be submitted along with the request:

1. A statement setting forth your basis for requesting a partial or total waiver.
2. The names of general circulation, trade association, and M/WBE-oriented publications in which you solicited certified M/WBEs for the purposes of complying with your participation goals.
3. A list identifying the date(s) that all solicitations for certified M/WBE participation were published in any of the above publications.
4. A list of all certified M/WBEs appearing in the NYS Directory of Certified Firms that were solicited for purposes of complying with your certified M/WBE participation levels.
5. Copies of notices, dates of contact, letters, and other correspondence as proof that solicitations were made in writing and copies of such solicitations, or a sample copy of the solicitation if an identical solicitation was made to all certified M/WBEs.
6. Provide copies of responses made by certified M/WBEs to your solicitations.
7. Provide a description of any contract documents, plans, or specifications made available to certified M/WBEs for purposes of soliciting their bids and the date and manner in which these documents were made available.
8. Provide documentation of any negotiations between you, the Offeror/Contractor, and the M/WBEs undertaken for purposes of complying with the certified M/WBE participation goals.
9. Provide any other information you deem relevant which may help us in evaluating your request for a waiver.
10. Provide the name, title, address, telephone number, and email address of offeror/contractor's representative authorized to discuss and negotiate this waiver request.
11. Copy of notice of application receipt issued by Empire State Development (ESD).

Note:

Unless a Total Waiver has been granted, Offeror/Contractor will be required to submit all reports and documents pursuant to the provisions set forth in the Contract, as deemed appropriate by DOS, to determine M/WBE compliance.

FORM C STAFFING PLAN

Submit with Bid or Proposal – Instructions on page 2

| | | |
|--------------------------|--------------------------|--|
| Solicitation No.: | Reporting Entity: | Report includes Contractor's/Subcontractor's: <input type="checkbox"/> Work force to be utilized on this contract <input type="checkbox"/> Total work force |
| Offeror's Name: | | <input type="checkbox"/> Offeror <input type="checkbox"/> Subcontractor Subcontractor's name _____ |

Enter the total number of employees for each classification in each of the EEO-Job Categories identified

| EEO-Job Category | Total Work force | Work force by Gender | | Work force by Race/Ethnic Identification | | | | | | | | | | | | | |
|--------------------------|------------------|----------------------|------------------|--|--|---------------|--|------------------|--|---------------|--|-------------------------|--|------------------|--|-----------------|--|
| | | Total Male (M) | Total Female (F) | White (M) (F) | | Black (M) (F) | | Hispanic (M) (F) | | Asian (M) (F) | | Native American (M) (F) | | Disabled (M) (F) | | Veteran (M) (F) | |
| Officials/Administrators | | | | | | | | | | | | | | | | | |
| Professionals | | | | | | | | | | | | | | | | | |
| Technicians | | | | | | | | | | | | | | | | | |
| Sales Workers | | | | | | | | | | | | | | | | | |
| Office/Clerical | | | | | | | | | | | | | | | | | |
| Craft Workers | | | | | | | | | | | | | | | | | |
| Laborers | | | | | | | | | | | | | | | | | |
| Service Workers | | | | | | | | | | | | | | | | | |
| Temporary /Apprentices | | | | | | | | | | | | | | | | | |
| Totals | | | | | | | | | | | | | | | | | |

| | |
|--|--|
| PREPARED BY (Signature): | TELEPHONE NO.: EMAIL ADDRESS: |
| NAME AND TITLE OF PREPARER (Print or Type): | Submit completed with bid or proposal |

General instructions: All Offerors and each subcontractor identified in the bid or proposal must complete an EEO Staffing Plan (FORM B) and submit it as part of the bid or proposal package. Where the work force to be utilized in the performance of the State contract can be separated out from the contractor's and/or subcontractor's total work force, the Offeror shall complete this form only for the anticipated work force to be utilized on the State contract. Where the work force to be utilized in the performance of the State contract cannot be separated out from the contractor's and/or subcontractor's total work force, the Offeror shall complete this form for the contractor's and/or subcontractor's total work force.

Instructions for completing:

1. Enter the Solicitation number that this report applies to along with the name and address of the Offeror.
2. Check off the appropriate box to indicate if the Offeror completing the report is the contractor or a subcontractor.
3. Check off the appropriate box to indicate work force to be utilized on the contract or the Offerors' total work force.
4. Enter the total work force by EEO job category.
5. Break down the anticipated total work force by gender and enter under the heading 'Work force by Gender'
6. Break down the anticipated total work force by race/ethnic identification and enter under the heading 'Work force by Race/Ethnic Identification'. Contact the DOS Permissible contact(s) for the solicitation if you have any questions.
7. Enter information on disabled or veterans included in the anticipated work force under the appropriate headings.
8. Enter the name, title, phone number and email address for the person completing the form. Sign and date the form in the designated boxes.

RACE/ETHNIC IDENTIFICATION

Race/ethnic designations as used by the Equal Employment Opportunity Commission do not denote scientific definitions of anthropological origins. For the purposes of this form, an employee may be included in the group to which he or she appears to belong, identifies with, or is regarded in the community as belonging. However, no person should be counted in more than one race/ethnic group. The race/ethnic categories for this survey are:

- **WHITE** (Not of Hispanic origin) All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.
- **BLACK** a person, not of Hispanic origin, who has origins in any of the black racial groups of the original peoples of Africa.
- **HISPANIC** a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.
- **ASIAN & PACIFIC ISLANDER** a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands.
- **NATIVE INDIAN (NATIVE AMERICAN/ ALASKAN NATIVE)** a person having origins in any of the original peoples of North America, and who maintains cultural identification through tribal affiliation or community recognition.

OTHER CATEGORIES

- **DISABLED INDIVIDUAL** any person who:
 - has a physical or mental impairment that substantially limits one or more major life activity(ies)
 - has a record of such an impairment; or
 - is regarded as having such an impairment.
- **VIETNAM ERA VETERAN** a veteran who served at any time between and including January 1, 1963 and May 7, 1975.
- **GENDER** **Male or Female**

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EO 177 Certification

Elmont Road Park Renovation

The New York State Human Rights Law, Article 15 of the Executive Law, prohibits discrimination and harassment based on age, race, creed, color, national origin, sex, pregnancy or pregnancy-related conditions, sexual orientation, gender identity, disability, marital status, familial status, domestic violence victim status, prior arrest or conviction record, military status or predisposing genetic characteristics.

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 Executive Order No. 177, the Bidder 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 this 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.

Contractor:

By: _____

Name: _____

Title: _____

Date: _____, 20__

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SHOP DRAWING SUBMITTAL FORM

Construction Manager (TBD)

Address

City, New York #####
Phone (###) ###-####
Fax (###) ###-####
#####s@#####.com

Project Name: Promenade Hill Renovation
City of Hudson, NY
Project Number: DRI# C1001294
Submittal Description: _____
Submittal Number: _____
Draft ID Number: _____

Contractor's Name & Address: _____

Email Address: _____

Name & Address of Supplier: _____

Name of Manufacturer: _____

Specification Section: _____

Drawing No./Detail Reference No.: _____

Deviations: _____

None: _____ As Listed: _____

Item as Specified: _____

Yes: _____ No: _____

**If No, provide information per
Specification & Substitute Form.**

Representation is made to the City of Hudson, Construction Manager and Landscape Architect that the Contractor has determined and verified all field measurements and quantities, field construction criteria, materials, catalog numbers, and similar data and that the Contractor has reviewed and coordinated the information in each shop drawing with the requirements of the work and Contract Documents and hereby approves this submittal.

Reviewed and Coordinated By: _____

For Architect/Engineer's Use Only:

Submittal No. _____

☐ NO EXCEPTIONS TAKEN
☐ REVIEWED

☐ EXCEPTIONS AS NOTED
☐ CORRESPONDENCE ATTACHED _____

☐ RESUBMIT
☐ FOR CONSTRUCTION
ACCORDANCE TO NOTATIONS,
REVISE AND RESUBMIT

CHECKING IS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED AT THE JOB SITE, FOR INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESS OR TO TECHNIQUES OF CONSTRUCTION AND FOR COORDINATION OF THE WORK OF ALL TRADES. OMITTED, INCORRECT, OR UNMARKED ITEMS NOT INDICATED BY THE A/E SHALL NOT RELIEVE CONTRACTOR OF THEIR RESPONSIBILITY TO PROVIDE SAME PER THE DESIGN CONCEPT OR ANY OTHER SPECIFIED CRITERIA.

DATE REVIEWED: _____ BY: _____

Starr Whitehouse Landscape Planners & Architects

Comments: _____

Copy To:

- ☐ Office
- ☐ Owner
- ☐ Field
- ☐ Contractor

Date Received: _____

Date Returned: _____

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**PROJECT CLOSEOUT
CHECK LIST**

Project: PROMENADE HILL PARK RENOVATION Project No. DRI# C1001294

Contract: _____ Contract Date: _____

Contractor: _____
Name Telephone

Address

=====

After the Contractor has met all of his obligation of the Contract and is ready to submit the "Final Application for Payment" (as defined in the General and Supplementary Conditions), he is responsible for providing the following items along with the Final Payment to the Construction Manager or designated representative. (Please note that these shall be provided in one full package, partial submissions of these items will be not be allowed):

- 1) Consent of Surety to Reduction in or Partial Release of Retainage, AIA Document G707A.
- 2) Consent of Surety to Final Payment, AIA Document G707.
- 3) Contractor's Affidavit of Release of Liens, AIA Document G706A (one copy required from all subcontractors).
- 4) Contractor's Affidavit of Payment of Debts and Claims. AIA Document G706. (one copy required from all subcontractors).
- 5) Warranty of Title: (sample letter enclosed).
- 6) Certification: Signed and notarized certification that no asbestos containing materials have been used in the construction (enclosed).
- 7) Insurance:
 - a) All policies of insurance required at the commencement of the project shall remain in effect at all times after final payment, when the Contractor is completing, correcting, removing, replacing work and/or completing items enumerated in Construction Manager's Certificate of Substantial Completion. (Certificates of Insurance shall be evidence thereof.)
 - b) Completed Operation Insurance: shall be maintained for at least two years after final payment. Furnish NYAP with evidence of continuation at time of final payment and continuation one year thereafter.

- 8) Provide the NYAP with all product warranties and/or guarantees, including the following: **

Per Specifications

- 9) Provide the NYAP with all Maintenance and Operating Manuals, indicating operating instructions and maintenance schedules for all equipment, systems, operating devices and specialties including the following: **

Per Specifications

- 10) Record Documents (Per Section 01 7800 of Specifications)

**** If previously provided, please indicate date of submission.**

CERTIFICATION

I, _____, being an officer of _____
do hereby certify that _____ was the Contractor
for the work for the Promenade Hill Park Renovation Project; and that pursuant to and in
compliance with the Contract Documents, Information to bidders, Paragraph 20, Hazardous
Wastes, and Bid Description for:

___ Contract No. 1 – General Construction

No asbestos containing materials were used in the construction of this project and all
materials were provided in accordance with the Federal Asbestos Hazard Emergency
Response Act (AHERA) and the New York State Asbestos Safety Act (SASA).

By:

State of _____)
County of _____)

Subscribed and sworn to before me
this _____ day of _____, 201__.

Notary Public

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CONTRACTOR'S WARRANTY OF TITLE

TO (City of Hudson)

City of Hudson, City Hall

Date:

520 Warren Street

Contract No.

Hudson, NY 12534

Project No.: DRI # C1001294

Project Promenade Hill Park Renovation, City of Hudson, Hudson, New York
(Name, address)

I, the undersigned, pursuant to Article 9.3.3 of the General Conditions of the Contract for Construction, warrants and guarantees that the title to all work, material, and equipment, whether incorporated in the project or not, will pass to the City of Hudson no later than the time of Final Payment, free and clear of all liens.

Contractor

By

Date

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SECTION 00 3113

MILESTONE CONSTRUCTION SCHEDULE

PART 1 GENERAL

1.01 GENERAL

- A. The established Milestone Construction Schedule applies to all Prime Contractors.
- B. The Contractor understands that time is of the essence and that he/she will schedule accordingly and provide the necessary means, methods, and labor to complete the project elements within their allotted time frame.
- C. If meeting the established milestone dates require that the Contractor apply multiple shifts and/or work during night-time or weekend hours to perform his Work, she/he may be allowed special access to the site. Expressed written requests must be received and reviewed prior to any such access.
- D. All incomplete and deficient work indicated on the Items to be Completed List shall be completed 20 business days after the issuance of the Certification of Substantial Completion.

PART 2 SCHEDULE

| Project Location | Mobilization | Substantial Completion | Final Completion |
|--|------------------|------------------------|-------------------|
| Promenade Hill Park, Hudson, NY | 4/12/2021 | 11/24/2021 | 12/31/2021 |

Construction Milestones

- Notification of Award
- Scope refinement, issue of conformed Construction Documents
- Contract Award
- Notice to Proceed
- Pre-construction meeting and scheduling
- Permits and Insurance
- Sub-contractor 'Buyout'
- Site Mobilization secure the site, and install temporary facilities including tree protection and erosion & sediment control.
- 811 and private utility mark out
- Procurement of Long Lead Items
- Shop drawings Submittals / Approvals
- Site preparation including Tree and root zone protection
- Site Selective Demolition
- Project benchmarks and layout established
- Plumbing and drainage work
- Electrical conduit placement [by others – City of Hudson]

- Subsurface electrical wiring [by others – National Grid]
- Coordination with National Grid for Electrical panels and connections
- Excavation for curbs, footings, and pavements
- Earthwork and compaction testing
- Formwork and reinforcement
- Concrete work, footings, slabs and pavements
- Bluestone, steps and copings, granite curbs
- Stone and granite sett paving
- Stone veneer
- Installation of splash pad elements play structures
- Installation of resilient wearing course at splash pad
- Installation of engineered wood fiber play surfacing [ADD ALT]
- Installation of lighting foundations and poles
- Testing and commissioning of plumbing and electrical items
- Decompact Trees
- Topsoil, soil amendments, and fine grading
- Sod
- Planting and mulching
- Installation of site furnishings
- Substantial completion and inspection
- Punch list inspection
- Use inspection and turn over to City of Hudson
- Project Closeout and record drawings

END OF SECTION 00 3113

Appendices

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Proper & O'Leary Engineering, dpc

STRUCTURAL

CIVIL

CONSTRUCTION CONSULTANTS

4 Maple Lane South, PO Box 775
Valatie, NY 12184

www.po-eng.com
(518) 610-8331

MEMORANDUM:

VIA EMAIL

To: Chris Anderson, Starr Whitehouse

From: Austin Leonard E.I.T.

CC: Gail Wittwer-Laird, Starr Whitehouse
Daniel Proper P.E.

**Re: Promenade Hill Park
Soil Test Pits
P&O #: 19065.0**

Date: November 5, 2020

On November 4, 2020, (4) test pits were conducted at Promenade Hill Park by the City of Hudson Public Works Dept. Starr Whitehouse staff and P&O staff were both on site during the operation. The objective of the work was to observe and analyze soil conditions in the area of the park re-design.

Included in Attachment #1 is a summary table of results, photos of the tests, and a map depicting approximate locations of the tests.

If you have any comments or questions, please feel free to email or call to discuss.

ATTACHMENT #1

TEST PIT RESULTS

| TEST PIT HOLE # | TOTAL DEPTH | ROCK DEPTH | WATER DEPTH | SOIL STRATA DESCRIPTION | |
|--|----------------|---------------|----------------|-------------------------|---------------------------------------|
| | | | | TEST DATE | SOIL DESCRIPTION |
| TP - 1 | 48" +/- | 48" +/- | N/A | 0" -12" | ORGANIC MATERIAL & TOPSOIL |
| | | | | 12" - 48" | SANDY LOAM MIXED w/ CONSTRUCTION FILL |
| | | | | 48" + | SHALE & BEDROCK |
| TP - 2 | 60" +/- | 60" +/- | N/A | 0" -12" | ORGANIC MATERIAL & TOPSOIL |
| | | | | 12" - 60" | SANDY LOAM |
| | | | | 60" + | SHALE & BEDROCK |
| TP - 3 | 42" +/- | 42" +/- | N/A | 0" -12" | ORGANIC MATERIAL & TOPSOIL |
| | | | | 12" - 42" | SANDY LOAM |
| | | | | 42" + | SHALE & BEDROCK |
| TP - 4 | 48" +/- | N/A | N/A | 0" -10" | CONCRETE |
| | | | | 10" - 48" | SANDY LOAM |
| | | | | 48" + | NOT ANALYZED |
| NOTE | | | | | |
| 1. TESTS WERE OBSERVED BY P&O ENGINEERING & STARR WHITEHOUSE ON 11/4/2020. | | | | | |



Test Pit #1



Test Pit #1



Test Pit #2



Test Pit #2



Test Pit #3



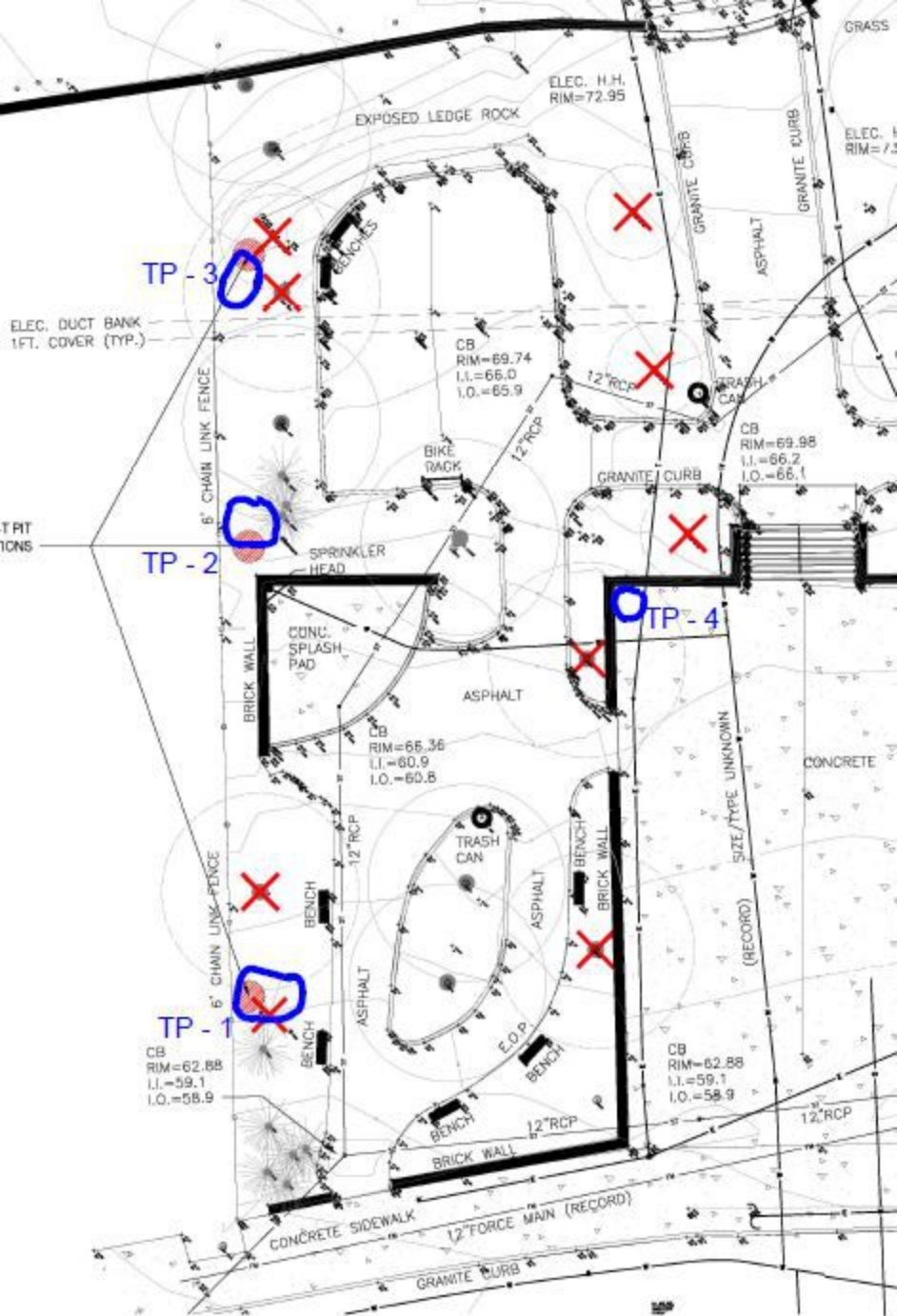
Test Pit #3



Test Pit #4



Test Pit #4





Andrew M. Cuomo, Governor

Roberta Reardon, Commissioner

City of Hudson

Robert Perry, Superintendent of Public Works
520 Warren Street
Hudson NY 12534

Schedule Year 2020 through 2021
Date Requested 01/26/2021
PRC# 2021000789

Location Promenade Hill Park
Project ID# DRI C1001294
Project Type Demolition of existing park for new paths, ramps, stairs and appurtenances to update and make ADA compliant.

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 Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2020 through June 2021. 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. 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

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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.

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.

There are very few exceptions to this rule. Complete information regarding these exceptions is available on the ["Request for a dispensation to work overtime" form \(PW30\)](#) and ["4 Day / 10 Hour Work Schedule" form \(PW 30.1\)](#).

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 from 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 12240; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website 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.

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 www.labor.ny.gov.

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 journeyman'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 12240 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.



Andrew M. Cuomo, Governor

Roberta Reardon, Commissioner

City of Hudson

Robert Perry, Superintendent of Public Works
520 Warren Street
Hudson NY 12534

Schedule Year 2020 through 2021
Date Requested 01/26/2021
PRC# 2021000789

Location Promenade Hill Park
Project ID# DRI C1001294
Project Type Demolition of existing park for new paths, ramps, stairs and appurtences to update and make ADA compliant.

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: _____ _____ | | |
| 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 12240



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, www.labor.ny.gov. <https://labor.ny.gov/formsdocs/ui/IA999.pdf>

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 .

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 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.

**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

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 12240

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. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:

IA 999 (09/16)

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.

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:**
www.labor.ny.gov

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) 568-5156 | | |

* 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 – 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.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is \$3 million in Bronx, Kings, New York, Queens and, Richmond counties; \$1.5 million in Nassau, Suffolk and Westchester counties; and \$500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirements on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

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.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records.

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.

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) for current wage rate information.

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 12240

| 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 |

Columbia County General Construction

Boilermaker

02/01/2021

JOB DESCRIPTION Boilermaker

DISTRICT 1

ENTIRE COUNTIES

Albany, Broome, Chenango, Columbia, Delaware, Essex, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Tioga, Warren, Washington

WAGES

Per hour

07/01/2020

Boilermaker

\$ 38.59

SUPPLEMENTAL BENEFITS

Per hour

07/01/2020

Journeyman

\$ 24.81

+ 1.24*

* This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 15, 25) on HOLIDAY PAGE

Note: When a holiday falls on Sunday, the day observed by the State or Nation shall be observed, and when Christmas Day and New Year's fall on Saturday, Friday will be observed as the holiday.

REGISTERED APPRENTICES

Wages per hour

(1/2) year terms at the following percentage of Journeyman's wage.

| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 65% | 65% | 70% | 75% | 80% | 85% | 90% | 95% |

Supplemental Benefits per hour

07/01/2020

| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th |
|--------|--------|--------|--------|--------|--------|--------|--------|
| 18.60 | 18.60 | 19.50 | 20.37 | 21.26 | 22.15 | 23.04 | 23.92 |
| +1.24* | +1.24* | +1.24* | +1.24* | +1.24* | +1.24* | +1.24* | +1.24* |

* This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

1-197

Carpenter - Building / Heavy&Highway

02/01/2021

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

DISTRICT 2

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

PARTIAL COUNTIES

Orange: The area lying on Northern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing west to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES

Wages per hour:

07/01/2020

07/01/2021

Additional

Carpenter - ONLY for

Artificial Turf/Synthetic

| | | |
|---------------|----------|---------|
| Sport Surface | \$ 31.48 | \$ 1.15 |
|---------------|----------|---------|

Note - Does not include the operation of equipment. Please see Operating Engineers rates.

SUPPLEMENTAL BENEFITS

Per hour:

| | |
|------------|----------|
| Journeyman | \$ 23.65 |
|------------|----------|

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5) on HOLIDAY PAGE

Overtime: See (5, 6, 16) on HOLIDAY PAGE

Notes:

When a holiday falls upon a Saturday, it shall be observed on the preceding Friday. When a holiday falls upon a Sunday, it shall be observed on the following Monday.

An employee taking an unexcused day off the regularly scheduled day before or after a paid Holiday shall not receive Holiday pay.

REGISTERED APPRENTICES

Wages per hour:

One year terms at the following percentage of Journeyman's wage:

| | | | |
|-----|-----|-----|-----|
| 1st | 2nd | 3rd | 4th |
| 55% | 60% | 70% | 80% |

Supplemental Benefits per hour:

| | |
|---------------|----------|
| 1st year term | \$ 11.80 |
| 2nd year term | 11.80 |
| 3rd year term | 14.45 |
| 4th year term | 14.45 |

2-42AtSS

Carpenter - Building / Heavy&Highway

02/01/2021

JOB DESCRIPTION Carpenter - Building / Heavy&Highway

DISTRICT 11

ENTIRE COUNTIES

Columbia, Dutchess, Orange, Sullivan, Ulster

WAGES

WAGES:(per hour)

| | | |
|-------------------------------|------------|------------|
| BUILDING/HEAVY&HIGHWAY/TUNNEL | 07/01/2020 | 07/01/2021 |
| | | Additional |
| Carpenter, Dockbuilder, | \$ 34.26 | \$ 0.80 |
| Piledriver, Dive Tender, | +4.76* | |
| and Diver (Dry) | | |
| Diver (Wet) | \$ 50.00 | |
| | +4.76* | |

*For all hours paid straight or premium.

SHIFT DIFFERENTIAL: When mandated by a Government Agency irregular or off shift can be worked. The Carpenter shall receive an additional fifteen percent (15%) of wage plus applicable benefits.

NOTE: Carpenters employed in the removal or abatement of asbestos or any toxic or hazardous material or required to work near asbestos or any toxic or hazardous material and required to wear protective equipment shall receive two (2) hours extra pay per day, plus applicable benefits.

SUPPLEMENTAL BENEFITS

Per hour:

| | |
|---------------|----------|
| Journeyworker | \$ 28.03 |
|---------------|----------|

OVERTIME PAY

BUILDING:

See (B, E, Q) on OVERTIME PAGE.

HEAVY&HIGHWAY/TUNNEL:

See (B, E, P, *R, **T, X) on OVERTIME PAGE.

*R applies to Heavy&Highway/Tunnel Overtime Holiday Code 25 with benefits at straight time rate.

**T applies to Heavy&Highway/Tunnel Overtime Holiday Codes 5 & 6 with benefits at straight time rate.

HOLIDAY

BUILDING:

Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE.
Holidays that fall on Sunday will be observed Monday.

HEAVY&HIGHWAY/TUNNEL:

Paid: See (5, 6, 25) on HOLIDAY PAGE including benefits.
Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

1 Year terms at the following wage rates.

Indentured before July 1 2016

| 1st | 2nd | 3rd | 4th |
|----------|----------|----------|----------|
| \$ 17.13 | \$ 20.56 | \$ 23.98 | \$ 27.41 |
| +2.55* | +2.55* | +2.55* | +2.55* |

Indentured after July 1 2016

| 1st | 2nd | 3rd | 4th | 5th |
|----------|---------|---------|---------|---------|
| \$ 17.13 | \$20.56 | \$22.27 | \$23.98 | \$27.41 |
| +2.55* | +2.55* | +2.55* | +2.55* | +2.55* |

*For all hours paid straight or premium

SUPPLEMENTAL BENEFITS per hour:

All terms \$ 16.33

11-279.2B/H&H

Carpenter - Floor Coverer

02/01/2021

JOB DESCRIPTION Carpenter - Floor Coverer

DISTRICT 11

ENTIRE COUNTIES

Columbia, Sullivan, Ulster

PARTIAL COUNTIES

Orange: The area lying on Northern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing west to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES

WAGES:(per hour)

| | 07/01/2020 | 07/01/2021 |
|--------------------------------|------------|-----------------------|
| Carpet/Resilient Floor Coverer | \$ 34.26 | Additional \$ 0.80 |
| | +4.76* | |

* For all hours paid straight or premium

SHIFT DIFFERENTIAL: When mandated by a Government Agency irregular or off shift can be worked. The Carpenter shall receive an additional fifteen (15) percent of wage plus applicable benefits.

NOTE: Carpenters employed in the removal or abatement of asbestos or any toxic or hazardous material or required to work near asbestos or any toxic or hazardous materials and required to wear protective equipment shall receive two (2) hours extra pay per day, plus applicable benefits.

SUPPLEMENTAL BENEFITS

Per hour:

Journey worker \$ 28.03

OVERTIME PAY

BUILDING:

See (B, E, Q) on OVERTIME PAGE.

HEAVY/HIGHWAY:

See (B, E, P, *R, **T, X) on OVERTIME PAGE.

*R applies to Heavy/Highway Overtime Holiday Code 25 with benefits at straight time rate.

**T applies to Heavy/Highway Overtime Holiday Codes 5 & 6 with benefits at straight time rate.

HOLIDAY

BUILDING:

Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE.
Holidays that fall on Sunday will be observed Monday.

HEAVY/HIGHWAY:

Paid: See (5, 6, 25) on HOLIDAY PAGE including benefits.
Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

1 Year terms at the following wage rates.

Indentured before July 1 2016

| 1st | 2nd | 3rd | 4th |
|----------|----------|----------|----------|
| \$ 17.13 | \$ 20.56 | \$ 23.98 | \$ 27.41 |
| +2.55* | +2.55* | +2.55* | +2.55* |

Indentured after July 1 2016

| 1st | 2nd | 3rd | 4th | 5th |
|----------|----------|----------|----------|----------|
| \$ 17.13 | \$ 20.56 | \$ 22.27 | \$ 23.98 | \$ 27.41 |
| +2.55* | +2.55* | +2.55* | +2.55* | +2.55* |

*For all hours paid straight or premium

SUPPLEMENTAL BENEFITS per hour:

All terms \$ 16.33

11-279.2Floor

Electrician

02/01/2021

JOB DESCRIPTION Electrician

DISTRICT 1

ENTIRE COUNTIES

Albany, Columbia, Fulton, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

PARTIAL COUNTIES

Greene: Portion of the County North of a line following the South limits of the City of Catskill in a westerly direction from the Hudson River to State Highway 23A. Then continuing on 23A to the road following the Little West Kill and continuing along this road to Delaware County.
Otsego: Only the Towns of Decatur and Worcester

WAGES

Per hour

07/01/2020

| | |
|---------------------|----------|
| Electrician | \$ 41.20 |
| Audio/Sound | 41.20 |
| Video | 41.20 |
| Tele-Data | 41.20 |
| Solar/ Photovoltaic | 41.20 |

Notes: An additional 5% above rate for work over 30' above floor and requires use of a safety harness when working on tooth picks, structural steel, temporary platforms, swing scaffolds & boatswain chairs. All OSHA approved lifts are excluded.

An additional 10% above rate on towers & smoke stacks over 100' high.

An additional 20% above rate in shafts over 25' deep or tunnels over 50' long that are under construction.

An additional 5% above rate when Journeymen are required to work as Lead(Pb) cable splicers.

An additional 10% above rate when Journeymen Welders are required to have ASME verification.

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$ 26.87
+3% of wage

OVERTIME PAY

See (B, *E, Q) on OVERTIME PAGE

* DOUBLE TIME AFTER 10 HOURS ON SATURDAY

For Projects Bid on or Prior to 05/31/2019

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED SHIFTS OF AT LEAST A FIVE (5) DAY DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

| | | |
|-----------|---------------------|-----------------------|
| 1st Shift | 8:00 AM to 4:30 PM | REGULAR RATE |
| 2nd Shift | 4:30 PM to 1:00 AM | REGULAR RATE PLUS 10% |
| 3rd Shift | 12:30 AM to 9:00 AM | REGULAR RATE PLUS 15% |

For Projects Bid on or After 06/01/2019

| | | |
|-----------|---------------------|-------------------------|
| 1st Shift | 8:00 AM to 4:30 PM | REGULAR RATE |
| 2nd Shift | 4:30 PM to 1:00 AM | REGULAR RATE PLUS 17.3% |
| 3rd Shift | 12:30 AM to 9:00 AM | REGULAR RATE PLUS 31.4% |

For Projects Bid on or After 09/01/2019

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED SINGLE IRREGULAR SHIFTS OF AT LEAST A FIVE (5) DAY DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

| | | |
|-----------|---------------------|-------------------------|
| 1st Shift | 8:00 AM to 4:30 PM | REGULAR RATE |
| 2nd Shift | 4:30 PM to 1:00 AM | REGULAR RATE PLUS 17.3% |
| 3rd Shift | 12:30 AM to 9:00 AM | REGULAR RATE PLUS 31.4% |

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

Note: If the holiday falls on Saturday, it shall be celebrated on Friday. If the holiday falls on Sunday, it shall be celebrated on Monday.

REGISTERED APPRENTICES

Wages per hour

Terms at the following percentage of Journeyman's wage.

| | | | | | |
|-------|--------|--------|--------|--------|--------|
| 0-6mo | 6-12mo | 2nd yr | 3rd yr | 4th yr | 5th yr |
| 40% | 45% | 50% | 60% | 70% | 80% |

Notes: An additional 5% above rate for work over 30' above floor and requires use of a safety harness when working on tooth picks, structural steel, temporary platforms, swing scaffolds & boatswain chairs. All OSHA approved lifts are excluded.

An additional 10% above rate on towers & smoke stacks over 100' high.

An additional 20% above rate in shafts over 25' deep or tunnels over 50' long that are under construction.

Supplemental Benefits per hour worked

Apprentices indentured on or before 12/31/2018

| | |
|-------------------|-----------|
| 0-12 month term | \$ 12.78* |
| 2 - 5th year term | 26.87* |

*Plus additional 3% of wage

Apprentices indentured on or after 1/1/2019

| | |
|-------------------|-----------|
| 0-12 Month Term | \$ 12.78* |
| 2nd Year Term | 21.28* |
| 3 - 5th Year Term | 26.87* |

*Plus additional 3% of wage

1-236

Elevator Constructor

02/01/2021

JOB DESCRIPTION Elevator Constructor

DISTRICT 1

ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Putnam, Sullivan, Ulster

PARTIAL COUNTIES

Delaware: Towns of Andes, Bovina, Colchester, Davenport, Delhi, Harpersfield, Hemdon, Kortright, Meredith, Middletown, Roxbury, Hancock & Stamford

Rockland: Only the Township of Stony Point.

Westchester: Only the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

| | | |
|----------|------------|------------|
| Per Hour | 07/01/2020 | 01/01/2021 |
| Mechanic | \$ 60.49 | \$62.51 |

| | | |
|--------|------------------------------|------------------------------|
| Helper | 70% of Mechanic Wage Rate | 70% of Mechanic Wage Rate |
|--------|------------------------------|------------------------------|

Four (4), ten (10) hour days may be worked for New Construction and Modernization Work at straight time during a week, Monday thru Thursday or Tuesday thru Friday.

***Four (4), ten (10) hour days are not permitted for Contract Work/Repair Work

NOTE - In order to use the '4 Day/10 Hour Work Schedule' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule', form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

| | | |
|-------------------|------------|------------|
| Per hour | 07/01/2020 | 01/01/2021 |
| Journeyman/Helper | \$ 34.765* | \$ 34.825* |

(*)Plus 6% of regular hourly if less than 5 years of service. Plus 8% of regular hourly rate if more than 5 years of service.

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 15, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE

Note: When a paid holiday falls on Saturday, it shall be observed on Friday. When a paid holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES

Wages per hour:

| | | | | |
|---------|---------|--------|--------|--------|
| 0-6 mo* | 6-12 mo | 2nd yr | 3rd yr | 4th yr |
| 50 % | 55 % | 65 % | 70 % | 80 % |

(*)Plus 6% of the hourly rate, no additional supplemental benefits.

Supplemental Benefits per hour worked:

Same as Journeyman/Helper

1-138

| | |
|----------------|-------------------|
| Glazier | 02/01/2021 |
|----------------|-------------------|

JOB DESCRIPTION Glazier

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

WAGES

| | | |
|----------------------|---|-----------------------|
| Per hour | 07/01/2020 | 5/01/2021 |
| Glazier Base Wage | \$ 30.75 | Additional \$ 1.75 |
| | + additional \$2.20 per hour for all hours worked | |
| High Work Base Wage* | 32.65 | |
| | + additional \$3.55 per hour for all hours worked | |

(*)When working on Swing Stage or Lift 100 feet or more in height, measured from the ground level up.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the 4 Day/10 Hour Work schedule, as your normal schedule, you must submit an Employer Registration for Use of 4 Day/10 Hour Work Schedule, form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

| | |
|------------|----------|
| Per hour | |
| Journeyman | \$ 20.21 |
| Journeyman | |
| High Work | 25.51 |

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

Premium is applied to the respective base wage only.

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED SHIFT WORK OR SINGLE IRREGULAR SHIFTS STARTING BETWEEN THE HOURS LISTED BELOW:

4:00pm to 6:30am:

ADDITIONAL 12.5% TO APPLICABLE WAGE RATE
AND SUPPLEMENTAL BENEFIT**

**SHIFT RATE STOPS AFTER 6:30AM

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: If any of the holidays are designated by federal law to be celebrated on a day other than that on which they regularly fall, then the holiday shall be celebrated on the day set by said federal law as if the day on which the holiday is celebrated was actually the holiday date.

REGISTERED APPRENTICES

Wages per hour

Apprentice Glazier One Year and 1500 hr. terms at the following percentage of Journeymans base wage.

| 1st | 2nd | 3rd | 4th |
|-----|-----|-----|-----|
| 50% | 65% | 75% | 90% |

+ additional \$2.20 per hour for all hours worked for all terms

Apprentice Glazier Hi-Work One Year and 1500 hr. terms at the following percentage of Journeymans Hi-Work base wage.

| 1st | 2nd | 3rd | 4th |
|-----|-----|-----|-----|
| 50% | 65% | 75% | 90% |

+ additional \$3.55 per hour for all hours worked for all terms

Supplemental Benefits per hour worked

| | |
|----------------------|----------|
| Apprentice | |
| 1st term | \$ 16.54 |
| 2nd-4th term | 20.21 |
| Apprentice High Work | |
| 1st term | 19.49 |
| 2nd-4th term | 25.51 |

1-201

Insulator - Heat & Frost

02/01/2021

JOB DESCRIPTION Insulator - Heat & Frost

DISTRICT 1

ENTIRE COUNTIES

Albany, Columbia, Delaware, Essex, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Sullivan, Ulster, Warren, Washington

WAGES

Wages per hour 07/01/2020

| | |
|----------------------|----------|
| Asbestos Worker* | \$ 36.36 |
| Insulator* | 36.36 |
| Firestopping Worker* | 30.91 |

(*)On Mechanical Systems only.

On government mandated shift work additional 12% of wage for all shifts starting after 3:30 P.M.

SUPPLEMENTAL BENEFITS

Per hour

Journey person \$ 22.78

OVERTIME PAY

See (*B1, **Q) on OVERTIME PAGE

*B1=Double time begins after 10 hours on Saturday

**Q=Triple time on Labor Day if worked.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

When a holiday falls on Sunday the following Monday shall be observed as the holiday.

REGISTERED APPRENTICES

Wages per hour

one year terms at the following percentage of Journeyperson's wage.

| | | | |
|------|------|------|------|
| 1st | 2nd | 3rd | 4th |
| 60 % | 70 % | 80 % | 90 % |

Supplemental Benefits per hour worked:

Apprentices \$ 22.78

1-40

Ironworker

02/01/2021

JOB DESCRIPTION Ironworker

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Delaware, Essex, Greene, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

PARTIAL COUNTIES

Fulton: Only the Townships of Broadalbin, Mayfield, Northampton, Perth, Bleecker and Johnstown.

Hamilton: Only the Townships of Hope, Benson and Wells.

Montgomery: Only the Townships of Florida, Amsterdam, Charleston, Glen, Mohawk and Root.

Otsego: Only the Towns of Unadilla, Butternuts, Morris, Otego, Oneonta, Laurens, Millford, Maryland and Worcester.

WAGES

Wages 07/01/2020
Per hour

| | |
|------------------------|----------|
| Ornamental | \$ 32.10 |
| Reinforcing | 32.10 |
| Rodman | 32.10 |
| Structural & Precast | 32.10 |
| Mover/Rigger | 32.10 |
| Fence Erector | 32.10 |
| Stone Derrickman | 32.10 |
| Sheeter | 32.35 |
| Curtain Wall Installer | 32.10 |
| Metal Window Installer | 32.10 |

SUPPLEMENTAL BENEFITS

Per hour

JOURNEYPELSON \$ 29.51

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

Note: Any holiday which occurs on Sunday shall be observed the following Monday.

REGISTERED APPRENTICES

Wages per hour

ONE YEAR TERMS AT THE FOLLOWING WAGE RATES:

07/01/2020

| | |
|----------|----------|
| 1st year | \$ 16.50 |
| 2nd year | 18.50 |
| 3rd year | 20.50 |
| 4th year | 22.50 |

Supplemental Benefits per hour worked

| | |
|----------|----------|
| 1st year | \$ 11.50 |
| 2nd year | 22.92 |

| | |
|----------|-------|
| 3rd year | 24.54 |
| 4th year | 26.18 |

1-12

| | |
|---------------------------|-------------------|
| Laborer - Building | 02/01/2021 |
|---------------------------|-------------------|

JOB DESCRIPTION Laborer - Building

DISTRICT 11

ENTIRE COUNTIES

Dutchess

PARTIAL COUNTIES

Columbia: Only the Townships of Greenport, Claverack, Philmont, Clermont, Germantown, Livingston, Hillsdale, Gallatin, Copake, Ancram, Taghkanic and the City of Hudson.

WAGES

ALL WORK RELATED WITH TOXIC OR ANY ASBESTOS OR HAZARDOUS MATERIAL

WAGES: (per hour)

| | 07/01/2020 | 06/01/2021 | 06/01/2022 |
|---------|------------|------------|------------|
| Premium | \$ 41.85 | \$ 43.00 | \$ 44.20 |

These rates will cover all work within five feet of the building foundation line.

Shift Differential: On all Governmental mandated irregular or off shift work, an additional 25% of wage is required. The 25% shift differential will be paid on public works contract for shifts or irregular workdays outside the normal working hours for 2nd and 3rd shifts or irregular work day or when mandated or required by state, federal, county, local or other governmental agency contracts.

SUPPLEMENTAL BENEFITS

Per hour:

| | | | |
|------------|----------|----------|----------|
| Journeyman | \$ 29.93 | \$ 30.95 | \$ 32.00 |
| Shift | 36.70 | 37.97 | 39.28 |

OVERTIME PAY

See (B, E, E5, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

Holidays that fall on Saturday shall be observed on Friday, when holidays fall on Sunday they shall be observed on Monday.

REGISTERED APPRENTICES

1000 hour terms at the following wage rates:

| | | | |
|----------|----------|----------|----------|
| 1st term | \$ 20.46 | \$ 21.04 | \$ 21.62 |
| 2nd term | 24.18 | 24.86 | 25.55 |
| 3rd term | 27.90 | 28.69 | 29.48 |
| 4th term | 31.62 | 32.51 | 33.41 |

Supplemental Benefits per hour:

| | | | |
|-------------|----------|----------|----------|
| Apprentices | \$ 24.83 | \$ 25.85 | \$ 26.90 |
| Shift | 30.17 | 31.44 | 32.75 |

11-17tox B

| | |
|---------------------------|-------------------|
| Laborer - Building | 02/01/2021 |
|---------------------------|-------------------|

JOB DESCRIPTION Laborer - Building

DISTRICT 1

ENTIRE COUNTIES

Albany, Rensselaer, Washington

PARTIAL COUNTIES

Columbia: Only the Townships of Stuyvesant, Stockport, Kinderhook, New Lebanon, Canaan, Ghent, Chatham and Austerlitz.

Greene: Entire county except the Township of Catskill

Saratoga: Only the Townships of Halfmoon, Saratoga, Stillwater, Waterford, and the City of Mechanicville.

WAGES

Per hour

7/1/2020

Group #1:

All Classifications
except as noted in
Groups 2 & 3

\$ 29.31

Group #2:
Blaster, Drilling Equipment
Only Where a Separate Air
Compressor Unit Supplies
Power, Metal Formsetter
sidewalk), Well Pointing
& Laser Operator 29.81

Group #3:
Handling of Asbestos
or Toxic Materials 30.66

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$ 24.07

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour

1000 Hour terms at the following percentage of Journeyman's basic hourly wage.

| 1st | 2nd | 3rd | 4th |
|------|------|------|------|
| 65 % | 70 % | 80 % | 80 % |

Supplemental Benefits per hour worked

07/01/2020

Apprentices \$ 24.07

1-190

Laborer - Building

02/01/2021

JOB DESCRIPTION Laborer - Building

DISTRICT 8

ENTIRE COUNTIES

Dutchess

PARTIAL COUNTIES

Columbia: Only the Townships of Ancram, Claverack, Clermont, Copake, Gallatin, Germantown, Greenport, Hillsdale, Hudson, Livingston, Philmont and Taconic.

WAGES

GROUP # 1:

All Laborers except those listed in Group 2

GROUP # 2:

Blaster, Laser Beam Oper., Asphalt Rakers, & Drilling Equipment Only Where a Separate Air Compressor Unit Supplies Power

WAGES per hour

07/01/2020

GROUP # 1 \$ 36.40*

GROUP # 2 38.75*

*Subtract \$ 4.50 to calculate overtime premium

Note: Any job requiring Hazwopper Certification will pay \$1.00 above job classification wage rate.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 24.15

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: Whenever a holidays falls on Sunday, it will be observed on the following Monday.

REGISTERED APPRENTICES

Wages per hour: 07/01/2020

1000 Hour terms

| | |
|----------|----------|
| 1st term | \$ 20.10 |
| 2nd term | 23.10 |
| 3rd term | 28.85 |
| 4th term | 33.60 |
| 5th term | 35.85 |

Note: Any job requiring Hazwopper Certification will pay \$1.00 above job classification wage rate.

Supplemental Benefits per hour:

| | |
|----------|----------|
| 1st term | \$ 12.70 |
| 2nd term | 16.30 |
| 3rd term | 16.30 |
| 4th term | 16.30 |
| 5th term | 24.70 |

8-235

Laborer - Heavy&Highway

02/01/2021

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 8

ENTIRE COUNTIES

Dutchess

PARTIAL COUNTIES

Columbia: Only the Townships of Ancram, Claverack, Clermont, Copake, Gallatin, Germantown, Greenport, Hillsdale, Hudson, Livingston, Philmont and Taconic.

WAGES

GROUP # 1:

Flagperson, Placing & maintenance of all flares, cones, lights, signs, barricades, traffic patterns and all reflective type materials for traffic control, custodial work, traffic directors, temporary heat or light tenders, tool room.

GROUP # 2:

All Other Classifications not listed in Group # 1 or Group # 3

GROUP # 3:

Asphalt Raker, Asphalt Screedman, Drilling Equipment Only Where a Separate Air Compressor Unit Supplies Power, Laser Beam Operator, Metal Form Setters/Aligners (sidewalk), Blaster,

WAGES per hour 07/01/2020

| | |
|-----------|-----------|
| Group # 1 | \$ 34.35* |
| Group # 2 | 38.11* |
| Group # 3 | 39.11* |

*Subtract \$.50 to calculate overtime premium

Note: All employees working on a project that requires Hazwopper Certification will receive \$1.00 per hour over job classification rate of pay. All employees who work an irregular work day that starts after 9:00 AM on a governmental mandated schedule shall be paid an additional 15% per hour.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 24.15

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: Whenever a holidays falls on Sunday, it will be observed on the following Monday.

REGISTERED APPRENTICES

Wages per hour

1000 hour year terms

| | |
|----------|----------|
| 1st Term | \$ 20.10 |
| 2nd Term | 23.10 |
| 3rd Term | 28.85 |
| 4th Term | 33.60 |
| 5th Term | 35.85 |

Note: All employees working on a project that requires Hazwopper Certification will receive \$1.00 per hour over job classification rate of pay. All employees who work an irregular work day that starts after 9:00 AM on a governmental mandated schedule shall be paid an additional 15% per hour.

Supplemental Benefits per hour:

| | |
|----------|----------|
| 1st Term | \$ 12.70 |
| 2nd Term | 16.30 |
| 3rd Term | 16.30 |
| 4th Term | 16.30 |
| 5th Term | 24.70 |

8-235h

Laborer - Heavy&Highway

02/01/2021

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 1

ENTIRE COUNTIES

Albany, Rensselaer, Washington

PARTIAL COUNTIES

Columbia: Only the Townships of Stuyvesant, Stockport, Kinderhook, New Lebanon, Canaan, Ghent, Chatham, and Austerlitz

Greene: Entire county except the Township of Catskill.

Saratoga: Only the Townships of Halfmoon, Saratoga, Stillwater, Waterford, and the City of Mechanicville.

WAGES

GROUP # A:

Basic, Drill Helper, Flagman, Outboard and Hand Boats

GROUP # B:

Chain Saw, Concrete Aggregate Bin, Concrete Bootmen, Gin Buggy, Hand or Machine Vibrator, Jack Hammer, Mason Tender, Mortar Mixer, Pavement Breaker, Handlers of Steelmesh, Small Generators for Laborers' Tools, Installation of Bridge Drainage Pipe, Pipe Layers, Vibrator Type Rollers, Tamper, Drill Doctor, Tail or Screw Operator on Asphalt Paver, Water Pump Operators(1-1/2" and Single Diaphragm) Nozzle (Asphalt, Guniting, Seeding and Sand Blasting), Laborers on Chain Link Fence. Rock Splitter and Power Unit, Pusher Type Concrete Saw and all other Gas, Electric, Oil and Air Tool Operators, Wrecking Laborer.

GROUP # C:

Drilling Equipment Only Where a Separate Air Compressor Unit Supplies Power, Acetylene Torch Operators, Asphalt Raker and Powderman.

GROUP # D:

Blasters, Metal Form Setters(sidewalk), Stone or Granite Curb Setters.

GROUP # E:

Employees performing hazardous waste removal, lead abatement and removal, or asbestos abatement and removal on a State and/or Federally designated waste site & where relevant State or Federal regulations require employees to use or wear forms of personal protection.

WAGES per hour

| | 07/01/2020 | 07/01/2021 Additional |
|-----------|------------|--------------------------|
| Group # A | \$ 33.04 | \$ 2.00 |
| Group # B | 33.24 | |
| Group # C | 33.44 | |
| Group # D | 33.64 | |
| Group # E | 35.04 | |

All employees who work a single irregular work day that starts from 5:00 pm to 1:00 am on a governmental mandated night shift shall be paid an additional \$2.50 per hour.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$ 24.75

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: If the holiday falls on Sunday, it will be celebrated on Monday. If the Holiday falls on a Saturday employer can choose to celebrate Saturday or give Friday off with pay.

REGISTERED APPRENTICES

Wages per hour

1000 hour terms at the following percentage of Journeyman's wage

| 1st | 2nd | 3rd | 4th |
|-----|-----|-----|-----|
| 65% | 70% | 80% | 80% |

Supplemental Benefits per hour worked

Apprentices \$ 24.75

1-190 h/h

Laborer - Heavy&Highway

02/01/2021

JOB DESCRIPTION Laborer - Heavy&Highway

DISTRICT 11

ENTIRE COUNTIES

Dutchess

PARTIAL COUNTIES

Columbia: Only the Townships of Claverack, Clermont, Greenport, Philmont, Germantown, Livingston, Hillsdale, Taghkanic, Gallatin, Copake, Ancram, City of Hudson.

WAGES

ALL WORK RELATED WITH TOXIC OR ANY ASBESTOS OR HAZARDOUS MATERIAL, BIO REMEDIATION AND PHYTO REMEDIATION(Five feet or more outside of building foundation line)

WAGES:(per hour)

07/01/2020

Class 3 \$ 44.25

SHIFT DIFFERENTIAL: On all NYS D.O.T. or other Governmental mandated irregular or off shift work, an additional 15% of wage on straight time pay.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman

\$ 29.75

SHIFT

33.81

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

Employees that work on a holiday which falls on a Saturday, shall be paid two and one-half (2-1/2) times the regular hourly rate for all hours worked on that day.

HOLIDAY

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 15, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour

1000 hour terms at the following wage rates:

| | |
|----------|----------|
| 1st term | \$ 20.46 |
| 2nd term | 24.18 |
| 3rd term | 27.90 |
| 4th term | 31.62 |

Supplemental Benefits per hour:

| | |
|------------|----------|
| Apprentice | \$ 24.65 |
| Shift | 27.85 |

11-17tox HH

Laborer - Tunnel

02/01/2021

JOB DESCRIPTION Laborer - Tunnel

DISTRICT 11

ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Otsego, Putnam, Rockland, Sullivan, Ulster, Westchester

PARTIAL COUNTIES

Chenango: Townships of Columbus, Sherburne and New Berlin.

Delaware: Townships of Andes, Bovina, Middletown, Roxbury, Franklin, Hamden, Stamford, Delhi, Kortright, Harpersfield, Merideth and Davenport.

WAGES

Class 1: All support laborers/sandhogs working above the shaft or tunnel.

Class 2: All laborers/sandhogs working in the shaft or tunnel.

Class 4: Safety Miners

Class 5: Site work related to Shaft/Tunnel

WAGES: (per hour)

| | 07/01/2020 | 07/01/2021 | 07/01/2022 |
|---------|------------|------------|------------|
| Class 1 | \$ 50.45 | \$ 51.95 | \$ 53.45 |
| Class 2 | 52.60 | 54.10 | 55.60 |
| Class 4 | 59.00 | 60.50 | 62.00 |
| Class 5 | 42.25 | 43.50 | 44.80 |

Toxic and hazardous waste, lead abatement and asbestos abatement work will be paid an additional \$ 3.00 an hour.

SHIFT DIFFERENTIAL...On all Government mandated irregular shift work:

- Employee shall be paid at time and one half the regular rate Monday through Friday.
- Saturday shall be paid at 1.65 times the regular rate.
- Sunday shall be paid at 2.15 times the regular rate.

SUPPLEMENTAL BENEFITS

Per hour:

| | | | |
|-----------|----------|----------|----------|
| Benefit 1 | \$ 32.15 | \$ 33.25 | \$ 34.45 |
| Benefit 2 | 48.15 | 49.80 | 51.60 |
| Benefit 3 | 64.15 | 66.35 | 68.75 |

Benefit 1 applies to straight time hours, paid holidays not worked.

Benefit 2 applies to over 8 hours in a day (M-F), irregular shift work hours worked, and Saturday hours worked.

Benefit 3 applies to Sunday and Holiday hours worked.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

When a recognized Holidays falls on Saturday or Sunday, holidays falling on Saturday shall be recognized or observed on Friday and holidays falling on Sunday shall be recognized or observed on Monday. Employees ordered to work on the Saturday or Sunday of the holiday or on the recognized or the observed Friday or Monday for those holidays falling on Saturday or Sunday shall receive double time the established rate and benefits for the holiday.

REGISTERED APPRENTICES

FOR APPRENTICE RATES, refer to the appropriate Laborer Heavy & Highway wage rate contained in the wage schedule for the County and location where the work is to be performed.

11-17/60/235/754Tun

Lineman Electrician

02/01/2021

JOB DESCRIPTION Lineman Electrician

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES

Per hour:

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines

Below rates applicable on all overhead and underground distribution and maintenance work, and all overhead and underground transmission line work and the installation of fiber optic cable where no other construction trades are or have been involved. (Ref #14.01.01)

07/01/2020

| | |
|-------------------------|----------|
| Lineman, Technician | \$ 53.50 |
| Crane, Crawler Backhoe | 53.50 |
| Welder, Cable Splicer | 53.50 |
| Digging Mach. Operator | 48.15 |
| Tractor Trailer Driver | 45.48 |
| Groundman, Truck Driver | 42.80 |
| Equipment Mechanic | 42.80 |
| Flagman | 32.10 |

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all electrical sub-stations, switching structures, fiber optic cable and all other work not defined as "Utility outside electrical work". (Ref #14.02.01-A)

| | |
|-------------------------|----------|
| Lineman, Technician | \$ 53.50 |
| Crane, Crawler Backhoe | 53.50 |
| Cable Splicer | 58.85 |
| Certified Welder - | |
| Pipe Type Cable | 56.18 |
| Digging Mach. Operator | 48.15 |
| Tractor Trailer Driver | 45.48 |
| Groundman, Truck Driver | 42.80 |
| Equipment Mechanic | 42.80 |
| Flagman | 32.10 |

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates apply on switching structures, maintenance projects, railroad catenary install/maintenance third rail installation, bonding of rails and pipe type cable and installation of fiber optic cable. (Ref #14.02.01-B)

| | |
|-------------------------|----------|
| Lineman, Tech, Welder | \$ 54.82 |
| Crane, Crawler Backhoe | 54.82 |
| Cable Splicer | 60.30 |
| Certified Welder - | |
| Pipe Type Cable | 57.56 |
| Digging Mach. Operator | 49.34 |
| Tractor Trailer Driver | 46.60 |
| Groundman, Truck Driver | 43.86 |
| Equipment Mechanic | 43.86 |
| Flagman | 32.89 |

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all overhead and underground transmission line work & fiber optic cable where other construction trades are or have been involved. This applies to transmission line work only, not other construction. (Ref #14.03.01)

| | |
|-------------------------|----------|
| Lineman, Tech, Welder | \$ 56.01 |
| Crane, Crawler Backhoe | 56.01 |
| Cable Splicer | 56.01 |
| Digging Mach. Operator | 50.41 |
| Tractor Trailer Driver | 47.61 |
| Groundman, Truck Driver | 44.81 |
| Equipment Mechanic | 44.81 |
| Flagman | 33.61 |

Additional \$1.00 per hour for entire crew when a helicopter is used.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

| | |
|-----------|--|
| 1ST SHIFT | 8:00 AM to 4:30 PM REGULAR RATE |
| 2ND SHIFT | 4:30 PM to 1:00 AM REGULAR RATE PLUS 17.3 % |
| 3RD SHIFT | 12:30 AM to 9:00 AM REGULAR RATE PLUS 31.4 % |

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked (also required on non-worked holidays):

The following SUPPLEMENTAL BENEFITS apply to all classification categories of CONSTRUCTION, TRANSMISSION and DISTRIBUTION.

| | |
|------------|---|
| Journeyman | \$ 24.90 *plus 6.75% of hourly wage |
|------------|---|

*The 6.75% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q,) on OVERTIME PAGE. *Note* Double time for all emergency work designated by the Dept. of Jurisdiction.

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

| | |
|----------|--|
| Paid | See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day. |
| Overtime | See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day. |

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyman Lineman wage.

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th |
| 60% | 65% | 70% | 75% | 80% | 85% | 90% |

SUPPLEMENTAL BENEFITS per hour: Same as Journeyman

6-1249a

Lineman Electrician - Teledata

02/01/2021

JOB DESCRIPTION Lineman Electrician - Teledata

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour:

For outside work, stopping at first point of attachment (demarcation).

07/01/2020 01/01/2021

| | | |
|------------------------|----------|----------|
| Cable Splicer | \$ 33.77 | \$ 34.78 |
| Installer, Repairman | \$ 32.05 | \$ 33.01 |
| Teledata Lineman | \$ 32.05 | \$ 33.01 |
| Tech., Equip. Operator | \$ 32.05 | \$ 33.01 |

| | | |
|-----------|----------|----------|
| Groundman | \$ 16.99 | \$ 17.50 |
|-----------|----------|----------|

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work please see LINEMAN.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED:

| | |
|-----------|-----------------------|
| 1ST SHIFT | REGULAR RATE |
| 2ND SHIFT | REGULAR RATE PLUS 10% |
| 3RD SHIFT | REGULAR RATE PLUS 15% |

SUPPLEMENTAL BENEFITS

Per hour:

| | | |
|------------|-------------|-------------|
| Journeyman | \$ 5.06 | \$ 5.06 |
| | *plus 3% of | *plus 3% of |
| | wage paid | wage paid |

*The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

| | |
|-----------|--------------------------------|
| Paid: | See (1) on HOLIDAY PAGE |
| Overtime: | See (5, 6, 16) on HOLIDAY PAGE |

6-1249LT - Teledata

Lineman Electrician - Traffic Signal, Lighting

02/01/2021

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting

DISTRICT 6

ENTIRE COUNTIES

Columbia, Dutchess, Orange, Putnam, Rockland, Ulster

WAGES

Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors which includes, but is not limited to road loop wires; conduit and plastic or other type pipes that carry conductors, flex cables and connectors, and to oversee the encasement or burial of such conduits or pipes.

A Groundman/Groundman Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.
(Ref #14.01.02)

Per hour: 07/01/2020

| | |
|-------------------------|----------|
| Lineman, Technician | \$ 47.48 |
| Crane, Crawler Backhoe | 47.48 |
| Certified Welder | 49.85 |
| Digging Machine | 42.73 |
| Tractor Trailer Driver | 40.36 |
| Groundman, Truck Driver | 37.98 |
| Equipment Mechanic | 37.98 |
| Flagman | 28.49 |

Above rates are applicable for installation, testing, operation, maintenance and repair on all Traffic Control (Signal) and Illumination (Lighting) projects, Traffic Monitoring Systems, and Road Weather Information Systems. Includes digging of holes for poles, anchors, footer foundations for electrical equipment; assembly of all electrical materials or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

| | |
|-----------|---|
| 1ST SHIFT | 8:00 AM TO 4:30 PM REGULAR RATE |
| 2ND SHIFT | 4:30 PM TO 1:00 AM REGULAR RATE PLUS 17.3% |
| 3RD SHIFT | 12:30 AM TO 9:00 AM REGULAR RATE PLUS 31.4% |

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

| | |
|------------|----------------------------|
| Journeyman | \$ 24.90 |
| | *plus 6.75% of hourly wage |

* The 6.75% is based on the hourly wage paid, straight time rate or premium rate.

Supplements paid at STRAIGHT TIME rate for holidays.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE. *Note* Double time for all emergency work designated by the Dept. of Jurisdiction.

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked.

Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (5, 6, 8, 13, 25) on HOLIDAY PAGE and Governor of NYS Election Day.

Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE and Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms.

| | |
|----------|------------|
| | 07/01/2020 |
| 1st term | \$ 28.49 |
| 2nd term | 30.86 |
| 3rd term | 33.24 |
| 4th term | 35.61 |
| 5th term | 37.98 |
| 6th term | 40.36 |
| 7th term | 42.73 |

SUPPLEMENTAL BENEFITS per hour: Same as Journeyman

6-1249aReg8LT

Lineman Electrician - Tree Trimmer

02/01/2021

JOB DESCRIPTION Lineman Electrician - Tree Trimmer

DISTRICT 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES

Applies to line clearance, tree work and right-of-way preparation on all new or existing energized overhead or underground electrical, telephone and CATV lines. This also would include stump removal near underground energized electrical lines, including telephone and CATV lines.

| Per hour: | 07/01/2020 | 01/03/21 | 01/02/22 | 01/01/23 |
|--------------------|------------|----------|----------|----------|
| Tree Trimmer | \$ 26.56 | \$ 27.36 | \$ 28.25 | \$ 29.59 |
| Equipment Operator | 23.49 | 24.19 | 24.98 | 26.17 |
| Equipment Mechanic | 23.49 | 24.19 | 24.98 | 26.17 |
| Truck Driver | 19.56 | 20.15 | 20.80 | 21.79 |
| Groundman | 16.11 | 16.59 | 17.13 | 17.94 |

| | | | | |
|-------------|-------|--------|-------|-------|
| Flag person | 11.80 | 12.50* | 12.50 | 12.94 |
|-------------|-------|--------|-------|-------|

*RATE GOES INTO EFFECT 12/31/2020

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

| | | | | |
|------------|---------------------------------------|---------------------------------------|--|--|
| Journeyman | \$ 9.98 *plus 3% of hourly wage | \$ 9.98 *plus 3% of hourly wage | \$ 10.23 *plus 3% of hourly wage | \$ 10.48 *plus 3% of hourly wage |
|------------|---------------------------------------|---------------------------------------|--|--|

* The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked.

Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE

NOTE: All paid holidays falling on a Saturday shall be observed on the preceding Friday.

All paid holidays falling on a Sunday shall be observed on the following Monday.

6-1249TT

Mason - Building

02/01/2021

JOB DESCRIPTION Mason - Building

DISTRICT 12

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

WAGES

Per hour 07/01/2020

Tile/Marble/Terrazzo

| | |
|----------|----------|
| Setter | \$ 36.06 |
| Finisher | 28.16 |

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked

| | |
|---------------------|----------|
| Journeyman Setter | \$ 20.78 |
| Journeyman Finisher | 17.93 |

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour

Hour Terms at the following percentage of Journeyman's wage

| | |
|------------------------|-----|
| Setter: | |
| 1st term 0-500 hrs | 60% |
| 2nd term 501-1500 hrs | 70% |
| 3rd term 1501-2500 hrs | 80% |
| 4th term 2501-3500 hrs | 85% |
| 5th term 3501-4500 hrs | 90% |
| 6th term 4501-6000 hrs | 95% |

| | |
|------------------------|-----|
| Finisher: | |
| 1st term 0-500 hrs | 70% |
| 2nd term 501-1500 hrs | 80% |
| 3rd term 1501-2500 hrs | 90% |
| 4th term 2501-3700 hrs | 95% |

Supplemental Benefits per hour worked

07/01/2020

| | |
|------------------------|----------|
| Setter: | |
| 1st term 0-500 hrs | \$ 12.23 |
| 2nd term 501-1500 hrs | 12.23 |
| 3rd term 1501-2500 hrs | 16.51 |
| 4th term 2501-3500 hrs | 16.51 |
| 5th term 3501-4500 hrs | 18.64 |
| 6th term 4501-6000 hrs | 20.78 |

| | |
|------------------------|----------|
| Finisher: | |
| 1st term 0-500 hrs | \$ 11.58 |
| 2nd term 501-1500 hrs | 11.58 |
| 3rd term 1501-2500 hrs | 14.76 |
| 4th term 2501-3700 hrs | 14.76 |

12-2TS.1

Mason - Building

02/01/2021

JOB DESCRIPTION Mason - Building

DISTRICT 12

ENTIRE COUNTIES

Albany, Columbia, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Washington

PARTIAL COUNTIES

Warren: Only the Townships of Bolton, Lake George, Lake Luzerne,Queensbury, Stony Creek, Thurman & Warrensburg.

WAGES

Per hour 07/01/2020

| | |
|-------------------------|----------|
| Bricklayer | \$ 37.89 |
| Cement Mason(Bldg) | 37.89 |
| Plasterer/Fireproofing* | 37.89 |
| Pointer/Caulker/Cleaner | 37.89 |
| Stone Mason | 37.89 |
| Acid Brick | 38.39 |

(*)Fireproofing of Structural only.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour worked

| | |
|------------|----------|
| Journeyman | \$ 21.78 |
|------------|----------|

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

Note: Any holiday which occurs on Sunday shall be observed the following Monday.

REGISTERED APPRENTICES

Wages per hour

750 hour terms at the following percentage of Journey's wage

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th |
| 55% | 60% | 65% | 70% | 75% | 80% | 85% | 90% |

Supplemental Benefits per hour worked

| | |
|-------------|----------|
| 0-500 Hours | \$ 12.88 |
| All others | \$ 21.78 |

12-2b.1

Mason - Heavy&Highway**02/01/2021**

JOB DESCRIPTION Mason - Heavy&Highway**DISTRICT** 12**ENTIRE COUNTIES**

Albany, Cayuga, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Madison, Montgomery, Oneida, Oswego, Rensselaer, Saratoga, Schenectady, Schoharie, St. Lawrence, Warren, Washington

PARTIAL COUNTIES

Onondaga: For Heavy & Highway Cement Mason or Plaster Work in Onondaga County, refer to Mason-Heavy&Highway tag 1-2h/h on.

WAGES

Per hour

07/01/2020

Mason &
Bricklayer

\$38.95

Additional \$1.00 per hour for work on any swing scaffold or staging suspended by means of ropes or cables.

SUPPLEMENTAL BENEFITS

Per hour worked

Journeyman

\$ 20.79

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: If a holiday falls on Sunday, the Monday following shall constitute the day of the legal holiday.

REGISTERED APPRENTICES

Wages per hour

750 HR TERMS at the following percent of Journeyman's wage

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th |
| 55% | 60% | 65% | 70% | 75% | 80% | 85% | 90% |

Supplemental Benefits per hour worked

\$ 20.79

12-2hh.1

Millwright**02/01/2021**

JOB DESCRIPTION Millwright**DISTRICT** 2**ENTIRE COUNTIES**

Columbia, Greene

WAGES

Per hour:

07/01/2020

Building
Heavy & Highway

\$ 35.05

37.05

NOTE ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums):

- Certified Welders shall receive \$1.75 per hour in addition to the current Millwrights rate provided he/she is directed to perform certified welding.

- For Building work if a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) are required, then that employee shall receive a \$1.50 premium per hour for Building work.

- For Heavy & Highway work if the work is performed at a State or Federally designated hazardous waste site where employees are required to wear protective gear, the employees performing the work shall receive an additional \$2.00 per hour over the millwright heavy and highway wage rate for all hours worked on the day protective gear was worn.

- An employee performing the work of a machinist shall receive \$2.00 per hour in addition to the current Millwrights rate. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.
- When performing work underground at 500 feet and below, the employee shall receive an additional \$1.00.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 29.47

OVERTIME PAY

See (B, E, *E2, Q) on OVERTIME PAGE

*Note - Saturday may be used as a make-up day and worked at the straight time rate of pay during a work week when conditions such as weather, power failure, fire, or natural disaster prevent the performance of work on a regular scheduled work day.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: Any holiday that falls on Sunday shall be observed the following Monday. Any holiday that falls on Saturday shall be observed the preceding Friday.

REGISTERED APPRENTICES

Wages per hour:

(1)year terms at the following percentage of journeymans rate.

| 1st | 2nd | 3rd | 4th |
|-----|-----|-----|-----|
| 60% | 70% | 80% | 90% |

Supplemental Benefits per hour:

Apprentices:

| | |
|----------|----------|
| 1st term | \$ 12.97 |
| 2nd term | 24.52 |
| 3rd term | 26.17 |
| 4th term | 27.82 |

2-1163.4

Operating Engineer - Building

02/01/2021

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

PARTIAL COUNTIES

Dutchess: Defined as north of the northern boundary line of City of Poughkeepsie then due east to Route 115 to Bedelt Road then east along Bedelt Road to VanWagner Road then north along VanWagner Road to Bower Road then east along Bower Road to Rte. 44 east to Route 343 then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to Connecticut.

WAGES

CLASS A1:

Crane, hydraulic cranes, tower crane, locomotive crane, piledriver, cableway, derricks, whirllies, dragline, boom trucks over 5 tons.

CLASS A:

Shovel, all Excavators (including rubber tire full swing), Gradalls, power road grader, all CMI equipment, front-end rubber tire loader, tractor-mounted drill (quarry master), mucking machine, concrete central mix plant, concrete pump, belcrete system, automated asphalt concrete plant, and tractor road paver, boom trucks 5 tons and under, maintenance engineer, self-contained crawler drill-hydraulic rock drill.

CLASS B:

Backhoes (rubber tired backhoe/loader combination), bulldozer, pushcat, tractor, traxcavator, scraper, LeTourneau grader, form fine grader, self-propelled soil compactor (fill roller), asphalt roller, blacktop spreader, power brooms, sweepers, trenching machine, Barber Green loader, side booms, hydro hammer, concrete spreader, concrete finishing machine, one drum hoist, power hoisting (single drum), hoist two drum or more, three drum engine, power hoisting (two drum and over), two drum and swinging engine, three drum swinging engine, hod hoist, A-L frame winches, core and well drillers (one drum), post hole digger, model CHB Vibro-Tamp or similar machine, batch bin and plant operator, dinky locomotive, skid steer loader, track excavator 5/8 cubic yard or smaller, front end rubber tired loader under four cubic yards, vacuum machine (mounted or towed).

CLASS C:

Fork lift, high lift, all terrain fork lift: or similar, oiler, fireman and heavy-duty greaser, boilers and steam generators, pump, vibrator, motor mixer, air compressor, dust collector, welding machine, well point, mechanical heater, generators, temporary light plants, electric submersible pumps 4" and over, murphy type diesel generator, conveyor, elevators, concrete mixer, beltcrete power pack (belcrete system), seeding, and mulching machines, pumps.

* In the event that equipment listed above is operated by robotic control, the classification covering the operation will be the same as if manually operated.

WAGES per hour

| | 07/01/2020 | 07/01/2021 |
|------------|------------|------------|
| Class # A1 | \$ 45.67 | 46.71 |
| Class # A | 45.18 | 46.22 |
| Class # B | 44.16 | 45.20 |
| Class # C | 41.26 | 42.30 |

Additional \$0.50 per hr for Tower Cranes.

Additional \$1.25 per hr for Cranes with Boom length & jib 150ft. and over.

Additional \$2.25 per hr for Cranes with Boom length & jib 200ft. and over.

Additional \$2.50 per hr over B rate for Nuclear Leader work.

Additional \$0.40 per hr for tunnel or excavation of shaft 40' or more deep.

Additional \$2.50 per hour if work requires Personal Protective Equipment for hazardous waste site activities with a level C or over rating.

SUPPLEMENTAL BENEFITS

Per hour

| | 07/01/2020 | 07/01/2021 |
|------------|------------|------------|
| Journeyman | \$ 28.25 | 29.40 |

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: If a holiday falls on Sunday, it will be celebrated on Monday. If the holiday falls on Saturday, it will be celebrated on Friday.

Employees who work a Saturday holiday shall be paid double time plus 8 hours of straight time.

REGISTERED APPRENTICES

Wages per hour

1000 hours terms at the following percentage of Journeyperson's wage Class B

| | | | |
|-----|-----|-----|-----|
| 1st | 2nd | 3rd | 4th |
| 60% | 70% | 80% | 90% |

Supplemental Benefits per hour worked

| | 07/01/2020 | 07/01/2021 |
|-----------|------------|------------|
| All terms | \$ 23.55 | 24.70 |

1-158 Alb

Operating Engineer - Heavy&Highway

02/01/2021

JOB DESCRIPTION Operating Engineer - Heavy&Highway

DISTRICT 1

ENTIRE COUNTIES

Albany, Broome, Chenango, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Tioga, Warren, Washington

PARTIAL COUNTIES

Dutchess: Defined as north of the northern boundary line of City of Poughkeepsie then due east to Route 115 to Bedelt Road then east along Bedelt Road to VanWagner Road then north along VanWagner Road to Bower Road then east along Bower Road to Rte. 44 east to Route 343 then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to Connecticut.

WAGES

CLASSIFICATION A:

Asphalt Curb Machine (Self Propelled, Slipform), Asphalt Paver, Automated Concrete Spreader (CMI Type), Automatic Fine Grader, Backhoe (Except Tractor Mounted, Rubber Tired), Backhoe Excavator Full Swing (CAT 212 or similar type), Back Filling Machine, Belt Placer (CMI Type), Blacktop Plant (Automated), Boom truck, GPS operated Bull Dozer, Cableway, Caisson Auger, Central Mix Concrete Plant (Automated), Concrete Curb Machine (Self Propelled, Slipform), Concrete Pump, Crane, Cherry Picker, Derricks (steel erection), Dragline, Overhead Crane (Gantry or Straddle type), Pile Driver, Truck Crane, Directional Drilling Machine, Dredge, Dual Drum Paver, Excavator (All PurposeHydraulically Operated) (Gradall or Similar), Front End Loader (4 cu. yd. and Over), Head Tower (Sauerman or Equal), Hoist (Two or Three Drum), Holland Loader, Maintenance Engineer, Mine Hoist, Mucking Machine or Mole, Pavement Breaker(SP) Wertgen; PB-4 and similar type, Power Grader, Profiler (over 105 H.P.), Quad 9, Quarry Master (or equivalent), Scraper, Shovel, Side Boom, Slip Form Paver (If a second man is needed, he shall be an Oiler), Tractor Drawn BeltType Loader, Truck or Trailer Mounted Log Chipper (Self Feeder), Tug Operator (Manned Rented Equipment Excluded), Tunnel Shovel

CLASSIFICATION B:

Backhoe (Tractor Mounted, Rubber Tired), Bituminous Recycler Machine, Bituminous Spreader and Mixer, Blacktop Plant (NonAutomated), Blast or Rotary Drill (Truck or Tractor Mounted), Brokk, Boring Machine, Cage Hoist, Central Mix Plant [(NonAutomated) and All Concrete Batching Plants], Concrete Paver (Over 16S), Crawler Drill (Self-contained), Crusher, Diesel Power Unit, Drill Rigs, Tractor Mounted, Front End Loader (Under 4 cu. yd.), Greaseman/Lubrication Engineer, HiPressure Boiler (15 lbs. and over), Hoist (One Drum), Hydro-Axe, Kolman Plant Loader and Similar Type Loaders (If Employer requires another man to clean the screen or to maintain the equipment, he shall be an Oiler), L.C.M. Work Boat Operator, Locomotive, Material handling knuckle boom, Mini Excavator (under 18,000 lbs.), Mixer (for stabilized base selfpropelled), Monorail Machine, Plant Engineer, Prentice Loader, Profiler (105 H.P. and under), Pug Mill, Pump Crete, Ready Mix Concrete Plant, Refrigeration Equipment (for soil stabilization), Road Widener, Roller (all above subgrade), Sea Mule, Self-contained Ride-on Rock Drill(Excluding Air-Track Type Drill), Skidder, Tractor with Dozer and/or Pusher, Trencher, Tugger Hoist, Vacuum machine (mounted or towed), Vermeer saw (ride on, any size or type), Welder

CLASSIFICATION C:

A Frame Winch Hoist on Truck, Articulated Heavy Hauler, Aggregate Plant, Asphalt or Concrete Grooving Machine (ride on), Ballast Regulator(Ride-on), Boiler (used in conjunction with production), Bituminous Heater (self-propelled), Boat (powered), Cement and Bin Operator, Concrete Pavement Spreader and Finisher Concrete Paver or Mixer (16' and under), Concrete Saw (self-propelled), Conveyor, Deck Hand, Directional Drill Machine Locator, Drill (Core and Well), Farm Tractor with accessories, Fine Grade Machine, Fireman, Fork Lift, Form Tamper, Grout Pump, Gunit Machine, Hammers (Hydraulic self-propelled), Hydra-Spiker (ride-on), Hydraulic Pump (jacking system), Hydro-Blaster (Water), Mulching Machine, Oiler, Parapet Concrete or Pavement Grinder, Post Hole Digger and Post Driver, Power Broom (towed), Power Heaterman, Power Sweeper, Revinus Widener, Roller (Grade and Fill), Scarifier (ride-on), Shell Winder, Skid steer loader (Bobcat or similar), Span-Saw (ride-on), Steam Cleaner, Tamper (ride-on), Tie Extractor (ride-on), Tie Handler (ride-on), Tie Inserter (ride-on), Tie Spacer (ride-on), Tire Repair, Track Liner (ride-on), Tractor, Tractor (with towed accessories), Vibratory Compactor, Vibro Tamp, Well Point, and the following hands-off equipment: Compressors, Dust Collectors, Generators, Pumps, Welding Machines, Light Plants and Heaters

- Note for all above classifications of Operating Engineer - In the event that equipment listed above is operated by robotic control, the classification covering the operation will be the same as if manually operated.

WAGES per hour

| | 07/01/2020 | 07/01/2021 |
|-----------------|------------|------------|
| Master Mechanic | \$ 47.88 | \$ 49.43 |
| Class A* | 46.27 | 47.82 |
| Class B | 45.36 | 46.91 |
| Class C | 42.79 | 44.34 |

Additional \$2.50 per hour for All Employees who work a single irregular work shift starting from 5:00 PM to 1:00 AM that is mandated by the Contracting Agency.

Additional \$2.50 per hr. for hazardous waste removal work on State and/or Federally designated waste site which require employees to wear Level C or above forms of personal protection.

(*) Premiums for CRANES is based upon Class A rates with the following premiums:

- Additional \$4.00 per hr for Tower Cranes, including self erecting.
- Additional \$3.00 per hr for Lattice Boom Cranes and all other cranes with a manufacturers rating of fifty (50) tons and over.
- Additional \$2.00 per hr for all Hydraulic Cranes and Derricks with a manufacturer's rating of 49 ton and below, including boom trucks.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour

| | | |
|----------------|----------|----------|
| Journey person | \$ 28.45 | \$ 29.60 |
|----------------|----------|----------|

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: If the holiday falls on Sunday, it will be celebrated on Monday. If the Holiday falls on a Saturday employer can choose to celebrate Saturday or give Friday off with pay.

REGISTERED APPRENTICES

Wages per hour

1000 hours terms at the following percentage of Journeyperson's wage Class B

| 1st | 2nd | 3rd | 4th |
|-----|-----|-----|-----|
| 60% | 70% | 80% | 90% |

Supplemental Benefits per hour worked

| | 07/01/2020 | 07/01/2021 |
|-----------|------------|------------|
| All Terms | \$ 23.85 | \$ 25.00 |

1-158H/H Alb

Operating Engineer - Marine Dredging

02/01/2021

JOB DESCRIPTION Operating Engineer - Marine Dredging

DISTRICT 4

ENTIRE COUNTIES

Albany, Bronx, Cayuga, Chautauqua, Clinton, Columbia, Dutchess, Erie, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Niagara, Orange, Orleans, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

WAGES

These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for all equipment and operators are only for marine dredging work in navigable waters found in the counties listed above.

| Per Hour: | 07/01/2020 | 10/01/2020 |
|---|--|------------|
| CLASS A1 Deck Captain, Leverman Mechanical Dredge Operator Licensed Tug Operator 1000HP or more. | \$ 40.31 | \$ 41.42 |
| CLASS A2 Crane Operator (360 swing) | 35.92 | 36.91 |
| CLASS B Dozer, Front Loader Operator on Land | To conform to Operating Engineer Prevailing Wage in locality where work is being performed including benefits. | |
| CLASS B1 Derrick Operator (180 swing) Spider/Spill Barge Operator Operator II, Fill Placer, Engineer, Chief Mate, Electrician, Chief Welder, Maintenance Engineer Licensed Boat, Crew Boat Operator | 34.86 | 35.82 |
| CLASS B2 Certified Welder | 32.82 | 33.72 |
| CLASS C1 Drag Barge Operator, Steward, Mate, Assistant Fill Placer | 31.92 | 32.80 |
| CLASS C2 Boat Operator | 30.89 | 31.74 |
| CLASS D Shoreman, Deckhand, Oiler, | 25.66 | 26.37 |

Rodman, Scowman, Cook,
Messman, Porter/Janitor

SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

| | | |
|-------------------|--|--|
| All Classes A & B | 07/01/2020 \$11.58 plus 7.5% of straight time wage, Overtime hours add \$ 0.63 | 10/01/2020 \$11.98 plus 8% of straight time wage, Overtime hours add \$ 0.63 |
| All Class C | \$11.28 plus 7.5% of straight time wage, Overtime hours add \$ 0.48 | 11.68 plus 8% of straight time wage, Overtime hours add \$ 0.48 |
| All Class D | \$10.98 plus 7.5% of straight time wage, Overtime hours add \$ 0.33 | 11.38 plus 8% of straight time wage, Overtime hours add \$ 0.33 |

OVERTIME PAY

See (B2, F, R) on OVERTIME PAGE

HOLIDAY

Paid:

See (1) on HOLIDAY PAGE

Overtime:

See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge

Operating Engineer - Survey Crew

02/01/2021

JOB DESCRIPTION Operating Engineer - Survey Crew

DISTRICT 12

ENTIRE COUNTIES

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES

Dutchess: The northern portion of the county from the northern boundary line of the City of Poughkeepsie, north.

Genesee: Only the portion of the county that lies east of a line down the center of Route 98 to include all area that lies within the City of Batavia.

WAGES

These rates apply to Building, Tunnel and Heavy Highway.

Per hour:

SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party.

Instrument Person - One who operates the surveying instruments.

Rod Person - One who holds the rods and assists the Instrument Person.

07/01/2020

| | |
|-------------------|----------|
| Party Chief | \$ 44.39 |
| Instrument Person | 40.78 |
| Rod Person | 30.22 |

Additional \$3.00/hr. for Tunnel Work

Additional \$2.50/hr. for Hazardous Work Site

SUPPLEMENTAL BENEFITS

Per hour worked:

| | |
|------------|----------|
| Journeyman | \$ 26.30 |
|------------|----------|

OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES: 1000 hour terms based on the Percentage of Rod Persons Wage:

07/01/2020

| | |
|-----------|-----|
| 0-1000 | 60% |
| 1001-2000 | 70% |
| 2001-3000 | 80% |

SUPPLEMENTAL BENEFIT per hour worked:

| | |
|-----------|----------|
| 0-1000 | \$ 18.08 |
| 1001-2000 | 21.10 |
| 2001-3000 | 24.13 |

12-158-545 D.H.H.

Operating Engineer - Survey Crew - Consulting Engineer

02/01/2021

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer

DISTRICT 12

ENTIRE COUNTIES

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES

Dutchess: The northern portion of the county from the northern boundary line of the City of Poughkeepsie, north.

Genesee: Only the portion of the county that lies east of a line down the center of Route 98 to include all area that lies within the City of Batavia.

WAGES

These rates apply to feasibility and preliminary design surveying, line and grade surveying for inspection or supervision of construction when performed under a Consulting Engineer Agreement.

Per hour:

SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party.

Instrument Person - One who operates the surveying instruments.

Rod Person - One who holds the rods and assists the Instrument Person.

07/01/2020

| | |
|-------------------|----------|
| Party Chief | \$ 44.39 |
| Instrument Person | 40.78 |
| Rod Person | 30.22 |

Additional \$3.00/hr. for Tunnel Work.

Additional \$2.50/hr. for EPA or DEC certified toxic or hazardous waste work.

SUPPLEMENTAL BENEFITS

Per hour worked:

| | |
|------------|----------|
| Journeyman | \$ 26.30 |
|------------|----------|

OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES: 1000 hour terms based on percentage of Rod Persons Wage:

07/01/2020

| | |
|-----------|-----|
| 0-1000 | 60% |
| 1001-2000 | 70% |
| 2001-3000 | 80% |

SUPPLEMENTAL BENEFIT per hour worked:

| | |
|-----------|----------|
| 0-1000 | \$ 18.08 |
| 1001-2000 | \$ 21.10 |
| 2001-3000 | \$ 24.13 |

12-158-545 DCE

Operating Engineer - Tunnel

02/01/2021

JOB DESCRIPTION Operating Engineer - Tunnel

DISTRICT 7

ENTIRE COUNTIES

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schoenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES

Dutchess: Northern part of Dutchess, to the northern boundary line of the City of Poughkeepsie, then due east to Route 115 to Bedell Road, then east along Bedell Road to VanWagner Road, then north along VanWagner Road to Bower Road, then east along Bower Road to Rte. 44 east to Rte. 343, then along Rte. 343 east to the northern boundary of the Town of Dover Plains and east along the northern boundary of the Town of Dover Plains, to the borderline of the State of Connecticut.

Genesee: Only that portion of the county that lies east of a line drawn down the center of Route 98 and the entirety of the City of Batavia.

WAGES

CLASS A: Automatic Concrete Spreader (CMI Type); Automatic Fine Grader; Backhoe (except tractor mounted, rubber tired); Belt Placer (CMI Type); Blacktop Plant (automated); Cableway; Caisson Auger; Central Mix Concrete Plant (automated); Concrete Curb Machine (self-propelled slipform); Concrete Pump (8" or over); Dredge; Dual Drum Paver; Excavator; Front End Loader (4 cu. yd & over); Gradall; Head Tower (Sauerman or Equal); Hoist (shaft); Hoist (two or three Drum); Log Chipper/Loader (self-feeder); Maintenance Engineer (shaft and tunnel); any Mechanical Shaft Drill; Mine Hoist; Mining Machine (Mole and similar types); Mucking Machine or Mole; Overhead Crane (Gantry or Straddle Type); Pile Driver; Power Grader; Remote Controlled Mole or Tunnel Machine; Scraper; Shovel; Side Boom; Slip Form Paver (If a second man is needed, they shall be an Oiler); Tripper/Maintenance Engineer (shaft & tunnel); Tractor Drawn Belt-Type Loader; Tug Operator (manned rented equipment excluded); Tunnel Shovel

CLASS B: Automated Central Mix Concrete Plant; Backhoe (topside); Backhoe (track mounted, rubber tired); Backhoe (topside); Bituminous Spreader and Mixer, Blacktop Plant (non-automated); Blast or Rotary Drill (truck or tractor mounted); Boring Machine; Cage Hoist; Central Mix Plant (non-automated); all Concrete Batching Plants; Compressors (4 or less exceeding 2,000 c.f.m. combined capacity); Concrete Pump; Crusher; Diesel Power Unit; Drill Rigs (tractor mounted); Front End Loader (under 4 cu. yd.); Grayco Epoxy Machine; Hoist (One Drum); Hoist (2 or 3 drum topside); Knuckle Boom material handler; Kolman Plant Loader & similar type Loaders (if employer requires another person to clean the screen or to maintain the equipment, they shall be an Oiler); L.C.M. Work Boat Operator; Locomotive; Maintenance Engineer (topside); Maintenance Grease Man; Mixer (for stabilized base-self propelled); Monorail Machine; Plant Engineer; Personnel Hoist; Pump Crete; Ready Mix Concrete Plant; Refrigeration Equipment (for soil stabilization); Road Widener; Roller (all above sub-grade); Sea Mule; Shotcrete Machine; Shovel (topside); Tractor with Dozer and/or Pusher; Trencher; Tugger Hoist; Tunnel Locomotive; Welder; Winch; Winch Cat

CLASS C: A Frame Truck; All Terrain Telescoping Material Handler; Ballast Regulator (ride-on); Compressors (4 not to exceed 2,000 c.f.m. combined capacity; or 3 or less with more than 1200 c.f.m. but not to exceed 2,000 c.f.m.); Compressors ((any size, but subject to other provisions for compressors), Dust Collectors, Generators, Pumps, Welding Machines, Light Plants (4 or any type combination)); Concrete Pavement Spreaders and Finishers; Conveyor; Drill (core); Drill (well); Electric Pump used in conjunction with Well Point System; Farm Tractor with Accessories; Fine Grade Machine; Fork Lift; Grout Pump (over 5 cu. ft.); Gunite Machine; Hammers (hydraulic-self-propelled); Hydra-Spiker (ride-on); Hydra-Blaster (water); Hydro-Blaster; Motorized Form Carrier; Post Hole Digger and Post Driver; Power Sweeper; Roller grade & fill); Scarifer (ride-on); Span-Saw (ride-on); Submersible Electric Pump (when used in lieu of well points); Tamper (ride-on); Tie-Extractor (ride-on), Tie Handler (ride-on), Tie Insertor (ride-on), Tie Spacer (ride-on); Track Liner (ride-on); Tractor with towed accessories; Vibratory Compactor; Vibro Tamp, Well Point

CLASS D: Aggregate Plant; Cement & Bin Operator; Compressors (3 or less not to exceed 1,200 c.f.m. combined capacity); Compressors ((any size, but subject to other provisions for compressors), Dust Collectors, Generators, Pumps, Welding Machines, Light Plants (3 or less or any type or combination)); Concrete Saw (self-propelled); Form Tamper; Greaseman; Hydraulic Pump (jacking system); Junior Engineer; Light Plants; Mulching Machine; Oiler; Parapet Concrete or Pavement Grinder; Power Broom (towed); Power Heaterman (when used for production); Revinius Widener; Shell Winder; Steam Cleaner; Tractor

| Per hour: | 07/01/2020 | 07/01/2021 | 07/01/2022 |
|-----------------|------------|------------|------------|
| Master Mechanic | \$ 49.45 | \$ 51.00 | \$ 52.60 |
| CLASS A | 47.04 | 48.59 | 50.19 |
| CLASS B | 45.82 | 47.37 | 48.97 |
| CLASS C | 43.03 | 44.58 | 46.18 |
| CLASS D | 40.02 | 41.57 | 43.17 |

Additional \$5.00 per hour for Hazardous Waste Work on a state or federally designated hazardous waste site where the Operating Engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin and eye protection. Fringe benefits will be paid at the hourly wage premium.

CRANES:

Crane 1: All cranes, including self-erecting to be paid \$4.00 per hour over the Class A rate.

Crane 2: All Lattice Boom Cranes and all cranes with a manufacturer's rating of fifty (50) ton and over to be paid \$3.00 per hour over Class A rate.

Crane 3: All hydraulic cranes and derricks with a manufacturer's rating of forty nine (49) ton and below, including boom trucks, to be paid \$2.00 per hour over Class A rate.

| | | | |
|---------|----------|----------|----------|
| Crane 1 | \$ 51.04 | \$ 52.59 | \$ 54.19 |
| Crane 2 | 50.04 | 51.59 | 53.19 |
| Crane 3 | 49.04 | 50.59 | 52.19 |

SUPPLEMENTAL BENEFITS

Per hour:

| | | |
|----------|----------|----------|
| \$ 21.90 | \$ 22.80 | \$ 23.70 |
| + 8.85* | + 9.10* | + 9.35* |

* This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY

See (B, B2, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

If a holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES

WAGES:(1000) hours terms at the following percentage of Journeyman's Class B wage.

| | |
|----------|-----|
| 1st term | 60% |
| 2nd term | 65% |
| 3rd term | 70% |
| 4th term | 75% |

SUPPLEMENTAL BENEFITS per hour: Same as Journeyman

7-158-832TL.

Painter

02/01/2021

JOB DESCRIPTION Painter

DISTRICT 1

ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Sullivan, Ulster

WAGES

Per hour

07/01/2020

| | |
|---------------------|----------|
| Brush/Paper Hanger | \$ 35.14 |
| Dry Wall Finisher | 35.14 |
| Lead Abatement | 35.14 |
| Sandblaster-Painter | 35.14 |
| Spray Rate | 36.14 |

See Bridge Painting rates for the following work:

Structural Steel , all work performed on tanks, ALL BRIDGES, towers, smoke stacks, flag poles. Rate shall apply to all of said areas from the ground up.

SUPPLEMENTAL BENEFITS

Per hour

Journeyperson \$ 24.04

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED SHIFT(S) OR SINGULAR IRREGULAR SHIFT OF AT LEAST A FIVE (5) DAY DURATION (MONDAY THROUGH FRIDAY), WHEN THE SHIFT STARTS BETWEEN THE HOURS LISTED BELOW:

4:00 PM to 6:30 AM REGULAR RATE PLUS 15%**

OVERTIME ON MULTIPLE SHIFT WORK AND SINGULAR IRREGULAR SHIFT THE SHIFT RATE IS THE BASE RATE
**SHIFT RATE STOPS AFTER 6:30AM

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour

Six (6) month terms at the following percentage of Journey person's wage

| | | | | | |
|-----|-----|-----|-----|-----|-----|
| 1st | 2nd | 3rd | 4th | 5th | 6th |
| 40% | 50% | 60% | 70% | 80% | 90% |

Supplemental Benefits per hour worked

| | |
|------------|----------|
| 1st term | \$ 10.64 |
| All others | 24.04 |

1-155

Painter - Bridge & Structural Steel

02/01/2021

JOB DESCRIPTION Painter - Bridge & Structural Steel

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per Hour:

STEEL:

| | | | |
|------------------|------------|------------|------------|
| Bridge Painting: | 07/01/2020 | 10/01/2020 | 10/01/2021 |
| | \$ 50.25 | \$ 51.50 | \$ 53.00 |
| | + 7.88* | + 8.63* | + 9.63* |

ADDITIONAL \$6.00 per hour for POWER TOOL/SPRAY, whether straight time or overtime.

NOTE: All premium wages are to be calculated on base rate per hour only.

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

NOTE: Generally, for Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SHIFT WORK:

When directly specified in public agency or authority contract documents for an employer to work a second shift and works the second shift with employees other than from the first shift, all employees who work the second shift will be paid 10% of the base wage shift differential in lieu of overtime for the first eight (8) hours worked after which the employees shall be paid at time and one half of the regular wage rate. When a single irregular work shift is mandated in the job specifications or by the contracting agency, wages shall be paid at time and one half for single shifts between the hours of 3pm-11pm or 11pm-7am.

SUPPLEMENTAL BENEFITS

Per Hour:

| | | | |
|----------------|------------|------------|------------|
| Journeyworker: | 07/01/2020 | 10/01/2020 | 10/01/2021 |
| | \$ 10.20 | \$ 10.90 | \$ 10.90 |
| | + 29.65* | + 30.00* | + 30.60* |

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage - Per hour:

Apprentices: (1) year terms

| | 07/01/2020 | 10/01/2020 | 10/01/2021 |
|-----------------------------------|----------------------|----------------------|----------------------|
| 1st year | \$ 20.10 + 3.15* | \$ 20.60 + 3.45* | \$ 21.20 + 3.86* |
| 2nd year | \$ 30.15 + 4.73* | \$ 30.90 + 5.18* | \$ 31.80 + 5.78* |
| 3rd year | \$ 40.20 + 6.30* | \$ 41.20 + 6.90* | \$ 42.40 + 7.71* |
| Supplemental Benefits - Per hour: | | | |
| 1st year | \$.25 + 11.86* | \$.25 + 12.00* | \$.25 + 12.24* |
| 2nd year | \$ 10.20 + 17.79* | \$ 10.90 + 18.00* | \$ 10.90 + 18.36* |
| 3rd year | \$ 10.20 + 23.72* | \$ 10.90 + 24.00* | \$ 10.90 + 24.48* |

NOTE: All premium wages are to be calculated on base rate per hour only.

8-DC-9/806/155-BrSS

Painter - Line Striping

02/01/2021

JOB DESCRIPTION Painter - Line Striping

DISTRICT 8

ENTIRE COUNTIES

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES

Per hour:

| | 07/01/2020 | 07/01/2021 | 07/01/2022 |
|-----------------------------|------------|------------|------------|
| Painter (Striping-Highway): | | | |
| Striping-Machine Operator* | \$ 30.10 | \$ 30.32 | \$ 31.53 |
| Linerman Thermoplastic | \$ 36.53 | \$ 36.93 | \$ 38.34 |

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in the maintenance and protection of traffic safety.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

| Per hour paid: | 07/01/2020 | 07/01/2021 | 07/01/2022 |
|----------------------------|------------|------------|------------|
| Journeyworker: | | | |
| Striping Machine Operator: | \$ 9.16 | \$ 10.03 | \$ 10.03 |
| Linerman Thermoplastic: | \$ 9.16 | \$ 10.03 | \$ 10.03 |

OVERTIME PAY

See (B, B2, E2, F, S) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 20) on HOLIDAY PAGE
Overtime: See (5, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES

One (1) year terms at the following wage rates:

| | 07/01/2020 | 12/31/2020 |
|-----------|------------|------------|
| 1st Term: | \$ 12.04 | \$ 12.50 |
| 2nd Term: | \$ 18.06 | \$ 18.19 |
| 3rd Term: | \$ 24.08 | \$ 24.26 |

Supplemental Benefits per hour:

| | | |
|-----------|---------|----------|
| 1st term: | \$ 9.16 | \$ 10.03 |
| 2nd Term: | \$ 9.16 | \$ 10.03 |
| 3rd Term: | \$ 9.16 | \$ 10.03 |

8-1456-LS

Painter - Metal Polisher

02/01/2021

JOB DESCRIPTION Painter - Metal Polisher

DISTRICT 8

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

| | 07/01/2020 |
|------------------|------------|
| Metal Polisher | \$ 36.33 |
| Metal Polisher* | 37.43 |
| Metal Polisher** | 40.33 |

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2020

Journeyworker:
All classification \$ 9.94

OVERTIME PAY

See (B, E, P, T) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

One (1) year term at the following wage rates:

| | 07/01/2020 |
|------------|------------|
| 1st year | \$ 16.00 |
| 2nd year | 17.00 |
| 3rd year | 18.00 |
| 1st year* | \$ 16.39 |
| 2nd year* | 17.44 |
| 3rd year* | 18.54 |
| 1st year** | \$ 18.50 |
| 2nd year** | 19.50 |
| 3rd year** | 20.50 |

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:
Per hour:

| | |
|----------|---------|
| 1st year | \$ 6.69 |
| 2nd year | 6.69 |
| 3rd year | 6.69 |

8-8A/28A-MP

Plumber

02/01/2021

JOB DESCRIPTION Plumber

DISTRICT 1

ENTIRE COUNTIES

Albany, Columbia, Fulton, Greene, Montgomery, Rensselaer, Schenectady, Schoharie

PARTIAL COUNTIES

Hamilton: Only the Towns of Arietta, Benson, Hope, Inlet, Lake Pleasant, Morehouse and Wells.

Saratoga: Only the Towns of Charlton, Clifton Park, Galway, Halfmoon, Milton, Stillwater and Waterford and the city of Mechanicville.

WAGES

Per hour:

| | |
|------------|------------|
| 07/01/2020 | 05/01/2021 |
| | Additional |

| | |
|-------------------------|-----------------|
| Plumber: | |
| Pipefitter, Steamfitter | \$ 44.00 \$1.75 |

SUPPLEMENTAL BENEFITS

Per hour

| | |
|------------|----------|
| Journeyman | \$ 27.24 |
|------------|----------|

OVERTIME PAY

See (B1, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: Whenever a Holiday falls on Saturday, the preceding day, Friday, shall be observed as the Holiday. If a Holiday falls on a Sunday, the following day, Monday shall be observed as the Holiday.

REGISTERED APPRENTICES

Wages per hour

One year terms at the following percentage of Journeyperson's wage.

| | | | | |
|------|------|------|------|------|
| 1st | 2nd | 3rd | 4th | 5th |
| 45 % | 55 % | 65 % | 75 % | 90 % |

Supplemental Benefits per hour:

Apprentices Indentured on or before April 30, 2019

| | |
|-----------|---------|
| All Terms | \$27.24 |
|-----------|---------|

Apprentices Indentured on or after May 1st, 2019

| | |
|-----------|----------|
| 1st Term | \$ 22.18 |
| 2nd Term | \$ 22.18 |
| Terms 3-5 | \$ 27.24 |

1-7-SF

Roofer

02/01/2021

JOB DESCRIPTION Roofer

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Warren, Washington

WAGES

Per hour

| | |
|------------|------------|
| 07/01/2020 | 07/01/2021 |
| | Additional |

| | |
|----------------------|----------|
| Roofer/Waterproofers | \$ 32.05 |
| Asphalt Cold Process | 32.55 |
| Fluid Applied Roof | 32.55 |
| Pitch & Asbestos | 34.05 |

Shift Work:

On government mandated shift work starting after 12:00pm and before 4:00am workers shall be paid \$4.00 additional per hour

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$ 20.27

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: When any Holiday falls on Saturday, the Friday before such Holiday shall be recognized as the legal Holiday. When a Holiday falls on Sunday, it shall be observed the following Monday.

REGISTERED APPRENTICES

Wages per hour

Apprentice terms at the following per cent of the Roofer/Waterproofer rate. For Pitch & Asbestos work, an additional \$2.00 must be paid in wages. For Asphalt Cold Process work and Fluid Applied Roof coating, an additional \$0.50 must be paid in the wages.

1st Term 58%
1500 hrs.

2nd Term 74%
1 yr. and 1500 hrs. as 1st term.

3rd Term 90%
1 yr. and 1500 hrs. as 2nd term.

3rd Term complete at 1 yr and 1050 hrs. as 3rd term

Supplemental Benefits per hour worked

1st Term \$ 18.69
2nd Term 19.12
3rd Term 19.60

1-241

Sheetmetal Worker

02/01/2021

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 1

ENTIRE COUNTIES

Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

WAGES

Per hour

| | 07/01/2020 | 06/01/2021 |
|-------------------|------------|-----------------------|
| Sheetmetal Worker | \$34.02 | Additional \$ 1.75 |

All work requiring HAZWOPER Training additional \$1.00 per hour

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.
NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour

Journeyman \$33.94

OVERTIME PAY

See (B,E,E5,Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

When any holiday falls on Saturday, the Friday before such holiday shall be recognized as the legal holiday. Any holiday falling on Sunday, the following Monday shall be recognized as the legal holiday.

REGISTERED APPRENTICES

Wages per hour

6 Month Terms at the following rate:

| | |
|-----------|---------|
| 1st term | \$18.89 |
| 2nd term | \$20.48 |
| 3rd term | \$21.28 |
| 4th term | \$22.08 |
| 5th term | \$20.86 |
| 6th term | \$21.90 |
| 7th term | \$23.63 |
| 8th term | \$25.36 |
| 9th term | \$27.09 |
| 10th term | \$28.83 |

Supplemental Benefits per hour

| | |
|-----------|---------|
| 1st term | \$20.91 |
| 2nd term | 21.55 |
| 3rd term | 21.84 |
| 4th term | 22.27 |
| 5th term | 28.46 |
| 6th term | 28.89 |
| 7th term | 29.62 |
| 8th term | 30.34 |
| 9th term | 31.06 |
| 10th term | 31.78 |

1-83

Sprinkler Fitter

02/01/2021

JOB DESCRIPTION Sprinkler Fitter

DISTRICT 1

ENTIRE COUNTIES

Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Washington, Wayne, Wyoming, Yates

WAGES

| | |
|-----------|------------|
| Per hour | 07/01/2020 |
| Sprinkler | \$ 35.01 |
| Fitter | |

SUPPLEMENTAL BENEFITS

Per hour

| | |
|----------------|----------|
| Journey person | \$ 26.62 |
|----------------|----------|

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

| | |
|-----------|----------------------------|
| Paid: | See (1) on HOLIDAY PAGE |
| Overtime: | See (5, 6) on HOLIDAY PAGE |

Note: When a holiday falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double time rate. When a holiday falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double time rate.

REGISTERED APPRENTICES

Wages per hour

One Half Year terms at the following percentage of journey person's wage.

| | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th |
| \$ 16.94 | \$ 18.82 | \$ 20.44 | \$ 22.31 | \$ 24.18 | \$ 26.05 | \$ 27.92 | \$ 29.79 | \$ 31.67 | \$ 33.54 |

Supplemental Benefits per hour

| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th |
|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|
| \$ 8.27 | \$ 8.27 | \$ 18.70 | \$ 18.70 | \$ 18.95 | \$ 18.95 | \$ 18.95 | \$ 18.95 | \$ 18.95 | \$ 18.95 |

1-669

| | |
|----------------------------|-------------------|
| Teamster - Building | 02/01/2021 |
|----------------------------|-------------------|

JOB DESCRIPTION Teamster - Building

DISTRICT 1

ENTIRE COUNTIES

Albany, Columbia, Fulton, Greene, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Washington

PARTIAL COUNTIES

Warren: Only the Townships of Bolton, Warrensburg, Thurman, Stony Creek, Lake George, Lake Luzerne and Queensbury.

WAGES

GROUP # A:

Straight trucks, winch, transit mix on the site, road oilers, dump trucks, pick-ups, panel, water trucks, fuel trucks on the site (including nozzle).

GROUP # B:

Low boy or Low boy trailer, Euclids or similar equipment.

WAGES per hour

| | 07/01/2020 | 07/01/2021 |
|---------|------------|------------|
| Group A | \$ 28.02 | \$ 28.52 |
| Group B | 28.32 | 28.82 |

SUPPLEMENTAL BENEFITS

Per hour

| | 07/01/2020 | 07/01/2021 |
|---------------|------------|------------|
| Journeyperson | \$ 25.26 | \$ 26.32 |

OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: Any holiday which occurs on Sunday shall be observed the following Monday.

1-294

| | |
|-------------------------------------|-------------------|
| Teamster - Heavy&Highway | 02/01/2021 |
|-------------------------------------|-------------------|

JOB DESCRIPTION Teamster - Heavy&Highway

DISTRICT 1

ENTIRE COUNTIES

Albany, Columbia, Fulton, Greene, Hamilton, Herkimer, Montgomery, Oneida, Rensselaer, Saratoga, Schenectady, Schoharie, Washington

PARTIAL COUNTIES

Chenango: Entire county except the Townships of Afton, Bainbridge, Coventry, Greene, Guilford, Oxford and Smithville.

Lewis: Only the Township of Grieg, Lewis, Leyden, Lowville, Lyonsdale, Martinsburg, Turin, West Turin and Watson.

Madison: Only the Townships of Brookfield, Eaton, Hamilton, Lebanon, Lincoln, Madison, Smithfield, Stockbridge and the City of Oneida

Otsego: Entire county EXCEPT Townships of Butternuts, Laurens, Maryland, Milford, Morris, Oneonta, Otsego, Unidilla and Worchester.

Warren: Only the Townships of Bolton, Warrensburg, Thurman, Stony Creek, Luzerne, Caldwell (Lake George), and Queensbury.

WAGES

GROUP #1:

Warehousemen, Yardmen, Truck Helpers, Pickups, Panel Trucks, Flatboy Material Trucks(straight jobs), Single Axel Dump Trucks, Dumpsters, Material Checkers and Receivers, Greasers, Truck Tiremen, Mechanics Helpers and Parts Chasers.

GROUP #2:

Tandems and Batch Trucks, Mechanics, Dispatcher.

GROUP #3:

Semi-Trailers, Low-boy Trucks, Asphalt Distributor Trucks, and Agitator, Mixer Trucks and dumpcrete type vehicles, Truck Mechanic, Fuel Trucks.

GROUP #4:

Specialized Earth Moving Equipment, Euclid type, or similar off-highway, where not self-loading, Straddle (Ross) Carrier, and self-contained concrete mobile truck.

GROUP #5:

Off-highway Tandem Back-Dump, Twin Engine Equipment and Double-Hitched Equipment where not self-loading.

| WAGES per hour | 07/01/2020 | 07/01/2021 |
|----------------|------------|------------|
| Group #1 | \$ 31.51 | \$32.65 |
| Group #2 | \$31.57 | \$32.71 |
| Group #3 | \$31.66 | \$32.80 |
| Group #4 | \$31.78 | \$32.93 |
| Group #5 | \$31.94 | \$33.09 |

Hazardous waste projects that require a Level C or greater protection shall be paid an additional \$ 1.00 per hour.

All employees who work a single irregular work shift starting between 5pm and 1 am on governmental mandated night shifts shall be paid an additional \$1.50 per hour.

For work bid on or after April 1, 1995, there shall be a 12 month carryover of the last posted rate in effect at the time of the bid.

**** IMPORTANT NOTICE - EFFECTIVE 04/01/2009 ****

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Friday.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

SUPPLEMENTAL BENEFITS

Per hour:

| | |
|--------------|--------------|
| \$ 25.68 | \$26.52 |
| +\$1.00 per* | +\$1.00 per* |
| hour worked | hour worked |

(*) not applicable to paid holidays

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

1-294h/h

Welder

02/01/2021

JOB DESCRIPTION Welder

DISTRICT 1

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

Per hour 07/01/2020

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

- (AA) Time and one half of the hourly rate after 7 and one half hours per day
- (A) Time and one half of the hourly rate after 7 hours per day
- (B) Time and one half of the hourly rate after 8 hours per day
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.
Double the hourly rate for all additional hours
- (B2) Time and one half of the hourly rate after 40 hours per week
- (C) Double the hourly rate after 7 hours per day
- (C1) Double the hourly rate after 7 and one half hours per day
- (D) Double the hourly rate after 8 hours per day
- (D1) Double the hourly rate after 9 hours per day
- (E) Time and one half of the hourly rate on Saturday
- (E1) Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
- (E2) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E3) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
- (E4) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E5) Double time after 8 hours on Saturdays
- (F) Time and one half of the hourly rate on Saturday and Sunday
- (G) Time and one half of the hourly rate on Saturday and Holidays
- (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- (I) Time and one half of the hourly rate on Sunday
- (J) Time and one half of the hourly rate on Sunday and Holidays
- (K) Time and one half of the hourly rate on Holidays
- (L) Double the hourly rate on Saturday
- (M) Double the hourly rate on Saturday and Sunday
- (N) Double the hourly rate on Saturday and Holidays
- (O) Double the hourly rate on Saturday, Sunday, and Holidays
- (P) Double the hourly rate on Sunday
- (Q) Double the hourly rate on Sunday and Holidays
- (R) Double the hourly rate on Holidays
- (S) Two and one half times the hourly rate for Holidays

- (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- (T) Triple the hourly rate for Holidays
- (U) Four times the hourly rate for Holidays
- (V) Including benefits at SAME PREMIUM as shown for overtime
- (W) Time and one half for benefits on all overtime hours.
- (X) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

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 Holiday Pay:

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.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

- (1) None
- (2) Labor Day
- (3) Memorial Day and Labor Day
- (4) Memorial Day and July 4th
- (5) Memorial Day, July 4th, and Labor Day
- (6) New Year's, Thanksgiving, and Christmas
- (7) Lincoln's Birthday, Washington's Birthday, and Veterans Day
- (8) Good Friday
- (9) Lincoln's Birthday
- (10) Washington's Birthday
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 Day on Presidential Election Day
- (15) Veterans Day
- (16) Day after Thanksgiving
- (17) July 4th
- (18) 1/2 Day before Christmas
- (19) 1/2 Day before New Years
- (20) Thanksgiving
- (21) New Year's Day
- (22) Christmas
- (23) Day before Christmas
- (24) Day before New Year's
- (25) Presidents' Day
- (26) Martin Luther King, Jr. Day
- (27) Memorial Day
- (28) Easter Sunday



New York State Department of Labor - Bureau of Public Work
State Office Building Campus
Building 12 - Room 130
Albany, New York 12240

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor Law

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

This Form Must Be Typed

Submitted By:

(Check Only One)

☐

Contracting Agency

☐

Architect or Engineering Firm

☐

Public Work District Office

Date:

A. Public Work Contract to be let by: (Enter Data Pertaining to Contracting/Public Agency)

1. Name and complete address ☐ (Check if new or change)

Telephone: ()

Fax: ()

E-Mail:

2. NY State Units (see Item 5)

☐ 01 DOT

☐ 02 OGS

☐ 03 Dormitory Authority

☐ 04 State University
Construction Fund

☐ 05 Mental Hygiene
Facilities Corp.

☐ 06 OTHER N.Y. STATE UNIT

☐ 07 City

☐ 08 Local School District

☐ 09 Special Local District, i.e.,
Fire, Sewer, Water District

☐ 10 Village

☐ 11 Town

☐ 12 County

☐ 13 Other Non-N.Y. State
(Describe)

3. SEND REPLY TO ☐ (check if new or change)
Name and complete address:

Telephone:()

Fax: ()

E-Mail:

4. SERVICE REQUIRED. Check appropriate box and provide project information.

☐ New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR
THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

Contract Identification Number _____

Note: For NYS units, the OSC Contract No. _____

6. Location of Project:
Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

7. Nature of Project - Check One:

- ☐ 1. New Building
- ☐ 2. Addition to Existing Structure
- ☐ 3. Heavy and Highway Construction (New and Repair)
- ☐ 4. New Sewer or Waterline
- ☐ 5. Other New Construction (Explain)
- ☐ 6. Other Reconstruction, Maintenance, Repair or Alteration
- ☐ 7. Demolition
- ☐ 8. Building Service Contract

8. OCCUPATION FOR PROJECT :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Has this project been reviewed for compliance with the Wicks Law involving separate bidding?

YES ☐ NO ☐

10. Name and Title of Requester

Signature



NEW YORK STATE DEPARTMENT OF LABOR
Bureau of Public Work - Debarment List

**LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE
AWARDED ANY PUBLIC WORK CONTRACT**

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

Debarment Database: To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: <https://applications.labor.ny.gov/EDList/searchPage.do>

For inquiries where WCB is listed as the "Agency", please call 1-866-546-9322

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

| AGENCY | Fiscal Officer | FEIN | EMPLOYER NAME | EMPLOYER DBA NAME | ADDRESS | DEBARMENT START DATE | DEBARMENT END DATE |
|--------|----------------|-----------|--|----------------------------|--|----------------------|--------------------|
| DOL | NYC | *****9839 | A.J.S. PROJECT MANAGEMENT, INC. | | 149 FIFTH AVENUE NEW YORK NY 10010 | 12/29/2016 | 12/29/2021 |
| DOL | DOL | *****4018 | ADIRONDACK BUILDING RESTORATION INC. | | 4156 WILSON ROAD EAST TABERG NY 13471 | 03/26/2019 | 03/26/2024 |
| DOL | AG | *****1812 | ADVANCED BUILDERS & LAND DEVELOPMENT, INC. | | 400 OSER AVE #2300HAUPPAUGE NY 11788 | 09/11/2019 | 09/11/2024 |
| DOL | DOL | *****1687 | ADVANCED SAFETY SPRINKLER INC | | 261 MILL ROAD P.O BOX 296EAST AURORA NY 14052 | 05/29/2019 | 05/29/2024 |
| DOL | NYC | *****6775 | ADVENTURE MASONRY CORP. | | 1535 RICHMOND AVENUE STATEN ISLAND NY 10314 | 12/13/2017 | 12/13/2022 |
| DOL | NYC | | AGOSTINHO TOME | | 405 BARRETTO ST BRONX NY 10474 | 05/31/2018 | 05/31/2023 |
| DOL | DOL | | AJ TORCHIA | | 10153 ROBERTS RD SAUQUOIT NY 13456 | 08/09/2016 | 08/09/2021 |
| DOL | DOL | | AMADEO J TORCHIA | TORCHIA'S HOME IMPROVEMENT | 10153 ROBERTS RD SAUQUOIT NY 13456 | 08/09/2016 | 08/09/2021 |
| DOL | NYC | | AMJAD NAZIR | | 2366 61ST ST BROOKLYN NY 11204 | 12/15/2016 | 12/15/2021 |
| DOL | DOL | | ANGELO F COKER | | 2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205 | 09/17/2020 | 09/17/2025 |
| DOL | DOL | | ANGELO F COKER | | 2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205 | 12/04/2018 | 12/04/2023 |
| DOL | DOL | | ANITA SALERNO | | 158 SOLAR ST SYRACUSE NY 13204 | 01/07/2019 | 01/07/2024 |
| DOL | NYC | | ANTHONY J SCLAFANI | | 149 FIFTH AVE NEW YORK NY 10010 | 12/29/2016 | 12/29/2021 |
| DOL | DOL | | ANTHONY PERGOLA | | 3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10323 | 01/23/2017 | 01/23/2022 |
| DOL | DOL | | ANTONIO ESTIVEZ | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | ARNOLD A. PAOLINI | | 1250 BROADWAY ST BUFFALO NY 14212 | 02/03/2020 | 02/03/2025 |
| DOL | NYC | | ARSHAD MEHMOOD | | 168-42 88TH AVENUE JAMAICA NY 11432 | 11/20/2019 | 11/20/2024 |
| DOL | DOL | | ARVINDER ATWAL | | 65 KENNETH PLACE NEW HYDE PARK NY 11040 | 07/19/2017 | 07/19/2022 |
| DOL | NYC | *****6683 | ATLAS RESTORATION CORP. | | 35-12 19TH AVENUE ASTORIA NY 11105 | 08/02/2017 | 08/02/2022 |
| DOL | NYC | *****5532 | ATWAL MECHANICALS, INC | | 65 KENNETH PLACE NEW HYDE PARK NY 11040 | 07/19/2017 | 07/19/2022 |
| DOL | NYC | *****2591 | AVI 212 INC. | | 260 CROPSEY AVENUE APT 11GBROOKLYN NY 11214 | 10/30/2018 | 10/30/2023 |
| DOL | NYC | | AZIDABEGUM | | 524 MCDONALD AVENUE BROOKLYN NY 11218 | 09/17/2020 | 09/17/2025 |
| DOL | NYC | | BALWINDER SINGH | | 421 HUDSON ST SUITE C5NEW YORK NY 10014 | 02/20/2019 | 02/20/2024 |
| DOL | NYC | *****3915 | BEACON RESTORATION INC | | SUITE B-8 782 PELHAM PARKWAY SOUTHBRONX NY 10462 | 04/21/2016 | 04/21/2021 |
| DOL | NYC | *****8416 | BEAM CONSTRUCTION, INC. | | 50 MAIN ST WHITE PLAINS NY 10606 | 01/04/2019 | 01/04/2024 |
| DOL | DOL | | BIAGIO CANTISANI | | | 06/12/2018 | 06/12/2023 |
| DOL | DOL | *****4512 | BOB BRUNO EXCAVATING, INC | | 5 MORNINGSIDE DR AUBURN NY 13021 | 05/28/2019 | 05/28/2024 |
| DOL | DOL | | BOGDAN MARKOVSKI | | 370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601 | 02/11/2019 | 02/11/2024 |
| DOL | DOL | *****8551 | BRANDY'S MASONRY | | 216 WESTBROOK STREET P O BOX 304SAYRE PA 18840 | 08/09/2016 | 08/09/2021 |
| DOL | DOL | *****1449 | BRRESTORATION NY INC | | 140 ARCADIA AVENUE OSWEGO NY 13126 | 09/12/2016 | 09/12/2021 |
| DOL | DOL | | BRUCE MORSEY | | C/O KENT HOLLOW SIDING LL 29A BRIDGE STREETNEW MILFORD CT 06776 | 01/15/2016 | 01/15/2021 |
| DOL | DOL | | BRUCE P. NASH JR. | | 5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057 | 09/12/2018 | 09/12/2023 |
| DOL | DOL | *****0225 | C&D LAFACE CONSTRUCTION, INC. | | 8531 OSWEGO RD BALDWINVILLE NY 13027 | 02/03/2020 | 01/09/2023 |
| DOL | DOL | *****8809 | C.B.E. CONTRACTING CORPORATION | | 310 MCGUINESS BLVD GREENPOINT NY 11222 | 03/07/2017 | 03/07/2022 |

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

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|-----|-----|----------|---|---|--|------------|------------|
| DOL | DOL | ****9383 | C.C. PAVING AND EXCAVATING, INC. | | 2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205 | 09/17/2020 | 09/17/2025 |
| DOL | DOL | ****9383 | C.C. PAVING AND EXCAVATING, INC. | | 2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205 | 12/04/2018 | 12/04/2023 |
| DOL | NYC | | CALVIN WALTERS | | 465 EAST THIRD ST MT. VERNON NY 10550 | 09/09/2019 | 09/09/2024 |
| DOL | DOL | | CANTISANI & ASSOCIATES LTD | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | CANTISANI HOLDING LLC | | | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | CARIBBEAN POOLS | | C/O DOUGLAS L MALARKEY 64 VICTORIA DRIVEBINGHAMTON NY 13904 | 02/04/2016 | 02/04/2021 |
| DOL | DOL | | CARMEN RACHETTA | | 8531 OSWEGO RD BALDWINVILLE NY 13027 | 02/03/2020 | 02/03/2025 |
| DOL | DOL | | CARMENA RACHETTA | | 8531 OSWEGO ROAD BALDWINVILLE NY 13027 | 02/03/2020 | 01/09/2023 |
| DOL | DOL | ****3812 | CARMODY "2" INC | | | 06/12/2018 | 06/12/2023 |
| DOL | DOL | ****1143 | CARMODY BUILDING CORP | CARMODY CONTRACTING AND CARMODY CONTRACTING CORP. | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | CARMODY CONCRETE CORPORATION | | | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | CARMODY ENTERPRISES, LTD. | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | CARMODY INC | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | ****3812 | CARMODY INDUSTRIES INC | | | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | CARMODY MAINTENANCE CORPORATION | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | CARMODY MASONRY CORP | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | ****8809 | CBE CONTRACTING CORP | | 142 EAST MARKET STREET LONG BEACH NY 11561 | 03/07/2017 | 03/07/2022 |
| DOL | AG | | CESAR J. AGUDELO | | 81-06 34TH AVENUE APT. 6EJACKSON HEIGHTS NY 11372 | 02/07/2018 | 02/07/2023 |
| DOL | DOL | | CHARLES ZIMMER JR | | 216 WESTBROOK STREET P O BOX 304SAYRE PA 18840 | 08/09/2016 | 08/09/2021 |
| DOL | DOL | | CHRISTOPHER J MAINI | | 19 CAITLIN AVE JAMESTOWN NY 14701 | 09/17/2018 | 09/17/2023 |
| DOL | DOL | | CHRISTOPHER PAPASTEFANOU A/K/A CHRIS PAPASTEFANOU | | 1445 COMMERCE AVE BRONX NY 10461 | 05/30/2019 | 05/30/2024 |
| DOL | DOL | ****1927 | CONSTRUCTION PARTS WAREHOUSE, INC. | CPW | 5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057 | 09/12/2018 | 09/12/2023 |
| DOL | NYC | ****2164 | CREATIVE TRUCKING INC | | 58-83 54TH STREET MASPETH NY 11378 | 02/26/2016 | 02/26/2021 |
| DOL | DOL | ****2524 | CSI ELECTRICAL & MECHANICAL INC | | 42-32 235TH ST DOUGLSTON NY 11363 | 01/14/2019 | 01/14/2024 |
| DOL | DOL | ****7761 | D L MALARKEY CONSTRUCTION | | 64 VICTORIA DRIVE BINGHAMTON NY 13904 | 02/04/2016 | 02/04/2021 |
| DOL | DOL | ****7888 | D L MALARKEY CONSTRUCTION INC | | 64 VICTORIA DRIVE BINGHAMTON NY 13904 | 02/04/2016 | 02/04/2021 |
| DOL | DOL | ****5629 | DAKA PLUMBING AND HEATING LLC | | 2561 ROUTE 55 POUGHQUAG NY 12570 | 02/19/2016 | 02/19/2021 |
| DOL | NYC | | DALJIT KAUR BOPARAI | | 185-06 56TH AVE FRESH MEADOW NY 11365 | 10/17/2017 | 10/17/2022 |
| DOL | DOL | | DANICA IVANOSKI | | 61 WILLETT ST. PASSAIC NJ 07503 | 10/26/2016 | 10/26/2021 |
| DOL | DOL | | DARIAN L COKER | | 2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205 | 09/17/2020 | 09/17/2025 |
| DOL | DOL | | DARIAN L COKER | | 2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205 | 12/04/2018 | 12/04/2023 |
| DOL | DOL | | DAVID MARTINEZ | | C/O EMPIRE TILE INC 6 TREMONT COURTHUNTINGTON STATION NY 11746 | 03/08/2016 | 03/08/2021 |
| DOL | NYC | | DAVID WEINER | | 14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306 | 11/14/2019 | 11/14/2024 |

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

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|-----|-----|-----------|---|------------------------------|--|------------|------------|
| DOL | DOL | | DEBBIE STURDEVANT | | 29 MAPLEWOOD DRIVE BINGHAMTON NY 13901 | 02/21/2017 | 02/21/2022 |
| DOL | AG | | DEBRA MARTINEZ | | 31 BAY ST BROOKLYN NY 11231 | 03/28/2018 | 03/28/2023 |
| DOL | DOL | | DEDA GAZIVODAN | | C/O DAKA PLUMBING AND H 2561 ROUTE 55POUGHQUAG NY 12570 | 02/19/2016 | 02/19/2021 |
| DOL | DOL | | DELPHI PAINTING & DECORATING CO INC | | 1445 COMMERCE AVE BRONX NY 10461 | 05/30/2019 | 05/30/2024 |
| DOL | DOL | | DENNIS SCHWANDTNER | | C/O YES SERVICE AND REPAI 145 LODGE AVEHUNTINGTON STATION NY 11476 | 08/09/2016 | 08/09/2021 |
| DOL | DOL | | DF CONTRACTORS OF ROCHESTER, INC. | | 1835 DAANSEN RD. PALMYRA NY 14522 | 05/16/2017 | 05/16/2022 |
| DOL | DOL | | DF CONTRACTORS, INC. | | 1835 DAANSEN RD. PALMYRA NY 14522 | 05/16/2017 | 05/16/2022 |
| DOL | NYC | | DIMITRIOS TSOUMAS | | 35-12 19TH AVENUE ASTORIA NY 11105 | 08/02/2017 | 08/02/2022 |
| DOL | DOL | | DOMENICO LAFACE | | 8531 OSWEGO RD BALDWINSVILLE NY 13027 | 02/03/2020 | 01/09/2023 |
| DOL | DOL | *****3242 | DONALD R. FORSA | DF LAWN SERVICE | 1835 DAANSEN RD. PALMYRA NY 14522 | 05/16/2017 | 05/16/2022 |
| DOL | DOL | | DONALD R. FORSA | | 1835 DAANSEN RD. PALMYRA NY 14522 | 05/16/2017 | 05/16/2022 |
| DOL | NYC | *****7404 | DOSANJH CONSTRUCTION CORP | | 9439 212TH STREET QUEENS VILLAGE NY 11428 | 02/25/2016 | 02/25/2021 |
| DOL | DOL | | DOUGLAS L MALARKEY | MALARKEY CONSTRUCTI ON | 64 VICTORIA DRIVE B INGHAMTON NY 13904 | 02/04/2016 | 02/04/2021 |
| DOL | NYC | | DUARTE LOPES | | 66-05 WOODHAVEN BLVD. STE 2REGO PARK NY 11374 | 04/20/2017 | 04/20/2022 |
| DOL | DOL | *****5175 | EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC | | 11371 RIDGE RD WOLCOTT NY 14590 | 02/03/2020 | 02/03/2025 |
| DOL | DOL | | EAST COAST PAVING | | 2238 BAKER RD GILLET PA 16923 | 03/12/2018 | 03/12/2023 |
| DOL | NYC | *****4269 | EAST PORT EXCAVATION & UTILITIES | | 601 PORTION RD RONKONKOMA NY 11779 | 11/18/2016 | 11/18/2021 |
| DOL | DOL | *****0780 | EMES HEATING & PLUMBING CONTR | | 5 EMES LANE MONSEY NY 10952 | 01/20/2002 | 01/20/3002 |
| DOL | DOL | *****3270 | EMPIRE TILE INC | | 6 TREMONT COURT HUNTINGTON STATION NY 11746 | 03/08/2016 | 03/08/2021 |
| DOL | NYC | *****5917 | EPOCH ELECTRICAL, INC | | 97-18 50TH AVE CORONA NY 11368 | 04/19/2018 | 04/19/2024 |
| DOL | DOL | *****7403 | F & B PAINTING CONTRACTING INC | | 2 PARKVIEW AVENUE HARRISON NY 10604 | 09/26/2016 | 09/26/2021 |
| DOL | DOL | | FAIGY LOWINGER | | 11 MOUNTAIN RD 28 VAN BUREN DRMONROE NY 10950 | 03/20/2019 | 03/20/2024 |
| DOL | DOL | | FRANK BENEDETTO | | 19 CATLIN AVE JAMESTOWN NY 14701 | 09/17/2018 | 09/17/2023 |
| DOL | DOL | | FRANK BENEDETTO | | C/O F & B PAINTING CONTRA 2 PARKVIEW AVENUEHARRISON NY 10604 | 09/26/2016 | 09/26/2021 |
| DOL | DOL | *****4722 | FRANK BENEDETTO AND CHRISTOPHER J MAINI | B & M CONCRETE | 19 CAITLIN AVE JAMESTOWN NY 14701 | 09/17/2018 | 09/17/2023 |
| DOL | NYC | | FRANK MAINI | | 1766 FRONT ST YORKTOWN HEIGHTS NY 10598 | 01/17/2018 | 01/17/2023 |
| DOL | NYC | *****6616 | G & G MECHANICAL ENTERPRISES, LLC. | | 1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554 | 11/29/2019 | 11/29/2024 |
| DOL | DOL | | GABRIEL FRASSETTI | | | 04/10/2019 | 04/10/2024 |
| DOL | DOL | | GALINDA ROTENBERG | | C/O GMDV TRANS INC 67-48 182ND STREETFRESH MEADOWS NY 11365 | 06/24/2016 | 06/24/2021 |
| DOL | DOL | | GEOFF CORLETT | | 415 FLAGGER AVE #302STUART FL 34994 | 10/31/2018 | 10/31/2023 |
| DOL | DA | | GEORGE LUCEY | | 150 KINGS STREET BROOKLYN NY 11231 | 01/19/1998 | 01/19/2998 |
| DOL | DOL | | GIGI SCHNECKENBURGER | | 261 MILL RD EAST AURORA NY 14052 | 05/29/2019 | 05/29/2024 |
| DOL | DOL | | GIOVANNI LAFACE | | 8531 OSWEGO RD BALDWINSVILLE NY 13027 | 02/03/2020 | 01/09/2023 |

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

| | | | | | | | |
|-----|-----|-----------|---------------------------------|-----------------------|--|------------|------------|
| DOL | NYC | *****3164 | GLOBE GATES INC | GLOBAL OVERHEAD DOORS | 405 BARRETTO ST BRONX NY 10474 | 05/31/2018 | 05/31/2023 |
| DOL | DOL | *****5674 | GMDV TRANS INC | | 67-48 182ND STREET FRESH MEADOWS NY 11365 | 06/24/2016 | 06/24/2021 |
| DOL | NYC | | GREAT ESTATE CONSTRUCTION, INC. | | 327 STAGG ST BROOKLYN NY 11206 | 10/10/2017 | 10/10/2022 |
| DOL | DOL | | GREGORY S. OLSON | | P.O BOX 100 200 LATT A BROOK PARKHORSEHEADS NY 14845 | 03/08/2018 | 03/08/2023 |
| DOL | DOL | | HANS RATH | | 24 ELDOR AVENUE NEW CITY NY 10956 | 02/03/2020 | 02/03/2025 |
| DOL | NYC | | HARMEL SINGH | | 15 CLINTON LANE HICKSVILLE NY 11801 | 02/25/2016 | 02/25/2021 |
| DOL | NYC | | HAROLD KUEMMEL | | 58-83 54TH STREET MASPETH NY 11378 | 02/26/2016 | 02/26/2021 |
| DOL | NYC | *****3228 | HEIGHTS ELEVATOR CORP. | | 1766 FRONT ST YORKTOWN HEIGHTS NY 10598 | 01/17/2018 | 01/17/2023 |
| DOL | DOL | *****5131 | INTEGRITY MASONRY, INC. | M&R CONCRETE | 722 8TH AVE WATERVLIET NY 12189 | 06/05/2018 | 06/05/2023 |
| DOL | DOL | | IRENE KASELIS | | 32 PENNINGTON AVE WALDWICK NJ 07463 | 05/30/2019 | 05/30/2024 |
| DOL | AG | | J A M CONSTRUCTION CORP | | SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457 | 04/07/2016 | 04/07/2021 |
| DOL | DOL | | J.A. HIRES CADWALLADER | | P.O BOX 100 200 LATT A BROOK PARKHORSEHEADS NY 14845 | 03/08/2018 | 03/08/2023 |
| DOL | DOL | | JAMES C. DELGIACCO | | 722 8TH AVE WATERVLIET NY 12189 | 06/05/2018 | 06/05/2023 |
| DOL | AG | | JAMES FALCONE | | SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457 | 04/07/2016 | 04/07/2021 |
| DOL | DOL | | JAMES LIACONE | | 9365 WASHINGTON ST LOCKPORT IL 60441 | 07/23/2018 | 07/23/2023 |
| DOL | DOL | | JAMES RACHEL | | 9365 WASHINGTON ST LOCKPORT IL 60441 | 07/23/2018 | 07/23/2023 |
| DOL | DOL | | JASON W MILLIMAN | | C/O ROCHESTER ACOUSTICAL P O BOX 799HILTON NY 14468 | 02/19/2016 | 02/19/2021 |
| DOL | DOL | *****5368 | JCH MASONRY & LANDSCAPING INC. | | 35 CLINTON AVE OSSINING NY 10562 | 09/12/2018 | 09/12/2023 |
| DOL | NYC | | JENNIFER GUERRERO | | 1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554 | 11/29/2019 | 11/29/2024 |
| DOL | DOL | | JESSICA WHITESIDE | | C/O BRRESTORATION NY INC 140 ARCADIA AVENUEOSWEGO NY 13126 | 09/12/2016 | 09/12/2021 |
| DOL | AG | | JOHN ANTHONY MASSINO | | 36-49 204TH STREET BAYSIDE NY 11372 | 02/07/2018 | 02/07/2023 |
| DOL | DOL | | JOHN F. CADWALLADER | | 200 LATT A BROOK PARK HORSEHEADS NY 14845 | 03/08/2018 | 03/08/2023 |
| DOL | DOL | *****4612 | JOHN F. CADWALLADER, INC. | THE GLASS COMPANY | P.O BOX 100 200 LATT A BROOK PARKHORSEHEADS NY 14845 | 03/08/2018 | 03/08/2023 |
| DOL | DOL | | JOHN GOCEK | | 14B COMMERCIAL AVE ALBANY NY 12065 | 11/14/2019 | 11/14/2024 |
| DOL | AG | *****0600 | JOHNCO CONTRACTING, INC. | | 36-49 204TH STREET BAYSIDE NY 11372 | 02/07/2018 | 02/07/2023 |
| DOL | DOL | | JON E DEYOUNG | | 261 MILL RD P.O BOX 296EAST AURORA NY 14052 | 05/29/2019 | 05/29/2024 |
| DOL | DOL | | JORI PEDERSEN | | 415 FLAGER AVE #302STUART FL 34994 | 10/31/2018 | 10/31/2023 |
| DOL | DOL | | JOSE CHUCHUCA | | 35 CLINTON AVE OSSINING NY 10562 | 09/12/2018 | 09/12/2023 |
| DOL | AG | | JOSEPH FALCONE | | SUITE 125 265 SUNRISE HIGHWAYROCKVILLE CENTRE NY 10457 | 04/07/2016 | 04/07/2021 |
| DOL | NYC | | JOSEPH FOLEY | | 66-05 WOODHAVEN BLVD. STE 2REGO PARK NY 11374 | 04/20/2017 | 04/20/2022 |
| DOL | DOL | *****9273 | JOSEPH M LOVETRO | | P O BOX 812 BUFFALO NY 14220 | 08/09/2016 | 08/09/2021 |

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

| | | | | | | | |
|-----|-----|-----------|---|-----------------|---|------------|------------|
| DOL | NYC | | JOSEPH MARTINO | | 1535 RICHMOND AVENUE STATEN ISLAND NY 10314 | 12/13/2017 | 12/13/2022 |
| DOL | DOL | | JOY MARTIN | | 2404 DELAWARE AVE NIGARA FALLS NY 14305 | 09/12/2018 | 09/12/2023 |
| DOL | DOL | | JULIUS AND GITA BEHREND | | 5 EMES LANE MONSEY NY 10952 | 11/20/2002 | 11/20/3002 |
| DOL | DOL | *****5062 | K R F SITE DEVELOPMENT INC | | 375 LAKE SHORE DRIVE PUTNAM VALLEY NY 10579 | 01/23/2017 | 01/23/2022 |
| DOL | NYC | | K.S. CONTRACTING CORP. | | 29 PHILLIP DRIVE PARSIPPANY NJ 07054 | 02/13/2017 | 02/13/2022 |
| DOL | DOL | | KARIN MANGIN | | 796 PHELPS ROAD FRANKLIN LAKES NJ 07417 | 12/01/2020 | 12/01/2025 |
| DOL | DOL | | KATIE BURDICK | | 2238 BAKER RD GILLET PA 16923 | 03/12/2018 | 03/12/2023 |
| DOL | DOL | | KENNETH FIORENTINO | | 375 LAKE SHORE DRIVE PUTNAM VALLEY NY 10579 | 01/23/2017 | 01/23/2022 |
| DOL | DOL | *****9732 | KENT HOLLOW SIDING LLC | | 29A BRIDGE STREET NEW MILFORD CT 06776 | 01/15/2016 | 01/15/2021 |
| DOL | DOL | *****3490 | L & M CONSTRUCTION/DRYWALL INC. | | 1079 YONKERS AVE YONKERS NY 10704 | 08/07/2018 | 08/07/2023 |
| DOL | DA | *****8816 | LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION | | 150 KINGS STREET BROOKLYN NY 11231 | 08/19/1998 | 08/19/2998 |
| DOL | AG | *****4643 | LALO DRYWALL, INC. | | 221 OLD FORD ROAD NEW PLATZ NY 12561 | 05/20/2016 | 05/20/2021 |
| DOL | DOL | *****4505 | LARAPINTA ASSOCIATES INC | | 29 MAPLEWOOD DRIVE BINGHAMTON NY 13901 | 02/21/2017 | 02/21/2022 |
| DOL | DOL | | LAVERN GLAVE | | 161 ROBYN RD MONROE NY 10950 | 01/30/2018 | 01/30/2023 |
| DOL | DOL | *****4388 | LEN.J CONSTRUCTION, LLC | | PO BOX 10007 ALBANY NY 12201 | 06/24/2016 | 09/19/2022 |
| DOL | DOL | *****4388 | LEN.J CONSTRUCTION, LLC | | PO BOX 10007 ALBANY NY 12201 | 06/24/2016 | 09/19/2022 |
| DOL | DOL | *****4388 | LEN.J CONSTRUCTION, LLC | | PO BOX 10007 ALBANY NY 12201 | 09/19/2017 | 09/19/2022 |
| DOL | DOL | *****4388 | LEN.J CONSTRUCTION, LLC | | PO BOX 10007 ALBANY NY 12201 | 09/19/2017 | 09/19/2022 |
| DOL | DOL | *****4388 | LEN.J CONSTRUCTION, LLC | | PO BOX 10007 ALBANY NY 12201 | 01/17/2017 | 09/19/2022 |
| DOL | DOL | *****4388 | LEN.J CONSTRUCTION, LLC | | PO BOX 10007 ALBANY NY 12201 | 09/19/2017 | 09/19/2022 |
| DOL | DOL | *****4388 | LEN.J CONSTRUCTION, LLC | | PO BOX 10007 ALBANY NY 12201 | 09/19/2017 | 09/19/2022 |
| DOL | DOL | *****4388 | LEN.J CONSTRUCTION, LLC | | PO BOX 10007 ALBANY NY 12201 | 08/14/2017 | 09/19/2022 |
| DOL | DOL | | LEROY NELSON JR | | PO BOX 10007 ALBANY NY 12201 | 09/19/2017 | 09/19/2022 |
| DOL | DOL | | LEROY NELSON JR | | PO BOX 10007 ALBANY NY 12201 | 09/19/2017 | 09/19/2022 |
| DOL | DOL | | LEROY NELSON JR | | PO BOX 10007 ALBANY NY 12201 | 09/19/2017 | 09/19/2022 |
| DOL | DOL | | LEROY NELSON JR | | PO BOX 10007 ALBANY NY 12201 | 09/19/2017 | 09/19/2022 |
| DOL | DOL | | LEROY NELSON JR | | PO BOX 10007 ALBANY NY 12201 | 08/14/2017 | 08/14/2022 |
| DOL | DOL | | LEROY NELSON JR | | PO BOX 10007 ALBANY NY 12201 | 01/17/2017 | 09/19/2022 |
| DOL | DA | *****4460 | LONG ISLAND GLASS & STOREFRONTS, LLC | | 4 MANHASSET TRL RIDGE NY 11961 | 09/06/2018 | 09/06/2023 |
| DOL | AG | *****4216 | LOTUS-C CORP. | | 81-06 34TH AVENUE APT. 6EJACKSON HEIGHTS NY 11372 | 02/07/2018 | 02/07/2023 |
| DOL | NYC | | LUBOMIR PETER SVOBODA | | 27 HOUSMAN AVE STATEN ISLAND NY 10303 | 12/26/2019 | 12/26/2024 |
| DOL | AG | | LUIS MARTINEZ | LALO DRYWALL | 211 MAIN ST. NEW PALTZ NY 12561 | 05/20/2016 | 05/20/2021 |
| DOL | NYC | | M & L STEEL & ORNAMENTAL IRON CORP. | | 27 HOUSMAN AVE STATEN ISLAND NY 10303 | 12/26/2019 | 12/26/2024 |
| DOL | DOL | | M ANVER BEIG | | 142 EAST MARKET STREET LONG BEACH NY 11561 | 03/07/2017 | 03/07/2022 |
| DOL | DOL | | M. ANVER BEIG | | 142 EAST MARKET STREET LONG BEACH NY 11561 | 03/07/2017 | 03/07/2022 |
| DOL | DOL | *****1784 | MADISON AVE CONSTRUCTION CORP | | 39 PENNY STREET WEST ISLIP NY 11795 | 11/02/2016 | 11/02/2021 |

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

| | | | | | | | |
|-----|-----|-----------|-------------------------------------|------------------------------------|---|------------|------------|
| DOL | DOL | | MALARKEY'S BAR & GRILL LLC | | 64 VICTORIA DRIVE BINGHAMTON NY 13904 | 02/04/2016 | 02/04/2021 |
| DOL | DOL | *****0705 | MALARKEY'S PUB & GRUB LLC | | 64 VICTORIA DRIVE BINGHAMTON NY 13904 | 02/04/2016 | 02/04/2021 |
| DOL | DA | | MANUEL P TOBIO | | 150 KINGS STREET BROOKLYN NY 14444 | 08/19/1998 | 08/19/2998 |
| DOL | DA | | MANUEL TOBIO | | 150 KINGS STREET BROOKLYN NY 11231 | 08/19/1998 | 08/19/2998 |
| DOL | NYC | | MAREK FABIJANOWSKI | | 50 MAIN ST WHITE PLAINS NY 10606 | 01/04/2019 | 01/04/2024 |
| DOL | DOL | | MARIACHI'S PIZZERIA | | C/O DOUGLAS L MALARKEY 64 VICTORIA DRIVEBINGHAMTON NY 13904 | 02/04/2016 | 02/04/2021 |
| DOL | NYC | | MARTINE ALTER | | 1010 NORTHERN BLVD. GREAT NECK NY 11021 | 03/09/2017 | 03/09/2022 |
| DOL | DOL | | MARVIN A STURDEVANT | | 29 MAPLEWOOD DRIVE BINGHAMTON NY 13901 | 02/21/2017 | 02/21/2022 |
| DOL | DOL | | MASONRY CONSTRUCTION, INC. | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | *****3333 | MASONRY INDUSTRIES, INC. | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | NYC | | MATINA KARAGIANNIS | | 97-18 50TH AVE CORONA NY 11368 | 04/19/2018 | 04/19/2023 |
| DOL | DOL | | MATTHEW P. KILGORE | | 4156 WILSON ROAD EAST TABERG NY 13471 | 03/26/2019 | 03/26/2024 |
| DOL | DOL | | MAURICE GAWENO | | 442 ARMONK RD MOUNT KISCO NY 10549 | 06/12/2018 | 06/12/2023 |
| DOL | DOL | *****6416 | MCCALL MASONRY | | P O BOX 304 SAYRE PA 18840 | 08/09/2016 | 08/09/2021 |
| DOL | DOL | | MCLEAN "MIKKI BEANE" | | 1229 JAMES STREET SYRACUSE NY 13203 | 05/02/2017 | 05/02/2022 |
| DOL | DOL | | MCLEAN "MIKKI" DRAKE | | 1229 JAMES STREET SYRACUSE NY 13203 | 05/02/2017 | 05/02/2022 |
| DOL | DOL | | MCLEAN M DRAKE-BEANE | | 1229 JAMES STREET SYRACUSE NY 13203 | 05/02/2017 | 05/02/2022 |
| DOL | DOL | *****9445 | MCLEAN M WALSH | ELITE PROFESSIONAL PAINTING OF CNY | 1229 JAMES STREET SYRACUSE NY 13203 | 05/02/2017 | 05/02/2022 |
| DOL | DOL | *****9445 | MCLEAN M WALSH | ELITE PROFESSIONAL PAINTING OF CNY | 1229 JAMES STREET SYRACUSE NY 13203 | 05/02/2017 | 05/02/2022 |
| DOL | NYC | | MICHAEL HIRSCH | | C/O MZM CORP 163 S MAIN STREETNEW CITY NY 10956 | 01/28/2016 | 01/28/2021 |
| DOL | DOL | | MICHAEL LENIHAN | | 1079 YONKERS AVE UNIT 4YONKERS NY 10704 | 08/07/2018 | 08/07/2023 |
| DOL | AG | | MICHAEL RIGLIETTI | | 31 BAY ST BROOKLYN NY 11231 | 03/28/2018 | 03/28/2023 |
| DOL | DOL | *****4829 | MILESTONE ENVIRONMENTAL CORPORATION | | 704 GINESI DRIVE SUITE 29MORGANVILLE NJ 07751 | 04/10/2019 | 04/10/2024 |
| DOL | NYC | *****9926 | MILLENNIUM FIRE PROTECTION, LLC | | 325 W. 38TH STREET SUITE 204NEW YORK NY 10018 | 11/14/2019 | 11/14/2024 |
| DOL | NYC | *****0627 | MILLENNIUM FIRE SERVICES, LLC | | 14 NEW DROP LNE 2ND FLOORSTATEN ISLAND NY 10306 | 11/14/2019 | 11/14/2024 |
| DOL | NYC | *****3826 | MOVING MAVEN OF NY, INC. | | 1010 NORTHERN BLVD. GREAT NECK NY 11021 | 03/09/2017 | 03/09/2022 |
| DOL | NYC | *****3550 | MOVING MAVEN, INC | | 1010 NORTHERN BLVD. GREAT NECK NY 11021 | 03/09/2017 | 03/09/2022 |
| DOL | AG | | MSR ELECTRICAL CONSTRUCTION CORP. | | 31 BAY ST BROOKLYN NY 11231 | 03/28/2018 | 03/28/2023 |
| DOL | DOL | | MUHAMMAD BEIG | | 142 EAST MARKET STREET LONG BEACH NY 11561 | 03/07/2017 | 03/07/2022 |
| DOL | DOL | | MUHAMMAD BEIG | | 142 EAST MARKET STREET LONG BEACH NY 11561 | 03/07/2017 | 03/07/2022 |
| DOL | NYC | | MUHAMMED A. HASHEM | | 524 MCDONALD AVENUE BROOKLYN NY 11218 | 09/17/2020 | 09/17/2025 |
| DOL | NYC | *****3613 | MZM CORP | | 163 S MAIN STREET NEW CITY NY 10956 | 01/28/2016 | 01/28/2021 |
| DOL | DA | *****9786 | NATIONAL INSULATION & GC CORP | | 180 MILLER PLACE HICKSVILLE NY 11801 | 12/12/2018 | 12/12/2023 |

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

| | | | | | | | |
|-----|-----|-----------|--|------------------------------------|--|------------|------------|
| DOL | NYC | *****4839 | NEW YORK RIGGING CORP | | 58-83 54TH STREET MASPETH NY 11378 | 02/26/2016 | 02/26/2021 |
| DOL | NYC | | NICHOLAS FILIPAKIS | | 7113 FORT HAMILTON PARKWA BROOKLYN NY 11228 | 12/09/2016 | 12/09/2021 |
| DOL | DOL | *****7429 | NICOLAE I. BARBIR | BESTUCCO CONSTRUCTI ON, INC. | 444 SCHANTZ ROAD ALLEN TOWN PA 18104 | 09/17/2020 | 09/17/2025 |
| DOL | DOL | *****6966 | NORTH COUNTRY DRYWALL AND PAINT | | 23167 COUNTY ROUTE 59 DEXTER NY 13634 | 10/24/2016 | 10/24/2021 |
| DOL | DOL | *****0065 | NORTHEAST LANDSCAPE AND MASONRY ASSOC | | 3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10523 | 01/23/2017 | 01/23/2022 |
| DOL | DOL | *****1845 | OC ERECTERS, LLC A/K/A OC ERECTERS OF NY INC. | | 1207 SW 48TH TERRACE DEERFIELD BEACH FL 33442 | 01/16/2018 | 01/16/2023 |
| DOL | NYC | *****0818 | ONE TEN RESTORATION, INC. | | 2366 61ST ST BROOKLYN NY 11204 | 12/15/2016 | 12/15/2021 |
| DOL | NYC | | PARESH SHAH | | 29 PHILLIP DRIVE PARSIPPANY NJ 07054 | 02/13/2017 | 02/13/2022 |
| DOL | NYC | *****9422 | PELIUM CONSTRUCTION, INC. | | 22-33 35TH ST. ASTORIA NY 11105 | 12/30/2016 | 12/30/2021 |
| DOL | DOL | | PETER M PERGOLA | | 3 WEST MAIN ST/SUITE 208 ELMSFORD NY 10523 | 01/23/2017 | 01/23/2022 |
| DOL | DOL | | PIERRE LAPORT | | 224 COUNTY HIGHWAY 138 BROADALBIN NY 12025 | 03/07/2017 | 03/07/2022 |
| DOL | DOL | *****1543 | PJ LAPORT FLOORING INC | | 224 COUNTY HIGHWAY 138 BROADALBIN NY 12025 | 03/07/2017 | 03/07/2022 |
| DOL | NYC | *****5771 | PMJ ELECTRICAL CORP | | 7113 FORT HAMILTON PARKWA BROOKLYN NY 11228 | 12/09/2016 | 12/09/2021 |
| DOL | DOL | *****0466 | PRECISION BUILT FENCES, INC. | | 1617 MAIN ST PEEKSKILL NY 10566 | 03/03/2020 | 03/03/2025 |
| DOL | NYC | *****4532 | PROFESSIONAL PAVERS CORP. | | 66-05 WOODHAVEN BLVD. REGO PARK NY 11374 | 04/20/2017 | 04/20/2022 |
| DOL | DA | *****6817 | QUADRANT METAL BUILDINGS LLC | | 2740 SW MARTIN DOWNS BLVD PALM CITY FL 34990 | 08/25/2016 | 08/25/2021 |
| DOL | NYC | | RASHEL CONSTRUCTION CORP | | 524 MCDONALD AVENUE BROOKLYN NY 11218 | 09/17/2020 | 09/17/2025 |
| DOL | DOL | *****1068 | RATH MECHANICAL CONTRACTORS, INC. | | 24 ELDOR AVENUE NEW CITY NY 10956 | 02/03/2020 | 02/03/2025 |
| DOL | DOL | *****2633 | RAW POWER ELECTRIC CORP | | 3 PARK CIRCLE MIDDLETOWN NY 10940 | 01/30/2018 | 01/30/2023 |
| DOL | AG | *****7015 | RCM PAINTING INC. | | 69-06 GRAND AVENUE 2ND FLOORMASPETH NY 11378 | 02/07/2018 | 02/07/2023 |
| DOL | DOL | | REGINALD WARREN | | 161 ROBYN RD MONROE NY 10950 | 01/30/2018 | 01/30/2023 |
| DOL | DA | | RIANN MULLER | | 2740 SW MARTIN DOWNS BLVD PALM CITY FL 34990 | 08/25/2016 | 08/25/2021 |
| DOL | DOL | *****9148 | RICH T CONSTRUCTION | | 107 WILLOW WOOD LANE CAMILLUS NY 13031 | 11/13/2018 | 11/13/2023 |
| DOL | DOL | | RICHARD MACONE | | 8617 THIRD AVE BROOKLYN NY 11209 | 09/17/2018 | 09/17/2023 |
| DOL | DOL | | RICHARD REGGIO | | 1617 MAIN ST PEEKSKILL NY 10566 | 03/03/2020 | 03/03/2025 |
| DOL | DOL | *****9148 | RICHARD TIMIAN | RICH T CONSTRUCTI ON | 108 LAMONT AVE SYRACUSE NY 13209 | 10/16/2018 | 10/16/2023 |
| DOL | DOL | | RICHARD TIMIAN JR. | | 108 LAMONT AVE SYRACUSE NY 13209 | 10/16/2018 | 10/16/2023 |
| DOL | DOL | | RICHARD TIMIAN JR. | | 108 LAMONT AVE SYRACUSE NY 13209 | 11/13/2018 | 11/13/2023 |
| DOL | DOL | | ROBBY BISSERAR | | 89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427 | 01/11/2003 | 01/11/3003 |
| DOL | DOL | | ROBERT A. VALERINO | | 3841 LANYARD COURT NEW PORT RICHEY FL 34652 | 07/09/2019 | 07/09/2024 |
| DOL | DOL | | ROBERT BRUNO | | 3 GAYLORD ST AUBURN NY 13021 | 11/15/2016 | 11/15/2021 |
| DOL | DOL | | ROBERT BRUNO | | 5 MORNINGSIDE DRIVE AUBURN NY 13021 | 05/28/2019 | 05/28/2024 |
| DOL | NYC | | ROBERT HOHMAN | | 149 FIFTH AVE NEW YORK NY 10010 | 12/29/2016 | 12/29/2021 |
| DOL | DOL | *****3859 | ROCHESTER ACOUSTICAL CORP | | P O BOX 799 HILTON NY 14468 | 02/19/2016 | 02/19/2021 |

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

| | | | | | | | |
|-----|-----|-----------|--|--|--|------------|------------|
| DOL | DOL | | RODERICK PUGH | | 404 OAK ST SUITE 101SYRACUSE NY 13203 | 07/23/2018 | 07/23/2023 |
| DOL | DOL | *****4880 | RODERICK PUGH CONSTRUCTION INC. | | 404 OAK ST SUITE 101SYRACUSE NY 13203 | 07/23/2018 | 07/23/2023 |
| DOL | DOL | | ROMEO WARREN | | 161 ROBYN RD MONROE NY 10950 | 01/30/2018 | 01/30/2023 |
| DOL | DOL | | RONALD MESSEN | | 14B COMMERCIAL AVE ALBANY NY 12065 | 11/14/2019 | 11/14/2024 |
| DOL | DOL | | ROSEANNE CANTISANI | | | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | RYAN ALBIE | | 21 S HOWELLS POINT ROAD BELLPORT NY 11713 | 02/21/2017 | 02/21/2022 |
| DOL | DOL | *****3347 | RYAN ALBIE CONTRACTING INC | | 21 S HOWELLS POINT ROAD BELLPORT NY 11713 | 02/21/2017 | 02/21/2022 |
| DOL | DOL | *****1365 | S & L PAINTING, INC. | | 11 MOUNTAIN ROAD P.O BOX 408MONROE NY 10950 | 03/20/2019 | 03/20/2024 |
| DOL | DOL | *****7730 | S C MARTIN GROUP INC. | | 2404 DELAWARE AVE NIAGARA FALLS NY 14305 | 09/12/2018 | 09/12/2023 |
| DOL | NYC | | SABIR MUHAMMED | | SUITE B-8 782 PELHAM PARKWAY SOUTHBRONX NY 10462 | 04/21/2016 | 04/21/2021 |
| DOL | DOL | | SALVATORE A FRESINA | | | 08/26/2016 | 08/26/2021 |
| DOL | DOL | | SAM FRESINA | | | 08/26/2016 | 08/26/2021 |
| DOL | NYC | *****0349 | SAM WATERPROOFING INC | | 168-42 88TH AVENUE APT.1 AJAMAICA NY 11432 | 11/20/2019 | 11/20/2024 |
| DOL | NYC | | SANDEEP BOPARAI | | 185-06 56TH AVE FRESH MEADOW NY 11365 | 10/17/2017 | 10/17/2022 |
| DOL | DOL | *****9751 | SCW CONSTRUCTION | | 544 OLD ROUTE 23 ACRE NY 12405 | 02/14/2017 | 02/14/2022 |
| DOL | AG | | SERGIO RAYMUNDO | | 109 DUBOIS RD. NEW PALTZ NY 12561 | 05/20/2016 | 05/20/2021 |
| DOL | NYC | *****6597 | SHAIRA CONSTRUCTION CORP. | | 421 HUDSON STREET SUITE C5NEW YORK NY 10014 | 02/20/2019 | 02/20/2024 |
| DOL | DOL | *****1961 | SHANE BURDICK | CENTRAL TRAFFIC CONTROL, LLC. | 2238 BAKER ROAD GILLET PA 16923 | 03/12/2018 | 03/12/2023 |
| DOL | DOL | | SHANE BURDICK | | 2238 BAKER ROAD GILLET PA 16923 | 03/12/2018 | 03/12/2023 |
| DOL | DOL | | SHANE NOLAN | | 9365 WASHINGTON ST LOCKPORT IL 60441 | 07/23/2018 | 07/23/2023 |
| DOL | DOL | | SHULEM LOWINGER | | 11 MOUNTAIN ROAD 28 VAN BUREN DRMONROE NY 10950 | 03/20/2019 | 03/20/2024 |
| DOL | DOL | *****0816 | SOLAR ARRAY SOLUTIONS, LLC | | 9365 WASHINGTON ST LOCKPORT IL 60441 | 07/23/2018 | 07/23/2023 |
| DOL | DOL | *****2221 | SOUTH BUFFALO ELECTRIC, INC. | | 1250 BROADWAY ST BUFFALO NY 14212 | 02/03/2020 | 02/03/2025 |
| DOL | DOL | *****3496 | STAR INTERNATIONAL INC | | 89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427 | 08/11/2003 | 08/11/3003 |
| DOL | DOL | *****6844 | STEAM PLANT AND CHX SYSTEMS INC. | | 14B COMMERCIAL AVENUE ALBANY NY 12065 | 11/14/2019 | 11/14/2024 |
| DOL | DOL | *****9933 | STEED GENERAL CONTRACTORS, INC. | | 1445 COMMERCE AVE BRONX NY 10461 | 05/30/2019 | 05/30/2024 |
| DOL | DOL | | STEFANOS PAPASTEFANOU, JR. A/K/A STEVE PAPASTEFANOU, JR. | | 256 WEST SADDLE RIVER RD UPPER SADDLE RIVER NJ 07458 | 05/30/2019 | 05/30/2024 |
| DOL | DOL | *****9751 | STEPHEN C WAGAR | | 544 OLD ROUTE 23 ACRE NY 12405 | 02/14/2017 | 02/14/2022 |
| DOL | DOL | | STEVE TATE | | 415 FLAGER AVE #302STUART FL 34994 | 10/31/2018 | 10/31/2023 |
| DOL | NYC | | STEVEN GOVERNALE | | 601 PORTION RD RONKONKOMA NY 11779 | 11/18/2016 | 11/18/2021 |
| DOL | DOL | | STEVEN MARTIN | | 2404 DELWARE AVE NIAGARA FALLS NY 14305 | 09/12/2018 | 09/12/2023 |
| DOL | DOL | | STEVEN P SUCATO | | 15-68 208TH STREET BAYSIDE NY 11360 | 06/23/2016 | 06/23/2021 |
| DOL | DOL | | STEVEN TESTA | | 50 SALEM STREET - BLDG B LYNNFIELD MA 01940 | 01/23/2017 | 01/23/2022 |
| DOL | NYC | *****5863 | SUKHMANY CONSTRUCTION, INC. | | 185-06 56TH AVE FRESH MEADOW NY 11365 | 10/17/2017 | 10/17/2022 |

NYSDOL Bureau of Public Work Debarment List 01/13/2021

Article 8

| | | | | | | | |
|-----|-----|-----------|--|--|--|------------|------------|
| DOL | DOL | *****1060 | SUNN ENTERPRISES GROUP, LLC | | 370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601 | 02/11/2019 | 02/11/2024 |
| DOL | DOL | *****8209 | SYRACUSE SCALES, INC. | | 158 SOLAR ST SYRACUSE NY 13204 | 01/07/2019 | 01/07/2024 |
| DOL | DOL | | TALAILA OCAMPA | | 1207 SW 48TH TERRACE DEERFIELD BEACH FL 33442 | 01/16/2018 | 01/16/2023 |
| DOL | DOL | *****9852 | TAP STEEL INC | | ROUTE 26 3101 P O BOX 457CONSTABLEVILLE NY 13325 | 01/28/2016 | 01/28/2021 |
| DOL | DOL | | TERRY THOMPSON | | 11371 RIDGE RD WOLCOTT NY 14590 | 02/03/2020 | 02/03/2025 |
| DOL | DOL | | TEST | | P.O BOX 123 ALBANY NY 12204 | 05/20/2020 | 05/20/2025 |
| DOL | DOL | *****5570 | TESTA CORP | | 50 SALEM STREET - BLDG B LYNNFIELD MA 01940 | 01/23/2017 | 01/23/2022 |
| DOL | DOL | *****5766 | THE COKER CORPORATION | COKER CORPORATIO N | 2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205 | 12/04/2018 | 12/04/2023 |
| DOL | DOL | *****5766 | THE COKER CORPORATION | COKER CORPORATIO N | 2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205 | 09/17/2020 | 09/17/2025 |
| DOL | DOL | | TIMOTHY A PALUCK | | C/O TAP STEEL INC RTE 26 3101/ P O BOX 457CONSTABLEVILLE NY 13325 | 01/28/2016 | 01/28/2021 |
| DOL | DOL | *****3453 | TORCHIA'S HOME IMPROVEMENT | | 10153 ROBERTS RD SAUQUOIT NY 13456 | 08/09/2016 | 08/09/2021 |
| DOL | DOL | *****8311 | TRIPLE B FABRICATING, INC. | | 61 WILLETT ST. PASSAIC NJ 07503 | 10/26/2016 | 10/26/2021 |
| DOL | DOL | *****9407 | TURBO GROUP INC | | 15-68 208TH STREET BAYSIDE NY 11360 | 06/23/2016 | 06/23/2021 |
| DOL | DOL | *****6392 | V.M.K CORP. | | 8617 THIRD AVE BROOKLYN NY 11209 | 09/17/2018 | 09/17/2023 |
| DOL | DOL | *****6418 | VALHALLA CONSTRUCTION, LLC. | | 796 PHELEPS ROAD FRANKLIN LAKES NJ 07417 | 12/01/2020 | 12/01/2025 |
| DOL | NYC | *****7361 | VIALE HOLDINGS, INC. | MOVING MAVEN | 1010 NORTHERN BLVD. GREAT NECK NY 11021 | 03/09/2017 | 03/09/2022 |
| DOL | DOL | | VICTOR ALICANTI | | 42-32 235TH ST DOUGLSTON NY 11363 | 01/14/2019 | 01/14/2024 |
| DOL | DOL | | VICTOR ROTENBERG | | C/O GMDV TRANS INC 67048 182ND STREETFRESH MEADOWS NY 11365 | 06/24/2016 | 06/24/2021 |
| DOL | NYC | | VIKTAR PATONICH | | 2630 CROPEY AVE BROOKLYN NY 11214 | 10/30/2018 | 10/30/2023 |
| DOL | DOL | | VIKTORIA RATH | | 24 ELDOR AVENUE NEW CITY NY 10956 | 02/03/2020 | 02/03/2025 |
| DOL | NYC | | VITO GARGANO | | 1535 RICHMOND AVE STATEN ISLAND NY 10314 | 12/13/2017 | 12/13/2022 |
| DOL | NYC | *****3673 | WALTERS AND WALTERS, INC. | | 465 EAST AND THIRD ST MT. VERNON NY 10550 | 09/09/2019 | 09/09/2024 |
| DOL | DOL | | WAYNE LIVINGSTON JR | NORTH COUNTRY DRYWALL AND PAINT | 23167 COUNTY ROUTE 59 DEXTER NY 13634 | 10/24/2016 | 10/24/2021 |
| DOL | DOL | *****3296 | WESTERN NEW YORK CONTRACTORS, INC. | | 3841 LAYNARD COURT NEW PORT RICHEY FL 34652 | 07/09/2019 | 07/09/2024 |
| DOL | DOL | | WHITE PLAINS CARPENTRY CORP | | 442 ARMONK RD | 06/12/2018 | 06/12/2023 |
| DOL | DOL | | WILLIAM C WATKINS | | 1229 JAMES STREET SYRACUSE NY 13203 | 05/02/2017 | 05/02/2022 |
| DOL | DOL | | WILLIAM DEAK | | C/O MADISON AVE CONSTR CO 39 PENNY STREETWEST ISLIP NY 11795 | 11/02/2016 | 11/02/2021 |
| DOL | DOL | *****4043 | WINDSHIELD INSTALLATION NETWORK, INC. | | 200 LATTA BROOK PARK HORSEHEADS NY 14845 | 03/08/2018 | 03/08/2023 |
| DOL | DOL | *****4730 | XGD SYSTEMS, LLC | TDI GOLF | 415 GLAGE AVE #302STUART FL 34994 | 10/31/2018 | 10/31/2023 |
| DOL | DOL | *****7345 | YES SERVICE AND REPAIRS CORPORATION | | 145 LODGE AVE HUNTINGTON STATION NY 11476 | 08/09/2016 | 08/09/2021 |
| DOL | NYC | | ZAKIR NASEEM | | 30 MEADOW ST BROOKLYN NY 11206 | 10/10/2017 | 10/10/2022 |
| DOL | NYC | *****8277 | ZHN CONTRACTING CORP | | 30 MEADOW ST BROOKLYN NY 11206 | 10/10/2017 | 10/10/2022 |

Sample Forms – Section 2

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PAYMENT REQUEST GUIDELINES AND FORMS

This guide and accompanying forms and attachments are to be used to prepare and submit payment requests for reimbursement of costs incurred under contracts with the Department of State, Office of Planning, Development & Community Infrastructure (hereafter referred to as the Department). If payment requests are not prepared and submitted in accordance with these guidelines and accompanying forms, it may cause processing delays, payment deduction or rejection of the request. In the event that a payment request is rejected or partially paid, the Department will provide written notice (by email) to the grant recipient ("Contractor" on the face page of the DOS contract, hereafter referred to as the "Recipient").

A payment request consists of Payment Request Forms (1-4), associated attachments (A-F), and a Standard Voucher. Appropriate supporting financial documentation must be submitted with the payment request, as specified on attachments A-F. The attached document lists acceptable records to retain and/or submit to support contract related costs. Additional supporting records may be requested and reviewed by the Department at any time. All records must be maintained at the Recipient's official place of business for a period of 6 years following the last contract transaction, which is generally the final payment.

Payment requests will be reviewed in accordance with the terms and conditions of the contract to determine total eligible costs incurred and the number and percentage of project tasks completed to date. If the percentage of task completion is deemed insufficient, or if products have not yet been approved by the Department, the amount to be reimbursed may be reduced. The Department shall make interim payments for eligible costs incurred, not to exceed 90% of the State Share Funding Amount. The remaining 10% can only be reimbursed upon project completion.

The final payment request must be submitted within 60 days of the expiration date of the contract or the completion of the scope of work in the contract, whichever occurs first. The final payment request will not be processed until all supporting documentation and work products have been received and approved by the Department.

When preparing payment requests, please note the following:

- Costs documented must be consistent with the approved budget in the contract (or subsequent amendment), and must be shown in the same budget categories.
- Costs documented must be based on actual costs incurred - no estimated or rounded costs are allowed.
- Corresponding Payment Request Attachments A-F, must be submitted for each cost submitted for reimbursement and/or local match.
- When submitting a payment request only submit those Attachments that are necessary to document costs. For example, if you are only documenting costs in Contractual Services, then you submit only Attachment E and you do not submit Attachments A-D or Attachment F.
- Care should be taken to ensure all forms are accurate, legible and complete.
- The use of vague terms such as "other", "etcetera" or "miscellaneous" is not acceptable in documenting costs.
- Requests for payment are expected to be submitted at least twice per year, but not more frequently than monthly.

Your original payment request, including corresponding attachments and standard voucher (no copies needed) should be mailed to:

**New York State Department of State
ATTN: FISCAL OFFICE- Grant Payment Request
One Commerce Plaza
99 Washington Avenue - Suite 1110
Albany, New York 12231-0001**

If you have questions about filling out these forms, or would like us to review a draft version of your payment request prior to submission, please email opdcontracts@dos.ny.gov.

Payment Request Form 3: Payment Narrative

Recipient: _____ 0 _____ Contract #: _____ 0 _____

A detailed narrative is required to describe the activities undertaken and accomplishments made for each task advanced during the time period for this payment request, including any activities being used as match.

Note: This narrative is not intended to be a brief summary or list of accomplishments, we expect the information to be descriptive and detailed. If there is not enough detail, your payment request may be delayed and/or rejected.

| |
|--|
| Payment Request Form 1: Summary Sheet |
|--|

Recipient: _____ Contract #: _____

Project Title: _____

Payment Request # _____

If Final, attach the following:

Type of Request: Interim ☐
 Final ☐

Final Status Report Form ☐
 Final Project Summary Report Form ☐
 Measurable Results Form ☐

Costs documented on this request were incurred during the date period of: _____ to _____

| | Approved Budget Amount (1) | Total Costs Documented in this Report (2) | Cumulative Costs Documented (3) | Available Balance to Document (4) |
|----------------------|----------------------------------|--|---------------------------------------|---|
| Salaries & Wages | \$ - | \$ - | \$ - | \$ - |
| Travel | \$ - | \$ - | \$ - | \$ - |
| Supplies & Materials | \$ - | \$ - | \$ - | \$ - |
| Equipment | \$ - | \$ - | \$ - | \$ - |
| Contractual Services | \$ - | \$ - | \$ - | \$ - |
| Other | \$ - | \$ - | \$ - | \$ - |
| TOTAL | \$ - | \$ - | \$ - | \$ - |

Column 1: Insert the budget amounts from the approved budget of the DOS contract or most recent budget amendment. These amounts will need to be added manually. Note that the approved budget includes the local match (if applicable).

Column 2: Represents the costs being documented on Form 4 - Cost Description Sheet of this payment request, including local match (if applicable). This column will auto-populate based on Form 4.

*The total amount of Column 2 should be entered in the "Total" box on the standard voucher.

Column 3: Represents the cumulative costs documented to date (this payment request plus previous payment requests). These amounts will need to be added manually. If this is the first payment request, Columns (2) and (3) will be the same.

Column 4: Represents the available balance to document for the contract. This column will auto-calculate by subtracting the Column (3) from Column (1). If the balance of any category is negative, please contact DOS before submitting your payment request, to determine if a budget amendment is necessary.

Payment Request Form 2: Certification Form

Recipient: _____ 0 _____ Contract #: _____ 0 _____

By signing this form, I certify that:

1. I am the responsible representative authorized to certify this payment request;
2. The payment request as detailed on the attached forms is just, true and correct, the amount claimed accurately represents the expenses as recorded in our accounting records and the documented expenditures were made solely for the purpose of the project funded under the contract;
3. The attached project narrative accurately represents the activities undertaken during the period covered by the claim;
4. We are in compliance with all applicable provisions of the above-referenced contract; and,
5. Persons not parties to the above-referenced contract who performed work under the contract have been compensated or will be compensated.

Signature: _____ Title & Organization: _____
Printed Name: _____ Date: _____

Please indicate the correct person to contact if DOS has questions about the payment request forms and/or needs revised payment request forms.

Name: _____ Title & Organization: _____
Phone Number: _____ Email Address: _____

Please indicate the correct person to contact if DOS has questions or needs additional information about the project activities and/or deliverables.

Name: _____ Title & Organization: _____
Phone Number: _____ Email Address: _____

| |
|---|
| Payment Request Form 4: Cost Description Sheet |
|---|

 Recipient: 0

 Contract #: 0

NOTES:

- Costs documented must be consistent with the approved budget of the contract (or subsequent amendment), and must be shown in the same budget categories.
- Submission of DOS Attachments must accompany Cost Description Sheet per each category along with specific supporting documentation noted in each category.
- To add additional lines within a category, click a cell within table, click 'Insert' on toolbar and select Insert Table Row.

A. Salaries and Wages

*Submit corresponding Attachment A signed by the employee and supervisor for each individual.

| Name and Title | Amount Applied to Contract |
|---------------------------------|----------------------------|
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| TOTAL SALARIES AND WAGES | \$ - |

B. Travel

*Submit corresponding Attachment B for each individual.

| Name and Title | Amount Applied to Contract |
|---------------------|----------------------------|
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| TOTAL TRAVEL | \$ - |

C. Supplies and Materials

*Submit corresponding Attachment C.

| Type of Supplies | Amount Applied to Contract |
|-------------------------------------|----------------------------|
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| TOTAL SUPPLIES AND MATERIALS | \$ - |

| |
|---|
| Payment Request Form 4: Cost Description Sheet |
|---|

Recipient: _____ 0 _____

Contract #: _____ 0 _____

| | |
|-------------------------------------|----------------------------|
| D. Equipment | |
| *Submit corresponding Attachment D. | |
| <u>Type of Equipment</u> | Amount Applied to Contract |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| TOTAL EQUIPMENT | \$ - |

| | |
|---|----------------------------|
| E. Contractual Services | |
| *Submit corresponding Attachment E AND invoices showing description, amount and dates of services for each subcontractor. | |
| <u>Name of Subcontractor</u> | Amount Applied to Contract |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| TOTAL CONTRACTUAL SERVICES | \$ - |

| | |
|---|----------------------------|
| F. Other | |
| *Submit corresponding Attachment F for each type of cost. | |
| <u>Explanation of Costs</u> | Amount Applied to Contract |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| | \$ - |
| TOTAL OTHER | \$ - |

STANDARD VOUCHER

| | | | | | | | | | |
|--|--|--------------------------------|--|-------------------------|-------------------------|---------------------------------------|------------|---------------------------|--|
| Originating Agency (Limit to 30 spaces) | | NYS Department of State | | Originating Agency Code | | 3800000 | | Voucher Number | |
| Payment Date (MM/DD/YY) | | OSC Use Only | | | Interest Eligible (Y/N) | | P-Contract | | |
| Payee ID | | Additional | | Zip Code | | Route | | Liability Date (MM/DD/YY) | |
| Payee Name (Limit to 30 spaces) | | | | | | Payee Amount | | MIR Date (MM/DD/YY) | |
| Payee Name (Limit to 30 spaces) | | | | | | IRS Code | | IRS Amount | |
| Address (Limit to 30 spaces) | | | | | | Stat. Type | | Statistic | |
| Address (Limit to 30 spaces) | | | | | | Ref./Inv. No. (Limit to 20 spaces) | | Indicator-Dept. | |
| City | | State | | Zip | | Ref./Inv. Date (MM/DD/YY) | | Indicator-Statewide | |

| | | | | | |
|-----------------------------|---|----------|------|-------|--------|
| Purchase Order No. and Date | Description of Material/Service If items are too numerous to be incorporated into the block below, use Form AC 93 and carry total forward. | Quantity | Unit | Price | Amount |
| | Payment Request # <div></div> For contract # <div></div> | | | | |

| | | | |
|--|----------------------|-----------------|----|
| Payee Certification I certify that the above bill is just, true and correct; that no part thereof has been paid except as stated and that the balance is actually due and owing, and that taxes from which the State is exempt are excluded. | | Total | \$ |
| <div></div> Payee's Signature in Ink | <div></div> Title | Discount | |
| <div></div> Name of Company | <div></div> Date | Net | |

| | | | |
|--|---|--|---|
| FOR AGENCY USE ONLY | | STATE COMPTROLLER'S PRE-AUDIT | |
| Merchandise Recd Date Page No. By | I certify that this voucher is correct and just, and payment is approved, and the goods or services rendered or furnished are for use in the performance of the official functions and duties of this agency. Authorized Signature in Ink Date Title | Verified Audited Special Approval (as Required) | Certified for Payment of Total Amount By |

| EXPENDITURE | | | | | | | | LIQUIDATION | | | |
|------------------|-------------|-----|----|--------|-------|-------|--------|--------------------|-------------|------|-----|
| Cost Center Code | | | | Object | Accum | | Amount | Originating Agency | PO/Contract | Line | F/P |
| Dept | Cost Center | Var | Yr | | Dept | State | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Distribution: Original to OSC with Copy to Agency/Department and Payee

Check if Continuation form is attached.

Payment Request Attachments A-F

Instructions

The following Attachments were developed to assist grantees with recording necessary information required for Payment Request submission. It is recommended that you use these attachments daily to track time and costs throughout the life of the project. These attachments must be **PRINTED** (see instructions below) and submitted with the Payment Request Forms 1-4 and a Standard Voucher:

- Attachment A - Salaries and Wages
- Attachment B - Travel
- Attachment C - Supplies and Materials
- Attachment D - Equipment (Purchase)
- Attachment E - Contractual Services
- Attachment F - Other
 - General Expenses
 - Equipment Usage
 - Volunteer Services by Individual
 - Volunteers Services by Group
 - Donated Professional Services

When submitting a Payment Request, only submit those Attachments that are necessary to document costs for the specific payment request. For example, if you are only submitting costs in Contractual Services then only submit Attachment E and do not submit Attachments A-D or F.

PRINTING

- To print an attachment: Highlight all cells with entered information; Select 'Print', under Settings, change dropdown menu to 'Print Selection'.

| Attachment A - Salaries and Wages | | | | | |
|--|-------------------------------|------------|-------------------------------------|----------------------------------|------|
| This timelog showing daily time distribution, signed by the employee and supervisor MUST be submitted with Payment Request Forms. | | | | | |
| Contract #: | | | | | |
| Name of Employee: | | | | | |
| Title of Employee: | | | | | |
| | | | | | |
| Signature of Employee: | | | | Date: | |
| Name and Title of Employee's Supervisor: | | | | | |
| Signature of Employee's Supervisor: | | | | Date: | |
| By signature, I certify that this time log represents an accurate representation of hours worked towards completion of tasks related to the contract listed above. | | | | | |
| | | | | TOTAL: | \$ - |
| Date (individual dates only) | Description of Work Performed | # of Hours | Hourly Rate (may include fringe) | Amount (includes local match) | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |
| | | | | \$ - | |

**All records must be maintained at the Recipient’s official place of business for a period of 6 years following the last contract transaction, which is generally the final payment.

Attachment B - Travel

Receipts for each expense, showing the description, amount, and date must be retained and available for submission upon request by DOS.

| | |
|---|--|
| Contract #: | |
| Name of Employee: | |
| Title of Employee : | |
| *Explanation of costs in 'Other Expenses' column: | |

| | |
|--|-------|
| Signature of Employee: | Date: |
| Name and Title of Employee's Supervisor: | |
| Signature of Employee's Supervisor: | Date: |

By signature, I certify that this time log represents an accurate representation of travel necessary for the completion of tasks related to the contract listed above.

| | | | | |
|---------------|------|------|------|------|
| TOTAL: | \$ - | \$ - | \$ - | \$ - |
|---------------|------|------|------|------|

| Date | Purpose of Travel (including Origin and Destination) | Mileage | Mileage Rate | Mileage Total | Parking/ Tolls | Other Expenses* | Amount (includes local match) |
|------|--|---------|--------------|---------------|-------------------|--------------------|-------------------------------------|
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |
| | | | | \$ - | | | \$ - |

Attachment C - Supplies and Materials

Receipts for each expense, showing the description, amount, and date must be retained and available for submission upon request by DOS.

Contract #:

TOTAL:

\$ -

[illegible]

****All records must be maintained at the Recipient's official place of business for a period of 6 years following the last contract transaction, which is generally the final payment.**

Attachment D - Equipment (Purchase)

Receipts for equipment purchase showing the description, amount, and date must be retained and be available for submission upon request by DOS.

Contract #:

TOTAL:

\$ -

[illegible]

****All records must be maintained at the Recipient's official place of business for a period of 6 years following the last contract transaction, which is generally the final payment.**

Attachment E - Contractual Services

All invoices for each subcontractor, showing description, amount, and dates of service must be submitted with Payment Request Forms.

Contract #:

Name of Subcontractor:

TOTAL:

\$

[illegible]

****All records must be maintained at the Recipient's official place of business for a period of 6 years following the last contract transaction, which is generally the final payment.**

Attachment F - Other (General Expenses)

Receipts for each expense, showing the description, amount, and date must be retained and available for submission upon request by DOS.

Contract #:

TOTAL:

\$ -

[illegible]

****All records must be maintained at the Recipient's official place of business for a period of 6 years following the last contract transaction, which is generally the final payment.**

Attachment F - Other (Equipment Usage)

This timelog showing time distribution of equipment usage, signed by the oversight individual MUST be submitted with Payment Request Forms.

[illegible]

****All records must be maintained at the Recipient's official place of business for a period of 6 years following the last contract transaction, which is generally the final payment.**

Attachment F - Other (Volunteer Services by Individual)**This timelog showing daily time distribution, signed by the volunteer and oversight individual MUST be submitted with Payment Request Forms.****For use for an individual volunteer working toward progress on specific tasks related to contract workplan.**

| | |
|--|--|
| Contract #: | |
| Volunteer Name: | |
| Organization (if applicable): | |
| Explanation of how hourly rate was determined: | |

| | |
|---|-------|
| Signature of Volunteer: | Date: |
| Name and Title of Oversight Individual: | |
| Signature of Oversight Individual: | Date: |

By signature, I certify that this time log represents an accurate representation of hours worked towards completion of tasks related to the contract listed above.

TOTAL: \$ -

| Date (individual dates only) | Description of Services Provided | # of Hours | Volunteer Rate | Amount (includes local match) |
|---------------------------------|----------------------------------|------------|----------------|-------------------------------|
| | | | | \$ - |
| | | | | \$ - |
| | | | | \$ - |
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| | | | | \$ - |
| | | | | \$ - |

Attachment F - Other (Volunteer Services by Group)

This timelog showing daily time distribution, signed by the oversight individual MUST be submitted with Payment Request Forms.

For use when a group of volunteers are completing similar tasks at project meetings and events.

| | |
|--|--|
| Contract #: | |
| Description of services performed (including specific project tasks): | |
| Date (individual date only): | |
| Explanation of how hourly rate was determined: | |

| | |
|---|-------|
| | |
| Name and Title of Oversight Individual: | |
| Signature of Oversight Individual: | Date: |

By signature, I certify that this time log represents an accurate representation of hours worked towards completion of tasks related to the contract listed above.

[illegible]

General Requirements

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SECTION 01 1000
SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with the City of Hudson, Department of Public Work
5. Coordination with National Grid.
6. Work restrictions.
7. Specification and drawing conventions.
8. Miscellaneous provisions.

B. Related Requirements:

1. Section 01 5000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: Promenade Hill Park Renovation

1. Project Location: 2 Warren Street, Hudson, NY 12534

B. Owner: City of Hudson, New York, City Hall, 520 Warren Street, Hudson, NY, 12534.

1. Contact: Michael Chamedies, Mayoral Aide, mayoralaide@cityofhudson.org, phone: 518-828-7217.
2. Contact, site related: Robert Perry, Superintendent of Public Works; dpwsuperintendent@cityofhudson.org, phone: 518-965-5235.

C. Grant administrator: The Chazen Companies, 21 Fox St, Poughkeepsie, NY 12601.

1. Chris Round, Senior Principal, round@chazencompanies.com; phone: 518-824-1938, mobile 518-225-2191.

- D. Funding agency contact: New York Department of State, Office of Planning, Development & Community Infrastructure, 99 Washington Avenue, One Commerce Plaza, Albany, NY 12231
 - 1. Tanu Kumar, Revitalization Specialist, Tanushri.Kumar@dos.ny.gov, phone: 518-474-4949, mobile 518-649-2559.
- E. Construction Manager: Daniel Proper, PE, Proper & O’Leary Engineering, dpc. 1915 Fifth Avenue, PO 246, Troy, NY 12181 dproper@po-eng.com at (518).610.8331
- F. Nationalgrid municipal liaison: Nationalgrid, Kayla Emory, kaylaemory@nationalgrid.com 518-433-3709.
- G. Landscape Architect: Stephen Whitehouse, Starr Whitehouse Landscape Architecture and Planners, 80 Broad Street, Suite 1700, New York, NY 10004. sw@starrwhitehouse.com at (212) 487-3272, x 102 and Gail Wittwer-Laird gwittwerlaird@starrwhitehouse.com at (212) 487-3272 x120 for site related issues.
- H. Landscape Architect's Sub-Consultants: The Landscape Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:
 - 1. Civil, Structural Engineer: Proper & O’Leary Engineering, dpc. 1915 Fifth Avenue, PO 246, Troy, NY 12181 (518).610.8331
 - 2. Surveyor: S.Y. Kim Land Surveyor, P.C., 260 Osborne Rd. Albany, NY 12211. (518).785.3956
- I. Contractor: **<To Be Determined>** has been engaged as Contractor for this Project.
- J. Project Web Site: The Contractor will designate a web-based electronic construction support platform for purposes of managing communication and documents during the construction stage.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. The creation of universal access to Promenade Hill Park is a New York State-funded Downtown Revitalization Initiative project for the City of Hudson. The project area is located at the intersection of Front and Warren Streets, at the westernmost edge of the central commercial district. The park is open to the public and prospective bidders are encouraged to visit the park prior to submittal of their bids.
 - 2. The existing park is divided between an upper historic promenade and a lower, contemporary urban plaza. The scope of this project is primarily within the footprint of the lower plaza, except for a portion of a landing at the top of the incline, which will extend east from the level of the existing promenade and improvements to an existing footpath on the upper promenade.

3. The creation of universal access to the upper promenade will entail the removal of walls and pavements from a 1977 urban renewal project (most of the removal by the City of Hudson) and the creation of both a new accessible route and new set of stairs leading to an existing opening in a historic stone wall that provides access to the upper promenade. Selective demolition will be performed by the City of Hudson Department of Public Works immediately prior to the mobilization of the chosen site contractor.
 4. The scope of work includes: Construction fencing, erosion control, tree pruning and tree protection, reinforced cast in place concrete foundations, walls and ADA compliant ramps, decorative handrails, stone masonry, stone pavement, lighting (wiring by National Grid), installation of a new drinking fountain and ground hydrants, earthwork, and landscape plantings. The project also includes the installation of a spray shower.
 5. Improvements to the safety surface and seating in an existing play area at the northern end of the site are included in the project as add alternate bid item.
- B. Project will be constructed under a single prime contract.
1. Contract between General Contractor and The City of Hudson, Hudson, New York, Contract: DRI # C1001294

1.5 ACCESS TO SITE

- A. General: The Contractor shall have full use of the delineated Project site for construction operations as indicated on Drawings by the Contract limits during construction period. Contractor's use of Project site is limited only by the following:
1. Owner's right to perform tree removals, demolition, trenching and conduit placement.
 2. Owner's right to emergency access to the upper promenade.
 3. National Grid to install wiring, expand, or otherwise connect electrical service for pedestrian lighting including providing and installing luminaires.
 4. City to install electrical conduit.
- B. General: Contractor shall abide by requirements for construction operations as indicated by this Section.
- C. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Limits: Confine construction operations to Contract Limit Line, as indicated on plans.
 2. Driveways, Walkways and Entrances: Keep adjacent property driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

3. Maintain two points of emergency egress from the Chamber of Commerce building, including, as needed, egress from the south side of the building when either the front or back doors are blocked by construction.
4. Maintain continuous ADA accessible route to the Chamber of Commerce building.
 - a. Make the rear door accessible continuously.
 - b. Prioritize the completion of areas providing building access.
5. Prioritize and restore City and public access to the front and back door of the Chamber of Commerce building. Situate or otherwise move construction fence to provide early access to the building while construction continues the major portions of the project site. The City will inspect and accept for use improvements at the adjoining doorways.
6. Immediately north of the building, The Chamber of Commerce will retain continuous access to three parking spaces and a location for its relocated dumpster.

1.6 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit site work 7 AM to 7 PM: Monday through Friday. Equipment may be brought on site as early as 7AM. The use of loud equipment is restricted to the hours between 7 AM and 6 PM on weekdays. Contractor shall abide by Local Code for noise, 210-6D and shall not produce sound exceeding 60 dB(A) at any residential property line.
 1. Weekend Hours: Not permitted.
 2. Early Morning Hours: Not Permitted.
 3. Hours for Utility Shutdowns: Monday to Friday 8AM-6PM.
 4. Hours for Excavation: Monday to Friday 7AM-7PM.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Construction Manager and Owner not less than three days in advance of proposed utility interruptions.
 2. Obtain Construction Manager's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 1. Notify Construction Manager and Owner not less than three days in advance of proposed disruptive operations.
 2. Obtain Construction Manager's written permission before proceeding with disruptive operations.

- E. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- F. Contractor shall abide by New York State Executive Orders, Essential Business Guidance, rules and guidelines pertaining to construction work during the Covid-19 pandemic and shall follow all mandatory requirements as well follow recommended Best Practices for “Reopening New York”. Check the New York State websites for current requirements throughout the course of the work. Follow the hygiene guidelines, practice health screening protocols, maintain records of who is visiting or working on site on a daily basis.
 - 1. Reopening New York: <https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/ConstructionShortGuidelines.pdf>
 - 2. Executive Orders: <https://www.governor.ny.gov/executiveorders>
 - 3. Essential Business Guidance: <https://esd.ny.gov/guidance-executive-order-2026>
- G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.
- H. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
 - 1. Maintain list of approved screened personnel with Owner's Representative.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

- A. 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. Imperative mood and streamlined language are generally used in the Specifications. 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.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 1000

SECTION 01 2100

ALLOWANCES

PART 1 GENERAL

1.1 DESCRIPTION

- A. Include in the contract sum the allowances stated in this Section.
- B. Should the cost be more than the specified amount of the allowance, the contract sum will be adjusted by Order on Contract in accordance with Article 11 of the General Conditions. No Work in excess of the allowance will be permitted except by Order on Contract. Should the net cost be less than the specified amount of the allowance, the balance will be deducted from the final payment.

1.2 ALLOWANCES FOR CONTINGENCIES

- A. Include in the contract sum the amount indicated below to cover the cost of contingent activities within the scope of the Contract as directed in writing by Field Order. The Field Order will include a description of the Work and a method for determining the cost of such Work.

| <u>Allowance Items</u> | <u>Amount</u> |
|--|--------------------|
| 1. General Construction Allowance: (Allowance to address unforeseen field conditions and/or other changes as directed by the Construction Manager) | \$10,000.00 |

- B. The value of the directed Work under this allowance will be determined by one of the methods indicated in Article 11 of the General Conditions and will be specified in the Field Order.

1.3 SUBMITTALS

- A. Submit all materials required by the written Field Order.
- B. Submit a cost breakdown or proposal for additional work when the Construction Manager determines that a field order is necessary.
- C. Submit an executed Field Order prior to commencement of work covered under that Field Order.
- D. Commence with Field Order Work only after the Field Order has been approved by the Construction Manager.

PART 2 - PRODUCTS

- A. Where Field Order work is covered under an existing specification, products are to conform to that specification.
- B. Where Field Order work is not covered by an existing specification, products will be specified in the Field Order.

PART 3 - EXECUTION

- A. Field Order work is to be executed in accordance with existing specifications or specifications stated in the Field Order.

END OF SECTION 01 2100

SECTION 01 2300

ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Play Area Improvements

1. Base Bid: Play Area Improvements (Not in Contract)
2. Alternate: Play Area Improvements, including the following:
 - Play Area improvements, including the following:
 - Furnish and Install Engineered Wood Fiber Playground Safety Surfacing.
 - Landscaping Planting-Trees and Ground Cover
 - Play area seating, Colored Concrete Pavement with Salvaged Granite Curb.

END OF SECTION 01 2300

SECTION 012500

SUBSTITUTION PROCEDURES

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 administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for products selected under an allowance.
 - 2. Section 012300 "Alternates" for products selected under an alternate.
 - 3. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form acceptable to the Contract Manager.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.

- b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. If necessary, Construction Manager will request additional information or documentation for evaluation within [**seven**] <7> days of receipt of a request for substitution. Construction Manager will notify Contractor of acceptance or rejection of proposed substitution within [**ten**] <10> days of receipt of request, or [**seven**] <7> days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than [ten] <10> days prior to time required for preparation and review of related submittals.

- 1. Conditions: Construction Manager will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Construction Manager will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

- B. Substitutions for Convenience: Not allowed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

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SECTION 01 2600

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Conditions of the Contract, including Notice to Bidders, Instructions to Bidders, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

- A. Construction Manager will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions or similar.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- e. Quotation Form: Use CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail." forms acceptable to Construction Manager.

- B. Contractor-Initiated Work Change Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Work Change Proposal Request Form: Use [CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail." Or form acceptable to Construction Manager.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Construction Manager will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 or form acceptable to Construction Manager.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Work Change Directive: Construction Manager may issue a Work Change Directive on AIA Document G714 or similar form. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
- C. Documentation: Maintain and submit detailed records of work required by the Work Change Directive that impacts NYS DEC permit(s) and General Requirements as detailed in the Landfill Closure Report.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2600

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SECTION 01 2900

PAYMENT PROCEDURES

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 administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for procedural requirements governing the handling and processing of allowances.
 - 2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 3. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values through the Construction Manager at earliest possible date, but no later than [seven] <7> days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Sub-schedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values coordinated with each phase of payment.

4. Sub-schedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide sub-schedules showing values coordinated with each element.
 5. Sub-schedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide sub-schedules showing values coordinated with the scope of each design services contract, as described in Section 011000 "Summary."
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Owner's name.
 - c. Owner's Project number.
 - d. Name of Architect.
 - e. Architect's Project number.
 - f. Contractor's name and address.
 - g. Date of submittal.
 2. Arrange schedule of values consistent with format of **AIA Document G703**
 3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of [**five**] <5> percent of the Contract Sum.
 5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site.
 6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by

measured quantity. Use information indicated in the Contract Documents to determine quantities.

7. Purchase Contracts: Provide a separate line item in the schedule of values for each Purchase contract. Show line-item value of Purchase contract. Indicate Owner payments or deposits, if any, and balance to be paid by Contractor.
8. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
9. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
10. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
11. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling [**five**] <5> percent of the Contract Sum and subcontract amount.
12. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by the Construction Manager and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect by the <1st> of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
 1. Submit draft copy of Application for Payment [seven] <7> days prior to due date for review by Architect.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 or standard form approved by the Owner and the Construction Manager as form for Applications for Payment.
 1. Other Application for Payment forms proposed by the Contractor may be acceptable to Construction Manager and Owner. Submit forms for approval with initial submittal of schedule of values.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Construction Manager will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- G. Transmittal: Submit [three] <3> signed and notarized original copies of each Application for Payment to the Construction Manager by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment such as sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 5. Products list (preliminary if not final).
 6. Sustainable design action plans, including preliminary project materials cost data.
 7. Schedule of unit prices.
 8. Submittal schedule (preliminary if not final).
 9. List of Contractor's staff assignments.
 10. List of Contractor's principal consultants.
 11. Copies of building permits.
 12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 13. Initial progress report.
 14. Report of preconstruction conference.
 15. Certificates of insurance and insurance policies.
 16. Performance and payment bonds.
 17. Data needed to acquire Owner's insurance.
- J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 017700 "Closeout Procedures."
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Certification of completion of final punch list items.
 3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 4. Updated final statement, accounting for final changes to the Contract Sum.
 5. AIA Document G706, Contractor's Payment Affidavit.
 6. AIA Document G706A, Contractor's Affidavit of Release of Liens
 7. AIA Document G707, Consent of Surety to Final Payment.
 8. Evidence that claims have been settled.

9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.
12. Waivers and releases.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2900

SECTION 01 3100

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Conditions of the Contract, including Notice to Bidders, Instructions to Bidders, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. Requests for Information (RFIs).
 - 4. Electronic Submittal Procedures
 - 5. Project meetings.
- B. Related Sections:
 - 1. Supplementary Specification Section 01 7700 "Closeout Procedures" for coordinating closeout of the Contract.
- C. Contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

1.3 DEFINITIONS

- A. RFI: Request from Owner, Construction Manager, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
1. Post copies of list in project meeting room, in temporary field office, via electronic submittal system (see below), and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
1. General Contractor is responsible for giving construction notice to all adjacent property Owners, including work that requires removal of materials belonging to them, as indicated on drawings, within project boundaries. The General Contractor will be the primary contact with adjacent Owners, and will be aware of work by all other Contractors.
 2. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 3. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 4. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Contractor shall coordinate its construction operations with those of any other sub-contractors or entities to ensure efficient and orderly installation of each part of the Work. Contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of subcontractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities including acceptance by the owner and regulatory and agencies having jurisdiction; the City of Hudson, the City of Hudson's Independent Licensed Architect for ADA Compliance, and the New York Department of State.
 8. Startup and adjustment of systems.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - f. Indicate required installation sequences.
 - g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Construction Manager indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Landscape Architectural
2. Civil & Structural Engineering
3. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."

C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
2. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format.

1.7 ELECTRONIC SUBMITTAL PROCEDURES

A. Summary:

1. Shop drawing and product data submittals shall be transmitted to Construction Manager in electronic (PDF) format using Submittal Exchange, a website service

designed specifically for transmitting submittals between construction team members, or approved equal.

2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
3. The electronic submittal process is not intended for color samples, color charts, or physical material samples.

B. Procedures:

1. Submittal Preparation - Contractor may use any or all of the following options:
 - a. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the Submittal Exchange website.
 - b. Subcontractors and Suppliers provide paper submittals to General Contractor who electronically scans and converts to PDF format.
 - c. Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.
2. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
3. Contractor shall transmit each submittal to Construction Manager using the Submittal Exchange website, www.submittalexchange.com.
4. Construction Manager review comments will be made available on the Submittal Exchange website for downloading. Contractor will receive email notice of completed review.
5. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
6. Submit paper copies of reviewed submittals at project closeout for record purposes in accordance with Section 01 7700 – Closeout Submittals

C. Costs:

1. General Contractor shall include the full cost of Submittal Exchange project subscription or approved equal in their proposal. This cost is included in the Contract Amount. Contact Submittal Exchange at 1-800-714-0024 to verify cost prior to bid.
2. Internet Service and Equipment Requirements:
 - a. Email address and Internet access at Contractor's main office.
 - b. Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments.

1.8 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Construction Manager will return RFIs submitted to Construction Manager by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
 3. Contractor shall promptly notify Construction Manager of any changes impacting Columbia County Solid Waste and NYS DEC permit(s) and shall provide documentation and explanation of required change(s).
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Construction Manager.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: Electronic Submittal Software-generated form with substantially the same content as indicated above, acceptable to Construction Manager.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- D. Construction Manager's Action: Construction Manager will review each RFI, determine action required, and respond. Allow 7 working days for Construction Manager's response for each RFI. RFIs received by Construction Manager after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Construction Manager's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Construction Manager's action may include a request for additional information, in which case Construction Manager's time for response will date from time of receipt of additional information.
 3. Construction Manager's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 2600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Construction Manager in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use electronic submittal software log with not less than the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Construction Manager.
 4. RFI number including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Construction Manager's response was received.
- F. On receipt of Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Construction Manager within seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.9 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Construction Manager of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Construction Manager, within three days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Construction Manager, but no later than 15 days after execution of the Agreement.
 - 1. Conduct the conference to review responsibilities and personnel assignments.
 - 2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, and Construction Manager; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Preparation of record documents.
 - m. Use of the premises.
 - n. Work restrictions.
 - o. Working hours.
 - p. Owner's occupancy requirements.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for moisture and mold control.

- s. Procedures for disruptions and shutdowns.
 - t. Construction waste management and recycling.
 - u. Parking availability.
 - v. Office, work, and storage areas.
 - w. Equipment deliveries and priorities.
 - x. First aid.
 - y. Security.
 - z. Progress cleaning.
4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Construction Manager, and Owner's Commissioning Authority of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility requirements.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written instructions.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.

- x. Protection of adjacent work.
 - y. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Construction Manager, but no later than 90 days prior to the scheduled date of Substantial Completion.
- 1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 - 2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, and Construction Manager; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Requirements for preparing operations and maintenance data.
 - e. Requirements for delivery of material samples, attic stock, and spare parts.
 - f. Requirements for demonstration and training.
 - g. Preparation of Contractor's punch list.
 - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - i. Submittal procedures.
 - j. Coordination of separate contracts.
 - k. Owner's partial occupancy requirements.
 - l. Installation of Owner's furniture, fixtures, and equipment.
 - m. Responsibility for removing temporary facilities and controls.
 - 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Conduct progress meetings at weekly intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.

2. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority, and Construction Manager, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- F. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
 - 1. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority, and Construction Manager, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards. (NYS DEC / Columbia County Solid Waste Department)

13) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 3000

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SECTION 01 3200

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Conditions of the Contract, including Notice to Bidders, Instructions to Bidders, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's construction schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Special reports.
- B. Related Sections:
 - 1. Supplementary Specification Section 013301 "Submittal Procedures" for submitting schedules and reports.
 - 2. Supplementary Specification Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.

- B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time [belongs to Owner] [is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date].
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

- A. Startup construction schedule.
 - 1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

- D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 3. Total Float Report: List of all activities sorted in ascending order of total float.
 4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.
- E. Construction Schedule Updating Reports: Submit with Applications for Payment.
- F. Daily Construction Reports: Submit at weekly intervals.
- G. Material Location Reports: Submit at weekly intervals.
- H. Site Condition Reports: Submit at time of discovery of differing conditions.
- I. Special Reports: Submit at time of unusual event.
- J. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.
- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
1. Review software limitations and content and format for reports.
 2. Verify availability of qualified personnel needed to develop and update schedule.
 3. Discuss constraints, including phasing, work stages, area separations, interim milestones, and partial Owner occupancy.
 4. Review delivery dates for Owner-furnished products.
 5. Review schedule for work of Owner's separate contracts.
 6. Review submittal requirements and procedures.
 7. Review time required for review of submittals and resubmittals.

8. Review requirements for tests and inspections by independent testing and inspecting agencies.
9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
10. Review and finalize list of construction activities to be included in schedule.
11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from entities involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice of the Award to date of final completion.
 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - a. Light poles, bases & luminaires
 - b. Spray shower feature
 - c. Drinking Fountain / Bottle Filler
 - d. Handrail assemblies
 - e. Bluestone stair treads
 - f. Stone veneer and wall coping

- g. Unit pavers
 - h. Benches
 - i. Native plant material
 - 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
 - 4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
 - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 - 6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
- 1. Phasing: Arrange list of activities on schedule by phase.
 - 2. Work under More Than One Contract: Include a separate activity for each contract.
 - 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 - 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 - 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 - 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 - 7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.

- d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Building flush-out.
 - m. Startup and placement into final use and operation.
8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
- a. Structural completion.
 - b. Temporary enclosure and space conditioning.
 - c. Permanent space enclosure.
 - d. Completion of mechanical installation.
 - e. Completion of electrical installation.
 - f. Substantial Completion.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
- E. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
- 1. See Articles 15, 16, and 17 of the General Conditions for cost reporting and payment procedures.
- F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
- 1. Unresolved issues.
 - 2. Unanswered Requests for Information.
 - 3. Rejected or unreturned submittals.
 - 4. Notations on returned submittals.
 - 5. Pending modifications affecting the Work and Contract Time.
- G. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule

indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

- H. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.2 STARTUP CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice of Award.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for the Notice of Award. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice of Award. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's construction schedule using a cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 60 days after date established for the Notice of Award.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Work by Owner that may affect or be affected by Contractor's activities.
 - i. Testing.
 - j. Punch list and final completion.
 - k. Activities occurring following final completion.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.

4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
5. Cost and Resource Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
 - a. Each activity cost shall reflect an appropriate value subject to approval by Architect.
 - b. Total cost assigned to activities shall equal the total Contract Sum.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
 1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Main events of activity.
 4. Immediately preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the schedule of values).
- G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.
 4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.

7. Changes in the Contract Time.

H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests, coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.5 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Work Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

- B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
 - 1. Material stored prior to previous report and remaining in storage.
 - 2. Material stored prior to previous report and since removed from storage and installed.
 - 3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.6 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At two-week intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate final completion percentage for each activity.

- B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 3200

SECTION 01 3200

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Conditions of the Contract, including Notice to Bidders, Instructions to Bidders, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Construction inspections.
- B. Related Sections:
 - 1. Section 01 3300 - Submittal Procedures for submitting photographic documentation.
 - 2. Section 01 7700 - Closeout Procedures for submitting photographic documentation as project record documents at Project closeout.
 - 3. Section 02 4119 - Selective Demolition for photographic documentation before selective demolition operations commence.
 - 4. Section 31 1000 – Site Clearing for photographic documentation before site clearing operations commence.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For photographer.
- B. Key Plan: Submit key plan of Project site with notation of vantage points marked for location and direction of each photograph. Include same information as corresponding photographic documentation.
- C. Digital Photographs: Submit image files within 3 days of taking photographs.
 - 1. Digital Camera: Minimum sensor resolution of 16 megapixels.
 - 2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.

3. Identification: Provide the following information with each image description in file metadata tag:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Construction Manager.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - g. Unique sequential identifier keyed to accompanying key plan.
- D. Submit all pre-construction photographs to the Construction Manager.

1.4 QUALITY ASSURANCE

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

1.5 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. Date and Time: Include date and time in file name for each image.
- D. Preconstruction Photographs: Before commencement of excavation, commencement of demolition and starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Construction Manager.
1. Flag excavation areas and construction limits before taking construction photographs.
 2. Take 50 photographs to show existing conditions adjacent to property before starting the Work.
 3. Take 50 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- E. Periodic Construction Photographs: Take 20 photographs monthly with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- F. Construction Manager-Directed Construction Photographs: From time to time, Construction Manager will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.
- G. Final Completion Construction Photographs: Take 30 color photographs after date of Substantial Completion for submission as project record documents. Construction Manager will inform photographer of desired vantage points.
1. Do not include date stamp.

END OF SECTION 01 3200

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SECTION 01 3301

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Conditions of the Contract, including Notice to Bidders, Instructions to Bidders, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Construction Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Construction Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional

time required for making corrections or revisions to submittals noted by Construction Manager and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Construction Manager's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Construction Manager's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Construction Manager for Contractor's use in preparing submittals.
 1. Construction Manager will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
 - a. Construction Manager makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Software Program: The Contract Drawings are available in Autodesk AutoCad
 - c. Contractor shall execute a data licensing agreement in the form of Agreement included in Project Manual.

- d. The following digital data files will be furnished for each appropriate discipline:
 - 1) Landscape plans and details.
 - 2) Structural plans and details
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. The Construction Manager reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Construction Manager's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by Construction Manager's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 - 5. Concurrent Consultant Review: As directed by Construction Manager or where the Contract Documents indicate that submittals may be transmitted simultaneously to Columbia County, City of Hudson, and or NYS DEC and / or Columbia County Soil & Water Conservation District, allow 21 days for review

of each submittal. Submittal will be returned to Construction Manager before being returned to Contractor.

D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Construction Manager.
3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Construction Manager.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Construction Manager observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Construction Manager.
5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Construction Manager will discard submittals received from sources other than Contractor.
 - a. Transmittal Form for Paper Submittals: Use transmittal form provided by electronic submittal software.
 - b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:

- 1) Project name.
- 2) Date.
- 3) Destination (To:).
- 4) Source (From:).
- 5) Name of Construction Manager.
- 6) Name of Contractor.
- 7) Name of firm or entity that prepared submittal.
- 8) Names of subcontractor, manufacturer, and supplier.
- 9) Category and type of submittal.
- 10) Submittal purpose and description.
- 11) Specification Section number and title.
- 12) Specification paragraph number or drawing designation and generic name for each of multiple items.
- 13) Drawing number and detail references, as appropriate.
- 14) Indication of full or partial submittal.
- 15) Transmittal number, numbered consecutively.
- 16) Submittal and transmittal distribution record.
- 17) Remarks.
- 18) Signature of transmitter.

E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Construction Manager.
4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name of Construction Manager.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.

- g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Indication of full or partial submittal.
 - o. Transmittal number, numbered consecutively.
 - p. Submittal and transmittal distribution record.
 - q. Other necessary identification.
 - r. Remarks.
5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
- a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- F. Options: Identify options requiring selection by Construction Manager, or appropriate party.
- G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Construction Manager on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Construction Manager's action stamp.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

- J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Construction Manager's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Post electronic submittals as PDF electronic files via an electronic submittal exchange to be selected by the Construction Manager.
 - a. Construction Manager review comments will be made available on the Submittal Exchange website for downloading. Contractor will receive email notice of completed review. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.

- g. Notation of coordination requirements.
 - h. Availability and delivery time information.
- 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
- 5. Submit Product Data before or concurrent with Samples.
- 6. Submit Product Data in the following format:
 - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on the Construction Manager's digital data drawing files is otherwise permitted.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 11"x17" – 30"x42".
 - 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file AND
 - b. One opaque (bond) copies of each submittal.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:

- a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit 1 full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Construction Manager will return submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit 2 sets of Samples. Construction Manager will retain 1 Sample set; remainder will be returned. Mark up and retain returned Sample set as a project record sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

- 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least 2 sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Location within site.
 4. Submit product schedule in the following format:
 - a. PDF electronic file.
- F. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Article 15 of the General Conditions.
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Construction Managers and owners, and other information specified.
- L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

- N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- R. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- T. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- U. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- V. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and

calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Construction Manager.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and 3 paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Construction Manager.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 CONSTRUCTION MANAGER'S ACTION

- A. Action Submittals: Construction Manager will review each submittal, make marks to indicate corrections or revisions required, and return it. Construction Manager will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Construction Manager will review each submittal and will not return it, or will return it if it does not comply with requirements. Construction Manager will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Construction Manager.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Construction Manager without action.

END OF SECTION 01 3300

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SECTION 01 4000

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Conditions of the Contract, including Notice to Bidders, Instructions to Bidders, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and -control services required by Owner, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by City of Hudson, National Grid, and the NYS State Historic Preservation Office (SHPO).
- C. Related Requirements:
 - 1. Divisions 02 through 33 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Construction Manager.

- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as

appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Engineer.
 - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Engineer.
- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on re-testing and re-inspecting.
- B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of representatives making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.

5. Other required items indicated in individual Specification Sections.

- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to [ASTM E 329 and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of

manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - d. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service through Construction Manager, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Construction Manager.
 - 2. Notify Construction Manager seven days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain and Construction Manager's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 6. Demolish and remove mockups when directed unless otherwise indicated.
- K. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Specification Sections in Divisions 02 through 33.

1.8 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.
- D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.

- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
- B. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Construction Manager, with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and re-inspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Owner and Construction Manager's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 4000

SECTION 01 4200

REFERENCES

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 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey the Construction Manager's action on Contractor's submittals, applications, and requests, "approved" is limited to Construction Manager's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Construction Manager. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
 - 1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Abbreviations and acronyms not included in this list shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States." The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 2. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
 - 3. AI - Asphalt Institute; www.asphaltinstitute.org.
 - 4. AIA - American Institute of Architects (The); www.aia.org.
 - 5. AISC - American Institute of Steel Construction; www.aisc.org.
 - 6. AISI - American Iron and Steel Institute; www.steel.org.
 - 7. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
 - 8. ANSI - American National Standards Institute; www.ansi.org.
 - 9. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
 - 10. ASCE - American Society of Civil Engineers; www.asce.org.
 - 11. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
 - 12. AWWA - American Water Works Association; www.awwa.com.
 - 13. AWS - American Welding Society; www.aws.org.

14. AWWA - American Water Works Association; www.awwa.org.
15. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
16. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
17. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
18. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
19. FSC - Forest Stewardship Council U.S.; www.fscus.org.
20. MCA - Metal Construction Association; www.metalconstruction.org.
21. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
22. MHIA - Material Handling Industry of America; www.mhia.org.
23. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
24. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
25. NALP - National Association of Landscape Professionals; www.landscapeprofessionals.org.
26. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
27. NCMA - National Concrete Masonry Association; www.ncma.org.
28. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
29. NFPA - National Fire Protection Association; www.nfpa.org.
30. NLGA - National Lumber Grades Authority; www.nlga.org.
31. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
32. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
33. NSI - National Stone Institute; (Formerly: Marble Institute of America); www.naturalstoneinstitute.org.
34. NSPE - National Society of Professional Engineers; www.nspe.org.
35. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
36. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
37. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
38. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
39. SDI - Steel Deck Institute; www.sdi.org.
40. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
41. SJI - Steel Joist Institute; www.steeljoist.org.
42. SPIB - Southern Pine Inspection Bureau; www.spib.org.
43. SSINA - Specialty Steel Industry of North America; www.ssina.com.
44. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. ICC - International Code Council; www.iccsafe.org.
2. O Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. EPA - Environmental Protection Agency; www.epa.gov.

4. OSHA - Occupational Safety & Health Administration; www.osha.gov.
 5. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 6. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.govinfo.gov.
 2. USAB - United States Access Board; www.access-board.gov.
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. NYSDEC; New York State Department of Environmental Conservation
 2. NYSDOT; New York State Department of Transportation
 3. NYSDOS; New York State Department of State; <https://www.dos.ny.gov/>

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 4200

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

- A. Section includes:
 - 1. Section includes requirements for construction businesses in regions of New York that have been permitted to reopen during the Covid-19 pandemic.
 - 2. Requirements for temporary utilities, support facilities, and security and protection facilities.
 - 3. Temporary controls: Barriers, enclosures, and fencing.
 - 4. Security requirements.
 - 5. Erosion Control Measures, including signage, for the protection of wetlands.
 - 6. Dust Control.
- B. Related Sections:
 - 1. Section 011000 - Summary for work restrictions and limitations on utility interruptions.

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, Owner's construction forces, Construction Manager, testing agencies, and authorities having jurisdiction.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities including location of field office and storage facilities, utility hookups, staging areas, parking areas for construction personnel, and property access for adjacent residential and commercial properties.
- B. Stormwater
- C. Staging and access plan for approval.

- D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- E. Construction Sign: Sample template of Construction Sign for approval.
- F. Dust-Control Plan: Submit coordination drawing and narrative that indicates the dust-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
 - 1. Locations of dust-control methods at each phase of work.
 - 2. Waste handling procedures.
 - 3. Other dust-control measures.

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. Engineering & Transportation Barrier Compliance Boards DA-AB Accessibility Guidelines and ICC/ANSI A117.1

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.
- B. Contractor shall abide by New York State Executive Orders, Essential Business Guidance, rules and guidelines pertaining to construction work during the Covid-19 pandemic and shall follow all mandatory requirements as well follow recommended Best Practices for "Reopening New York". Check the New York State websites for current requirements throughout the course of the work. Follow the hygiene guidelines, practice health screening protocols, maintain records of who is visiting or working on site on a daily basis.
 - 1. Reopening New York: <https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/ConstructionShortGuidelines.pdf>
 - 2. Executive Orders: <https://www.governor.ny.gov/executiveorders>
 - 3. Essential Business Guidance: <https://esd.ny.gov/guidance-executive-order-2026>

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: As per NYS DOT Standard Item 607.98010111 Temporary Chain-link Fence, Drawing #607-04 "Chain-link Fence with Top rail", note top rail shall not be installed within 30 feet of roadway where "Chain-link Fence with Tension Wire" will be placed, Drawing #607-05.
- B. Portable Chain-Link Fencing: As per Standard Specification "Construction Fencing" in Subsection 605.03.04.
- C. Temporary Orange Construction Fence As per Standard Specification "Temporary Plastic Barrier Fence" in Subsection 607.41010010.
- D. Temporary Drainage Structure Inlet Protection (Siltsack): Contractor shall provide and maintain inlet protection for drainage inlets on-site and adjacent to the site throughout construction. As per Standard Specification 209-3.11 Drainage Structure Inlet Protection-Temporary, Details. 209-03. Install and maintain Siltsack as manufactured by ACF Environmental, www.acfenvironmental.com, or approved equal for installation below grating will be acceptable.
- ~~E. Straw Bale Dike Temporary: As per NYS DEC Standard and Specification for Straw Bale Dike (2005 or latest).~~
- F. Silt Fence: As per NYS DEC Standard and Specification for Silt Fence (2005 or latest).
- G. Construction Sign on Frame: Vinyl film four-color image photo transfer laminated on M.D.O. board. Over-lamination will not be required. All plywood shall be one-half inch (1/2") thick Douglas Fir, exterior grade, five (5) ply – front side to be medium-density overlay (M.D.O.) resin impregnated fiber overlay. Reverse side to be grade C or better. Size of sign shall be approximately 5'-6" x 3'-10". All edges and back shall be sealed with one coat of exterior grade primer. Color of primer to be gray unless otherwise indicated.
- H. DOS Construction Sign: The Contractor will install one (1) Department of State ("DOS") Construction Identification Sign that identifies the Project at commencement of construction. The sign will remain in place until the Project is complete.
 - 1. The Department of State and New York State Corrections, Division of Industry, have developed attractive and low-cost informational signage. The sign is printed on a 2' by 4' aluminum sign blank with silk-screened printing on an adhesive vinyl sealed to the blank.
 - 2. The exact location will be determined by the DOS and the City of Hudson according to local conditions and codes.
 - 3. The Landscape Architect will provide print-ready Illustrator formatted file.

2.2 TEMPORARY FACILITIES

- A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

- B. Temporary Electric Power-As needed by the contractor to be coordinated with the local entities having jurisdiction.
- C. Contractor shall supply and maintain portable toilet for the duration of the project.
- D. Contractor shall supply and maintain hand washing / sanitizing station and materials in accordance with New York State health and safety rules to mitigate the spread of Corona virus. Contractor shall remove and dispose of trash daily.
- E. Contractor shall supply and maintain the Temporary chain link fencing and construction signage.
- F. Temporary storage of construction materials and equipment in a secure fenced in area.

2.3 TEMPORARY FIELD OFFICE

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
 - 1. Field office shall be located withing the designated staging area.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, 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. Toilet may be portable toilet located separately.
 - 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.

2.4 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

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 011000 "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. 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.
- E. 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.
- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service overhead or underground unless otherwise indicated. Install a temporary electrical panel and metering. Contractor shall be responsible for the cost of power.
 - 2. ~~Connect temporary service to Owner's existing power source, as directed by Owner.~~
- G. 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.~~

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for 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 Construction Manager 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. 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.

C. Parking: Temporary parking within the staging area is permitted. No construction equipment or deliveries will be permitted in the public right of way.

1. Additional parking and storage can be arranged with the Department of Public Works at its Dock Street Location.

D. 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.

E. Project Signs: Provide Project Construction signs as indicated above paragraph: "Materials". Unauthorized signs are not permitted.

1. Project Construction Signs: The Construction signs shall be installed either on the fence or a wood frame as directed by the Construction Manager.
2. Maintain and touchup signs so they are legible and up to date at all times.

F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

1. Construction waste, food waste, water bottles and other trash shall be contained and covered. Waste shall be removed from the site on a daily basis.
2. Good site housekeeping shall be maintained.

G. 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.
2. Provide protective coverings, barriers, devices, signs, or other procedures to protect work in progress. If work becomes damaged, restore damaged areas so no evidence remains of correction work.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, gates, barrier rail, gas vents, monitoring wells and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Temporary Erosion and Sedimentation Control: Comply with best practices according to the New York State Stormwater Management Design Manual. Protect drainage structures on-site and in adjacent street(s).
- C. Stormwater Control: Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. 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. See Specification Section 015639 Tree Protection and Pruning.
- E. 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.
- F. Site Enclosure Fence: Before construction operations begin furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide chains and double padlocks. Contractor shall have use of one lock, while Owner will share the second lock with the Construction Manager.
- 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 workday.
- 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 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.
- K. Building Protection: The Contractor shall take all precautions to protect all portions of the building from smoke and gas fumes and to prevent hazardous conditions which may result in damage to property or injury to persons. If using fire-suppression sprinkler systems or other permanent fire-protection systems, insert specific requirements.

3.5 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. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. 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 7700 "Closeout Procedures."

END OF SECTION 01 5000

SECTION 01 5639

TREE PROTECTION AND PRUNING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

- A. Section includes general temporary protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.
- B. Related Sections:
 - 1. Section 01 5000 – “Temporary Facilities and Controls” for temporary site fencing.
 - 2. Section 31 1000 – “Site Clearing” for removing existing trees and shrubs.

1.3 RELATED REFERENCES

- A. ANSI A300 – ANSI Standard for Tree Care Operations _ Tree Shrub, and Other Woody Plant Management – Standard Practices.
- B. ANSI Z133 - Safety Requirements for Arboricultural Operations.
- C. Pruning Best Management Practices, 3rd Edition, International Society of Arboriculture
- D. An Illustrated Guide to Pruning, 3rd Edition, Edward F. Gilman, Delmar Publisher, 2012.

1.4 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by a diameter tape at a height 6 inches (150 mm) above the ground for trees up to and including 4-inch (100-mm) size at this height and as measured at a height of 12 inches (300 mm) above the ground for trees larger than 4-inch (100-mm) size.
- B. Caliper (DBH): Diameter breast height; diameter of a trunk as measured by a diameter tape at a height 54 inches (1372 mm) above the ground line for trees with caliper of 8

inches (200 mm) or greater as measured at a height of 12 inches (300 mm) above the ground.

- C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.
- F. Arborist: a tree care specialist who has three or more years of practical work experience and has passed the ISA Certification exam.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
 - a. Tree-service firm's personnel, and equipment needed to make progress and avoid delays.
 - b. Arborist's responsibilities.
 - c. Quality-control program.
 - d. Coordination of Work and equipment movement with the locations of protection zones.
 - e. Trenching by hand or with air spade within protection zones.
 - f. Field quality control.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans and locations of protection-zone fencing and signage, showing relation of equipment-movement routes and material storage locations with protection zones.
 - 2. Indicate extent of trenching by hand or with air spade within protection zones.
- C. Samples: For each type of the following:

1. Organic Mulch: 1-pint (0.5-L) volume of organic mulch; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch.
- D. Tree Pruning Schedule: Pruning and maintenance of trees shall only be performed by a certified arborist. Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction. Revise subparagraphs below to suit Project.
 1. Species and size of tree.
 2. Location on site plan. Include unique identifier for each.
 3. Reason for pruning.
 4. Description of pruning to be performed by arborist.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For arborist and tree service firm.
- B. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- C. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- D. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 1. Use sufficiently detailed photographs or video recordings.
 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.
- E. Quality-control program.

1.8 ARBORIST QUALIFICATIONS

- A. The Contractor shall submit for approval, the name and qualifications of the proposed Tree Specialist or tree service contractor. Qualifications shall include the following:
 1. Proof of Arborist or tree service business providing tree care services for no less than five years.
 2. Proof of Insurance.
 3. Proof of supervisory staff having a minimum of five (5) years of experience (non-utility) pruning experience and International Society of Arboriculture certification with documented non-utility pruning experience.

4. Documentation of all crew members receiving on-going training in applicable ANSI Z133 - Safety Requirements for Arboricultural Operations.
5. Crew to include climber / pruner personnel with a minimum of six (6) months of satisfactory, full-time experience as a climber and pruner or arborist performing all types of tree work required for the planting, maintenance and removal of trees and shrubs including climbing, pruning, bracing, cutting and felling of trees and large shrubs and operating manual, power-driven, and motorized equipment required for the performance of these duties. Experience as a ground person is not acceptable to meeting this requirement.
6. Ground Crew shall have a minimum of six (6) months of satisfactory, full-time experience working in support of climber / pruner personnel and shall receive on-going training of ANSI Z133 – Safety Requirements for Arboricultural Operations.
7. Name, address, and phone numbers for three (3) professional references associated with non-utility pruning work performed within the past three (3) years.
8. State Certification-The Contractor must submit a copy of a valid Compliance Agreement issued by the State of New York Department of Agriculture and Markets, Division of Plant Industry.

1.9 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:
 1. Storage of construction materials, debris, or excavated material.
 2. Moving or parking vehicles or equipment.
 3. Foot traffic.
 4. Erection of sheds or structures.
 5. Impoundment of water.
 6. Excavation or other digging unless otherwise indicated.
 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

1.10 UTILITY PRUNING REQUIREMENTS:

- A. Wires shall be treated as live and high voltage until verified by the utility.
- B. Branches touching wires shall be pruned by the utility or a utility certified arborist before work begins.
- C. Limbs and branches shall not be dropped onto overhead wires. If limbs or branches fall across electrical wires, all work shall stop immediately, and the utility shall be notified.

- D. When climbing or working in trees, pruners shall try to position themselves so that the trunk or limbs are between their bodies and electrical wires.
- E. Pruners shall not work with their backs toward electrical wires.
- F. A bucket truck is the preferred method of pruning when climbing poses a greater electrical contact threat.
- G. Personal protective gear shall have appropriate all-electric characteristics needed for working near electricity.

1.11 ASIAN LONGHORNED BEETLE / INVASIVES QUARANTINE ZONE:

- A. Any Sub/Contractor who will perform tree work of any kind within an Asian Longhorned Beetle (ALB) or Emerald Ash Borer (EAB) Quarantine Zone shall be certified by the State of New York Department of Agriculture and Markets.
 - 1. Tree work includes, but is not limited to planting trees, transplanting trees, pruning & fertilizing trees, removing trees and stumps, and clearing and grubbing trees or roots.
- B. To view a current map of the geographic area included in the quarantine zone within New York, see the following websites: https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/pests-and-diseases/SA_Insects; <http://www.dec.ny.gov/animals/>.
- C. The Asian Longhorned Beetle (ALB) and Emerald Ash Borer (EAB) are destructive wood boring insects. They can cause serious damage to healthy trees by boring into their heartwood and eventually killing them. Nursery stock, logs, green lumber, firewood, stumps, roots, branches and debris of one-half ($\frac{1}{2}$ ") inch or more in diameter are subject to infestation.
- D. As part of a state-wide effort to control the spread of the beetle to other areas, quarantine has been imposed on large portions of the New York by the State of New York Department of Agriculture and Markets, Article 14 Agriculture and Markets Law, Part 139 Control of the Asian Long Horned Beetle. All Sub/Contractors will be held responsible for compliance with State of New York Agriculture and Market Law and Emergency Rule Making. For additional information regarding procedures, see the U.S. Department of Agriculture (USDA) website: <https://agriculture.ny.gov/laws-regulations>.
- E. Contractor shall confirm status and take necessary precautions to prevent the spread of additional, potential invasive pests on the state watch list including Asian Longhorned Beetle, Emerald Ash Borer, Spotted Lanternfly, or other identified pests. Check for updates.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Backfill Soil: Planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand,

concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.

1. Planting Soil: Standard Planting soil as specified in Supplementary Specification Section 329113—Planting Soils.
- B. Temporary Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:
 1. Type: Wood and bark chips.
 2. Size Range: 3 inches (76 mm) maximum, 1/2 inch (13 mm) minimum.
 3. Color: Natural.
- C. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements:
 1. Retain one or more of four fencing subparagraphs below for protection-zone fencing. Fence materials are listed in order of strongest to weakest. Retain stronger fencing where damage potential to an individual tree, group of trees, or plantings is higher. Revise post and rail diameters to suit fence height and strength required. The more expensive polymer coating may have better appearance but may be less visible to workers.
 2. Protection by Zone-Utilize Orange Construction Fencing secured with 4' steel fence posts for trees and vegetation in groves to be protected.
 3. Wood Protection Fencing-Utilize Wood Protection for individual trees above 2" caliper which require protection from construction activities. Constructed of two 2-by-4-inch horizontal rails, with 2"x4" preservative-treated wood posts spaced not more than 96 inches apart, and lower rail set halfway between top rail and ground.
 - a. Top Rail Height: 60 inches (1200 mm).
 - b. Lumber: Exterior grade.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Tie a 1-inch (25-mm) blue vinyl tape around each tree trunk at 54 inches (1372 mm) above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Tree-Protection Zones: Mulch areas inside tree-protection zones and other areas indicated. Do not exceed indicated thickness of mulch.
 - 1. Apply 2-inch (50-mm) uniform thickness of organic mulch unless otherwise indicated. Do not place mulch within 6 inches (150 mm) of tree trunks.

3.3 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people and animals from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
 - 1. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving, within a tree root zone or concrete to remain, provide appropriate means of post support acceptable to the Construction Manager.
- B. Maintain protection zones free of weeds and trash.
- C. Maintain protection-zone fencing and signage in good condition as acceptable to Construction Manager and remove when construction operations are complete and equipment has been removed from the site.
 - 1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.4 EXCAVATION

- A. General: Excavate beyond protection zones according to requirements in Supplementary Specification Section 312000 "Earthwork" unless otherwise indicated.
- B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 ROOT PRUNING

Root Pruning shall be permitted only by the Arborist.

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Cut Ends: Coat cut ends of roots more than 1-1/2 inches (38 mm) in diameter with a coating formulated for use on damaged plant tissues and that is acceptable to arborist.
 - 3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - 4. Cover exposed roots with burlap and water regularly.
 - 5. Backfill as soon as possible according to requirements in Supplementary Specification Section 312000 "Earthwork."
- B. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.6 CROWN PRUNING

- A. Branch pruning shall be permitted only by the Arborist.
- B. Prune branches that are affected by permanent construction.
 - 1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
 - 2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
 - 3. Pruning Standards: Prune trees according to ANSI A300 (Part 1)].
 - a. Type of Pruning: Natural, with removal of non-beneficial parts for risk management and tree health management including removal of dead branches.
- C. Unless otherwise directed by Arborist and acceptable to Landscape Architect, do not cut tree leaders.
- D. Cut branches with sharp pruning instruments; do not break or chop.
- E. Do not paint or apply sealants to wounds.
- F. Provide subsequent maintenance pruning during Contract period as recommended by arborist.
- G. Chip removed branches and maintain on site for use following installation of plantings.

3.7 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
 - 1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

3.8 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.9 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Construction Manager.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Construction Manager.
- B. Tree removals will be performed by the City of Hudson.
- ~~C. Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Construction Manager determines are incapable of restoring to normal growth pattern.~~
 - ~~1. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures 6 inches (150 mm) or smaller in caliper size.~~
 - ~~2. Large Trees: Provide one new tree of 6-inch (150 mm) caliper size for each tree being replaced that measures more than 6 inches (150 mm) in caliper size.~~
 - ~~a. Species: As selected by Construction Manager.~~
- D. Excess Mulch: Rake mulched area within protection zones, being careful not to injure roots. Rake to loosen and remove mulch that exceeds a 2-inch (50-mm) uniform thickness to remain.
- E. Soil Aeration: Where directed by Construction Manager, aerate surface soil compacted during construction. Aerate as directed beyond drip line and no closer than 36 inches (900 mm) to tree trunk. Drill 2-inch- (50-mm-) diameter holes a minimum of 12 inches (300 mm) deep at 24 inches (600 mm) o.c. Backfill holes with an equal mix of augered soil and sand.

3.10 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 01 5639

SECTION 01 6000

PRODUCT REQUIREMENTS

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 administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

a.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Engineer will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Engineer does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

a.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See Divisions 02 through 33 Standard Specifications listed in the Project Manual for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

a.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Engineer will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:
 - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Non-restricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Non-restricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers.

a.

Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

- C. Visual Matching Specification: Where Specifications require "match Engineer's sample", provide a product that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches.
 - 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Engineer from manufacturer's full range" or similar phrase, select a product that complies with requirements. Engineer will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Engineer may return requests without action, except to record noncompliance with these requirements:
 - 1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 3. Evidence that proposed product provides specified warranty.
 - 4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
 - 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 6000

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SECTION 01 7300

EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Conditions of the Contract, including Notice to Bidders, Instructions to Bidders, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
 - 9. Correction of the Work.
- B. Related Requirements:
 - 1. Division 01 Section "Summary" for limits on use of Project site.
 - 2. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 REFERENCES

- A. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.4 INFORMATIONAL SUBMITTALS

- A. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

- C. Certified Surveys: Submit three copies signed by land surveyor.
- D. Final Property Survey: Submit 3 copies showing the Work performed or “As-built” drawings and record survey data.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Construction Manager of locations and details of cutting and await directions from Construction Manager before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety
 - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Construction Manager's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements of Division 01 sustainable design requirements Section.

- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Construction Manager for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before

fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Construction Manager according to requirements in Division 01 Section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify the Construction Manager promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Construction Manager when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by and Construction Manager.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- C. Certified Survey: On completion of major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- D. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with

other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Construction Manager.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials

specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- I. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 7300

SECTION 01 7700
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
 - 6. As-built survey signed and sealed by a New York State Licensed Surveyor.
- B. Related Sections:
 - 1. Supplementary Specification Section 013233 "Photographic Documentation" for submitting final completion construction photographic documentation.

1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Construction Manager's signature for receipt of submittals.
 - 5. Submit test/adjust/balance records.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 7900 "Demonstration and Training."
 6. Advise Owner of changeover in heat and other utilities.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements, including touchup painting.
 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Construction Manager will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Construction Manager, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Article 17 of the General Conditions.
 2. Certified List of Incomplete Items: Submit certified copy of Construction Manager's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Construction Manager. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Construction Manager will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order.
 - 2. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Construction Manager.
 - d. Name of Contractor.
 - e. Page number.
 - 3. Submit list of incomplete items in the following format:
 - a. PDF electronic file. Construction Manager will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Construction Manager for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Submit properly executed warranties within **15** days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial facility. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Remove labels that are not permanent.
 - h. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with state and local municipal waste regulations.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, over seeding of planted areas, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction.
 - 1. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

3.3 AS-BUILT DRAWINGS

- A. Deliver signed and sealed as-built drawings to construction manger including three paper copies and three electronic copies on individual flash drives. The as-built project condition shall be surveyed by a licensed land surveyor upon acceptance of work but prior to close-out of contract.

END OF SECTION 01 7700

PROJECT CLOSEOUT CHECK LIST

Project: Promenade Hill Park Renovation Project No. DRI C1001294

Contract: _____ Contract Date: _____

Contractor: _____

Name

Telephone

Address

=====

After the Contractor has met all of his obligation of the Contract and is ready to submit the "Final Application for Payment" (as defined in the General and Supplementary Conditions), he is responsible for providing the following items along with the Final Payment to the Owner or designated representative. (Please note that these shall be provided in one full package, partial submissions of these items will be not be allowed):

- 1) Consent of Surety to Reduction in or Partial Release of Retainage, AIA Document G707A.
- 2) Consent of Surety to Final Payment, AIA Document G707.
- 3) Contractor's Affidavit of Release of Liens, AIA Document G706A (one copy required from all subcontractors).
- 4) Contractor's Affidavit of Payment of Debts and Claims. AIA Document G706. (one copy required from all subcontractors).
- 5) Warranty of Title: (sample letter enclosed).
- 6) Certification: Signed and notarized certification that no asbestos containing materials have been used in the construction (enclosed).
- 7) Insurance:
 - a) All policies of insurance required at the commencement of the project shall remain

in effect at all times after final payment, when the Contractor is completing, correcting, removing, replacing work and/or completing items enumerated in Construction Manager's Certificate of Substantial Completion. (Certificates of Insurance shall be evidence thereof.)

- b) Completed Operation Insurance: shall be maintained for at least two years after final payment. Furnish Owner with evidence of continuation at time of final payment and continuation one year thereafter.

- 8) Provide the Owner with all product warranties and/or guarantees, including the following:
**

Per Specifications

- 9) Provide the Owner with all Maintenance and Operating Manuals, indicating operating instructions and maintenance schedules for all equipment, systems, and specialties including the following: **

Per Specifications

- 10) Record Documents (Per Section 01 7800 of Specifications)

**** If previously provided, please indicate date of submission.**

CERTIFICATION

I, _____, being an officer of _____
do hereby certify that _____ was the Contractor for the
work for the Promenade Hill Park Renovation project; and that pursuant to and in compliance with
the Contract Documents, Information to bidders, Paragraph 20, Hazardous Wastes, and Bid
Description for:

___ Contract No. 1 – General Construction

No asbestos containing materials were used in the construction of this project and all materials
were provided in accordance with the Federal Asbestos Hazard Emergency Response Act
(AHERA) and the New York State Asbestos Safety Act (SASA).

By:

State of _____)
County of _____)

Subscribed and sworn to before me
this _____ day of _____, 201__.

Notary Public

CONTRACTOR'S WARRANTY OF TITLE

TO

| | |
|-------|--------------------|
| _____ | Date: _____ |
| _____ | Contract No. _____ |
| _____ | Project No.: _____ |

Project Promenade Hill Park Renovation, 2 Warren Street, Hudson, NY 12534
(Name, address)

I, the undersigned, pursuant to Article 9.3.3 of the General Conditions of the Contract for Construction, warrants and guarantees that the title to all work, material and equipment, whether incorporated in the project or not, will pass to the Owner no later than the time of Final Payment, free and clear of all liens.

Contractor

By

Date

SECTION 01 7823

OPERATION AND MAINTENANCE DATA

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 administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Product supplier information.
 - 4. Product maintenance manuals.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. The Construction Manager will comment on whether content of operation and maintenance submittals is acceptable.

2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
1. Submit on digital media acceptable to Construction Manager by uploading to web-based project software site. Enable reviewer comments on draft submittals.
 2. Submit [three] <3> paper copies through the Construction Manager.
- C. Initial Manual Submittal: Submit draft copy of each manual at least [thirty] <30> days before commencing demonstration and training. The Construction Manager will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least [ten] <10> days before commencing demonstration and training. The Construction Manager will return copy with comments.
1. Correct or revise each manual to comply with Owner and Construction Manager's comments. Submit copies of each corrected manual within [ten] <10> days of receipt of the Construction Manager's comments and prior to commencing demonstration and training.
- E. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

- a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, subject matter of contents, and indicate Specification Section number on bottom of spine]. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
 1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Construction Manager.
 7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.

9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
 2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
 3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.

- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:
1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Operating instructions for conditions outside normal operating limits.
 4. Required sequences for electric or electronic systems.
 5. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. Product descriptions. Use designations for products as indicated on Contract Documents.
 2. Installation standards.
 3. Precautions against improper use.
- C. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.

2. Manufacturer's name.
3. Product identification with serial number of each component.
4. Limiting conditions.
5. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Routine and normal operating instructions.
3. Regulation and control procedures.
4. Instructions on stopping.
5. Special operating instructions and procedures.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.
- C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

- a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 3. Identification and nomenclature of parts and components.
 4. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.
- J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
1. Do not use original project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 7823

SECTION 01 7839

PROJECT RECORD DOCUMENTS

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 administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for final as built drawings.
 - 2. Section 017700 "Closeout Procedures" for general closeout procedures.
 - 3. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit three <3> sets of marked-up record prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit [one] <1> paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and [three] <3> set(s) of file prints.
 - 3) Submit Record Digital Data Files and [three] <3> set(s) of plots.
 - 4) The Construction Manager will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit [three] <3> paper-copy set(s) of marked-up record prints.

- 2) Submit PDF electronic files of scanned Record Prints and [three] <3> set(s) of file prints.
 - 3) Print each drawing, whether or not changes and additional information were recorded.
- c. Final Submittal:
- 1) Submit [one] <1> paper-copy set(s) of marked-up record prints.
 - 2) Submit Record Digital Data Files and [three] <3> set(s) of Record Digital Data File plots.
 - 3) Plot each drawing file, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories.
- E. Reports: Submit written report daily and weekly in summary indicating items incorporated into Project Record Documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.

- b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Path alignment, especially in relation to landfill infrastructure
 - e. Changes made by Change Order or Construction Change Directive.
 - f. Details not on the original Contract Drawings.
 - g. Field records for variable and concealed conditions.
 - h. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with the Construction Manager. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as for the original Contract Drawings.
 2. Format: Both .DWG and .PDF
 3. Format: Annotated .PDF electronic file with comment function enabled.
 4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 5. Refer instances of uncertainty through Construction Manager for resolution.
 6. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
 - b. Project Manager will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.

- c. Designation "PROJECT RECORD DRAWINGS."
- d. Name of Construction Manager.
- e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 - 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- B. Format: Submit record specifications as annotated PDF electronic files or scanned PDF electronic file(s) of marked-up paper copy of Specifications.

1.6 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
- C. Format: Submit Record Product Data as annotated PDF electronic files or scanned PDF electronic file(s) of marked-up paper copy of Product Data.
 - 1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as .PDF electronic files.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for and Construction Manager's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 7839

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Technical Specifications

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SECTION 02 0150
SITE RESTORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

- 1. Restoration of site and staging area.

1.3 RELATED SECTIONS

- A. Section 02 4113 – Selective Site Demolition
- B. Section 31 2000- Earthwork.
- C. Section 32 9100 - Planting Soils
- D. Section 32 9119 - Landscape Grading.
- E. Section 32 9200 – Turf -Sod
- F. Section 32 9201 - Aerate, Top-Dress and Seed Lawn Areas
- G. Section 32 9300 - Landscape Plantings

1.4 GENERAL REQUIREMENTS

- A. The Contractor shall restore the Project Site to the same conditions he/she found before commencing his/her operations or he/she shall notify and develop the site to the finished conditions shown on the Drawings. The requirements for removal of debris, embankments, fill material, rough grading and similar preliminary Work are specified in the Sections entitled "Earthwork".
- B. All cultivated lands to be restored as existed prior to start of Work and described below.
- C. All Landscape Work, including transplanting, planting and maintenance of trees, shrubs, ground covers and lawns, shall be done by or under the supervision of an experienced practicing landscape gardener.
- D. All lawns dug up and/or damaged shall be restored as described in the General Requirements of this section, including fine grading, topsoil, fertilizing, seeding, planting, mulching, protection and maintenance.
- E. All pavements soiled or damaged in the course of the work or as part of staging operations shall be restored and delivered clean and dust-free or as otherwise reconstructed in accordance with the contract documents.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 AREAS AND FEATURES TO BE RESTORED

- A. All areas including natural and artificial features occurring thereon, which are damaged or disturbed by the Contractor's operations, shall be restored, repaired or replaced to the same or superior condition which existed prior to construction unless otherwise stated or shown on the Drawings.
- B. Grassed or lawn areas shall be dressed with topsoil, raked, fertilized, seeded, mulched and maintained as specified in later clauses. Gardens and similarly cultivated areas shall be dressed with topsoil, raked and new plants and crops of the same species planted during the appropriate time of year to replace the damaged or destroyed vegetation; maintenance and protection of such plantings are specified in later clause. Existing trees, shrubs, hedges, saplings, vines, ground cover vegetation, etc., shall be re-established or replaced with new material as ordered by the Construction Manager, unless stated otherwise.
- C. Walls, terraces, fences, ditches, drains, culverts, drives, posts, patios, pavers, parking lots, sidewalks and curbs, outdoor recreational equipment, garden decorations and appurtenances, small structures, and all other artificial features shall be repaired, restored or replaced to the same or superior condition which existed prior to construction.

3.2 AREAS TO BE DEVELOPED

- A. When the Project Site is to be modified and developed to meet new conditions, the Contractor shall perform all required grading, top soiling, fertilizing, seeding, planting, mulching and maintenance of areas, all in accordance with the Drawings and as specified herein. Unless shown otherwise on the Drawings, the entire unpaved area within the grading limits and within the overall areas excavated and backfilled shall be so developed. New Landscaping Work and artificial features if any are shown on the Drawings and specified elsewhere.

3.3 FINE GRADING

- A. Areas requiring topsoil shall be fine graded to within 4 inches of finished grade to provide a minimum compacted thickness of 4 inches of topsoil at all locations. All such areas, whether in cut or fill, shall be raked to a depth of 1 inch be parallel to finished grade as shown or required, and shall be free of all stones roots rubbish and other deleterious material.

3.4 TOPSOILING

- A. See 32 9100 Planting Soil
- B. See 32 9200 Turf - Sod
- C. See 32 9300 Landscape Planting

3.5 FERTILIZING

- A. See 32 9300 Landscape Planting

3.6 SEEDING

- A. The seed used on this Project shall be fresh, re-cleaned, and of the latest crop year. It shall conform to Federal and State standards. Each type of grass in the mixture shall meet or exceed the minimum percentage of purity and germination listed for that type of grass with a maximum weed content of 0.1 percent. Seed shall be applied at a rate of not less than 5 pounds per 1,000 square feet, using a mechanical spreader. The Contractor is advised to do all seeding during the periods of May 1st to June 15th or Sept 1st to October 1st. Seeding may be conducted under unseasonable conditions without additional compensation, and at the option and full responsibility of the Contractor.
- B. Seed mix should be a fescue dominated “no mow” of “low grow” mix.
 - 1. Hard Fescue 20 % by weight
 - 2. Sheep Fescue 20 % by weight
 - 3. Chewing Fescue 20% by weight
 - 4. Creeping Fescue 20% by weight
 - 5. Perennial Rye 20% by weight
- C. All seed furnished under this item shall be delivered in standard size, unopened bags of the vendor, showing the weight, mixture, vendor's name and guaranteed analysis. Seed shall be properly stored by the Contractor at the site of the Contract and any seed damaged during storage shall be replaced by him. Seeding is to be done in dry or moderately dry soil and at times when the wind velocity does not exceed 5 miles per hour. After the finished grading is completed and just before seeding, the areas to be seeded shall be loosened to a depth of 2 inches and raked to true lines, free from all variation, bumps, ridges and depressions which will hold water. All sticks, stones roots, or other objectionable materials, which might interfere with the formation of the fine seed bed, shall be removed from the soil. Upon completion of the seeding, the area shall be raked lightly and rolled with a light hand roller.

3.7 PLANTING

- A. See 32 9300 Landscape Planting

3.8 MULCHING, PROTECTION AND MAINTENANCE

- A. See Section 32 9201 - Aerate, Top-Dress and Seed Lawn Areas

END OF SECTION 02 0150

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SECTION 02 4113
SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section as shown or specified shall be in accordance with the requirements of the Contract Documents.
- B. All Sections in Division 01 – General Requirements.

1.2 SECTION INCLUDES

- A. Selective Site Demolition

1.3 RELATED SECTIONS

- A. All Sections in Division 01 – General Requirements.

1.4 SUBMITTALS

- A. Schedule: Submit for approval selective demolition schedule, including schedule and methods for capping utilities to be abandoned and maintaining existing utility service.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with applicable state and local standards.

1.6 PRE-INSTALLATION MEETINGS

- A. Convene minimum two weeks prior to starting work of this section.

1.7 SEQUENCING

- A. Immediate areas of work will not be occupied during selective demolition. The public, including children, may occupy adjacent areas.
- B. No responsibility for buildings and structures to be demolished will be assumed by the Owner.
- C. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 SELECTIVE DEMOLITION

- A. Demolition Operations: Do not damage building elements and improvements indicated to remain. Items of salvage value, not included on schedule of salvage items to be returned to Owner, shall be removed from structure. Storage or sale of items at project site is prohibited.

- B. Utilities: Locate, identify, disconnect, and seal or cap off utilities in buildings to be demolished.
- C. Shoring and Bracing: Provide and maintain interior and exterior shoring and bracing.
- D. Occupied Spaces: Do not close or obstruct streets, walks, drives or other occupied or used spaces or facilities without the written permission of the Owner and the authorities having jurisdiction. Do not interrupt utilities serving occupied or used facilities without the written permission of the Owner and authorities having jurisdiction. If necessary, provide temporary utilities.
- E. Operations: Cease operations if public safety or remaining structures are endangered. Perform temporary corrective measures until operations can be continued properly.
- F. Security: Provide adequate protection against accidental trespassing. Secure project after work hours.
- G. Restoration: Restore finishes of patched areas.

END OF SECTION 02 4113

SECTION 02 5200

SAWCUT PAVEMENT AND CURBS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SECTION INCLUDES

- A. Saw cutting existing pavements
- B. Saw cutting existing curbs

1.3 RELATED SECTIONS

- A. Section 02 4113 - Selective Site Demolition
- B. Section 03 3100 - Cast-in-place Concrete - Sitework

1.4 REFERENCES

- A. References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.
- B. OSHA 1926 Subpart E- Personal Protective and Life Saving Equipment
- C. OSHA: Controlling Silica Dust in Construction Fact Sheets

1.5 SAFETY

- A. Contractor shall comply with OSHA regulations pertaining to the work of saw cutting and shall require the wearing of appropriate Personal Protective Equipment (PPE) in all operations where there is an exposure to hazardous conditions or where OSHA regulations indicate a need for using such equipment to reduce the hazards to the employees.
- B. Contractor shall educate workers on the importance of personal protective equipment and the hazard presented by crystalline silica dust.

- C. Contractor shall educate workers on the safe operation of the equipment.
- D. Workers shall wear safety glasses or goggles in combination with face shields.
- E. Contractor shall match cutting blade and equipment with the material being cut.

PART 2 - PRODUCTS

2.1 NOT APPLICABLE

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Mark locations and extent of saw cutting for confirmation prior to making cuts.
- B. Confirm that adjacent electric, gas or other utilities have been located and disconnected before saw cutting to prevent electrocution or fire.
- C. If conditions are the responsibility of another installer, notify Owner's Representative of unsatisfactory preparation before proceeding.

3.2 SAW CUTTING

- A. All saw cutting shall be carried out to the full depth of the pavement, curb or wall to be cut.
- B. Saw cutting shall be done to accurate, neat and straight lines marked previously to commencement of work.
- C. Saw cutting shall be done with approved power saws specifically designed and manufactured for such a purpose.

3.3 CLEANING

- A. Clean adjacent pavement(s) to remain to remove dust, slurry, cement or wastewater.

END OF SECTION 02 5200

SECTION 03 3100

CAST-IN-PLACE CONCRETE

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 specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Foundation walls / piers.
 - 3. Exterior slabs and sidewalks.
- B. Related Sections include the following:
 - 1. 31 2000 – Earthwork.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Welding certificates.

- E. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates.
- F. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.
 - 5. Fiber reinforcement.
 - 6. Waterstops.
 - 7. Curing compounds.
 - 8. Floor and slab treatments.
 - 9. Bonding agents.
 - 10. Adhesives.
 - 11. Vapor retarders.
 - 12. Semirigid joint filler.
 - 13. Joint-filler strips.
 - 14. Repair materials.
- G. Floor surface flatness and levelness measurements to determine compliance with specified tolerances.
- H. Field quality-control test and inspection reports.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency

laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- E. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code-Reinforcing Steel."
- F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specification for Structural Concrete,"
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.6 HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 - 2. Products: Subject to compliance with requirements, provide one of the products specified.
 - 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
 - 4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.

2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. Structural 1, B-B or better; mill oiled and edge sealed.
 - d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
 2. Furnish ties that, when removed, will leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.
 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut bars true to length with ends square and free of burrs.
- B. Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars. Use wire bar type supports complying with CRSI, unless otherwise specified. Wood, brick and other devices will not be acceptable. For slabs-on-grade, use supports with sand plates or horizontal runners or solid concrete blocks. Hollow concrete blocks or clay bricks are not acceptable. *Pulling of reinforcement with hooks is prohibited.*

2.5 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type I cement. Type II or III cement to be used only if acceptable to the Owner's Engineer.
- B. Normal-Weight Aggregates: ASTM C 33, coarse aggregate or better, graded, clean, uncoated, and containing no mud, clay, loam, or foreign matter. Provide aggregates from a single source.
 - 1. Coarse-Aggregate:
 - a. Crushed stone, processed from natural rock or stone.
 - b. Washed gravel, either natural or crushed. Use of pit or bank-run gravel is not permitted.
 - c. Uniform gradation with 100% passing a 1 1/2" sieve and 100% retained on a No. 4 sieve.
 - d. For thin sections, least dimensions of 6" or less, all aggregate to pass a 3/4" sieve.
 - 2. Fine Aggregate: Provide clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances, fineness modules between 2.3 and 3.1, conforming to ASTM C 33.
- C. Water: ASTM C 94/C 94M and potable.

2.6 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260. May be used only upon written approval of the Engineer.

2.7 PIGMENTED ADMIXTURE

- 1. Color Pigment shall be a synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis. Comply with ASTM C 979 and ACA 316.
 - a. The Pigmented Admixture manufacturer shall certify that when used at the recommended dosage, the pigmented admixture has no effect on or increases the compressive strength of the concrete by 5-10% when compared with a control batch of the same mix design and slump but without the Pigmented Admixture. Testing shall be done at 28 days after depositing, and shall be measured in pounds per square inch. The test results shall be an average of at least three (3) cores or cylinders per test.
 - b. Calcium Chloride shall not be used in the composition of the admixture nor in the composition of the concrete.
 - c. The Pigmented Admixture shall be packaged by the manufacturer in incremental amounts by weight for a single cubic yard of concrete, with the designated dosage clearly marked on each package.
 - d. The final color of the concrete shall be as approved by the Landscape Architect.

- e. Use of pigmented admixture shall not vary the air content of the concrete by more than +0.5%. The concrete mix shall be adjusted to provide that the air content of the concrete remains within the specified tolerances. Pigmented admixture shall be measured by weight. Water present in pigment shall be taken into account in measuring the quantity of water required for each batch.
2. Air entraining Air entraining agent complying with ASTM Designation C 260 shall be used in combination with the Pigmented Admixture. Water reducing admixtures complying with ASTM Designation C 494 may also be used in combination with the Pigment Admixture as per the Pigment manufacturer's instructions.
3. No other agents or admixtures shall be used with the Pigmented Admixture in the concrete, unless stated in writing by the manufacturer of the Pigmented Admixture to be of no consequence to the colorfastness of the concrete mixture.
4. The Pigmented Admixtures shall be mixed and delivered in accordance with ASTM Designation C 94. The quantity of concrete being mixed in a mixer shall be no less than 40% of the capacity of the mixing drum (a minimum of 4 yards in a 10-yard truck). Before placing the Pigmented Admixture in a mixer drum, the drum must be thoroughly cleaned and wetted with approximately 35 gallons of mix water and a portion of the aggregate added. This mixture shall mix for 3-4 minutes while the truck hopper and fins are washed with 5 gallons of water. After adding the remainder of the concrete to the truck, the load shall mix at mixing speed for a minimum of 80 revolutions or 10 minutes.
5. At the Contractor's option, Pigmented Admixtures may be added at the site, in which case:
 - a. The truck shall be charged and mixed at the plant, as previously specified, with the required cement, aggregate and admixtures (excluding pigmented admixtures), but only eighty (80%) percent to ninety (90%) percent of the required water shall be added. The truck shall leave the plant with 0 revolutions on its counter.
 - b. Once the truck arrives on site, the remaining water and the Pigmented Admixture shall be added and the load mixed a minimum of 90 revolutions.
 - c. Concrete will then be sampled and tested. If the consistency of the mix is not acceptable, additional water may be added not more than twice and mixing resumed for 30 revolutions each time. Once the mix is acceptable, it shall be discharged directly into the forms.
 - d. The total number of revolutions allowable after the truck has left the plant shall not exceed 150 and the mix shall be discharged within 90 minutes from when the truck has left the plant in order to achieve the correct workability.
6. The same type and brand of cement, source of sand and water/cement ratio shall be maintained for each load of concrete used in the entire project.
7. The slump of the concrete shall remain consistent throughout the project at four (4") inches and should not exceed five (5") inches. If held-back water is added at the job site, the concrete should be mixed at mixing speed for an additional five minutes or 30 revolutions, whichever comes first, after addition of the water as per requirements of Paragraph 2.4, G-4, above, and before depositing.
8. Before providing the following sample panel(s), the Contractor shall prepare 6 inch x 6 inch x 4 inch samples of pigmented concrete with color matched curing membrane. As many samples as necessary shall be produced until the color is satisfactory to the Landscape Architect. The Contractor shall then furnish for approval and on site a concrete sample for each color specified using the Pigmented Admixture. The sample shall be at least 4' x 4' x 4" and shall be given the specified surface texture and cured with the methods specified for the concrete installation. The Contractor shall not order the admixture until

the samples are approved by the Landscape Architect. Once approved, the samples shall be used for assessing color conformance of pigmented concrete installed.

9. Manufacturers: Subject to compliance with requirements and approval by Landscape Architect, provide of the following products:
 - a. Manufacturer: L.M. Scofield or Davis Colors
 - b. Product Type: Admixtures for Color-Conditioned Concrete
 - c. Pigment: Shall be Schofield's Landmark Gray or Davis Silversmoke as selected by the Landscape Architect from samples viewed on site.
 - d. Location: As shown on drawings.

2.8 VAPOR RETARDERS

- A. Plastic Vapor Retarder: ASTM E 1745, Class C, or polyethylene sheet, ASTM D 4397, not less than 10 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.

2.9 FLOOR AND SLAB TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; colorless; that penetrates, hardens, and densifies concrete surfaces.
 1. Products:
 - a. Euclid Chemical Company (The); Euco Diamond Hard to be used in Mechanical / Electrical room.
 - b. Euclid Chemical Company (The); Eucosil to be used for exterior slabs.
- B. Sealing Compound: Clear compound providing a protective seal to enhance appearance of concrete.
 1. Products:
 - a. Euclid Chemical Company (The); Ultraguard to be used in Mechanical / Electrical Room.
 - b. Euclid Chemical Company (The); Super Diamond Clear 350 to be used for exterior slabs.
- C. All interior slabs to be wet cured only, except for the Mechanical / Electrical room as noted above.

2.10 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.

2.11 RELATED MATERIALS

- A. Silicone joint sealant.
- B. Joint Backer Rod.
- C. Compressible Foam Joint Sealer.

2.12 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. No admixtures are permitted without the prior written approval of the Engineer.
- C. Admixtures shall be compatible with one another and with aggregates, cement, finishing materials, and other materials which may be affected thereby.

2.13 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 4000 psi at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.5.
 - 3. Slump Limit: 5 inches plus or minus 1 inch.
 - 4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
- B. Foundation Walls / Piers: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 4000 psi at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.5.
 - 3. Slump Limit: 5 inches plus or minus 1 inch.
 - 4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
- C. Sidewalks and Curbs: Proportion normal-weight concrete mixture as follows:
 - 1. Exterior Slabs / Sidewalks:
 - a. Minimum Compressive Strength: 4000 psi at 28 days.
 - b. Maximum Water-Cementitious Materials Ratio: 0.5.
 - c. Slump Limit: 5 inches plus or minus 1 inch.
 - d. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.

- e. Pigmented admixture.

D. Slab-on-Grade Subbase: Proportion normal-weight concrete mixture as follows:

- 1. Exterior Slabs / Sidewalks:
 - a. Minimum Compressive Strength: 4000 psi at 28 days.
 - b. Maximum Water-Cementitious Materials Ratio: 0.5.
 - c. Slump Limit: 5 inches plus or minus 1 inch.
 - d. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.

2.14 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.15 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
 - 1. Any concrete not deposited within 90 minutes of the start of mixing shall be rejected and removed from the site.
 - 2. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
 - 3. Do not use concrete that has stood for more than 30 minutes after leaving the mixer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Subbase materials shall be placed to the thickness and limits as shown on the Contract Drawings, with a maximum lift thickness of 6 inches. Subbase materials shall be placed with a vibratory compactor capable of obtaining the compaction requirements specified in Section 310000.
- B. Foundations to receive concrete shall be clean, undisturbed surfaces, free from frost, snow, ice, mud, debris and standing or running water.
- C. Thoroughly clean all areas including forms in which concrete is to be placed to ensure proper placement and bonding of concrete.
- D. Verify that weather conditions are and will remain satisfactory throughout the period when concrete will be placed, finished, and cured.
- E. Should Engineer approve the placement of concrete during inclement weather, store required protective materials on site, ready for use.

- F. Verify all scheduling to ensure that the concrete will be placed continuously, without delay or interruption.

3.2 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- G. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- H. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- I. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- J. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.3 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchor slots in concrete structures as indicated.

3.4 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.5 VAPOR RETARDERS

- A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
 1. Lap joints 24 inches and seal with manufacturer's recommended tape.

3.6 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
- F. Verify that all reinforcing has been properly set and secured and that items to be embedded in, built-in or pass through concrete are at their proper locations and elevations. Verify that the Engineer has completed all inspections of the forms and reinforcement.
- G. Place reinforcement to obtain the following minimum coverage for concrete protection:
 - 1. Concrete deposited against the ground: 3 inches.
 - 2. Formed surfaces exposed to weather or in contact with the ground: 2 inches for reinforcing bars # 6 or larger; 1 1/2" for bars less than # 6.
- H. Unless otherwise shown or detailed, lap splice all reinforcing bars a minimum of 40 bar diameters.
- I. Placing tolerances for reinforcement shall be as listed in ACI 318.
- J. Beam and slab bars to be spliced at locations shown only, unless otherwise directed by Engineer.
- K. Avoid any contact of bars with dissimilar metals. If unavoidable, coat the metal surfaced with a heavy coating of alkali-resisting bituminous paint to prevent direct contact.
- L. Reinforcing rods are to be welded only with approval of the Owner's Engineer and tack welding is prohibited.

3.7 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 - 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 - 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 - 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.

6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 305 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view

- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
- C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to interior slab surface of Mechanical / Electrical room as indicated.
- D. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
- E. Finish interior slab surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
 - a. Flatness, F(F) 25
 - b. Levelness, F(L) 20
- F. Concrete floor slabs shall be constructed and finished in accordance with ACI 302.1R-96 for Class 5 (Lite Duty Industrial) slabs on grade.

3.11 MISCELLANEOUS CONCRETE ITEMS

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

- H. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- I. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.12 CONCRETE PROTECTING AND CURING

- J. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- K. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- L. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- M. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3.12 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions, for Mechanical / Electrical room and exterior slabs only.
 - 1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
 - 2. Wait to apply to concrete until it is an appropriate age per the manufacturer's literature.
 - 3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions after application of penetrating liquid floor treatment, for Mechanical / Electrical room and exterior slabs only. Euclid Chemical Company Super Diamond Clear (for exterior slabs) to be applied in (1) rolled coat or (2) light spray coats with Chapin Extreme Sprayer per manufacturer's recommendations.

3.13 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least [one] [six] month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part Portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes

- and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, pop outs, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
 - 1. Steel reinforcement placement.
 - 2. Steel reinforcement welding.
 - 3. Headed bolts and studs.
 - 4. Verification of use of required design mixture.
 - 5. Concrete placement, including conveying and depositing.
 - 6. Curing procedures and maintenance of curing temperature.
 - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 - 6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 7. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
 - 8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

- a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 - 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 - 10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi
 - 11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 - 12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 - 13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
 - 14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 - 15. Correct deficiencies in the Work that test reports and inspections indicate does not comply with the Contract Documents.
- E. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

END of SECTION 03 3100

SECTION 04 4300

UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Work of this Section as shown or specified shall be in accordance with the requirements of the Contract Documents.
- B. All Sections in Division 01 – General Requirements.

1.2 SECTION INCLUDES

- A. Concrete Masonry Units
- B. Rough Stone Clad Wall
- C. Mortar and Grout
- D. Ties and Anchors

1.3 RELATED SECTIONS

- A. 03 3100 – Cast-in-Place Concrete
- B. 04 4301 – Stone Masonry Restoration.
- C. 07 9213 – Joint Sealants.
- D. 32 1440 – Stone Steps, Copings, & Curbs.

1.4 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.5 PERFORMANCE REQUIREMENTS

- A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.
 - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
 - 2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

1.6 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Owner will engage a qualified independent testing agency to perform preconstruction testing indicated below. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
 - 1. Clay Masonry Unit Test: For each type of unit required, according to ASTM C 67 for compressive strength.
 - 2. Concrete Masonry Unit Test: For each type of unit required, according to ASTM C 140 for compressive strength.
 - 3. Mortar Test (Property Specification): For each mix required, according to ASTM C 109/C 109M for compressive strength.
 - 4. Mortar Test (Property Specification): For each mix required, according to ASTM C 780 for compressive strength.
 - 5. Grout Test (Compressive Strength): For each mix required, according to ASTM C 1019.
 - 6. Prism Test: For each type of construction required, according to ASTM C 1314.

1.7 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
 - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
 - 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement. Show elevations of reinforced walls.
 - 3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Initial Selection:
 - 1. Face brick, in the form of straps of five or more bricks.
 - 2. Colored mortar.
 - 3. Weep holes/vents.
- D. Samples for Verification: For each type and color of the following:
 - 1. CMUs.
 - 2. Face brick, in the form of straps of five or more bricks.
 - 3. Pigmented mortar. Make Samples using same sand and mortar ingredients to be used on Project.
 - 4. Weep holes and vents.
 - 5. Accessories embedded in masonry.
- E. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.
- F. Qualification Data: For testing agency.
- G. Material Certificates: For each type and size of the following:
1. Masonry units.
 - a. Include data on material properties.
 - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
 - c. For exposed brick, include test report for efflorescence according to ASTM C 67.
 - d. For surface-coated brick, include test report for durability of surface appearance after 50 cycles of freezing and thawing per ASTM C 67.
 - e. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
 2. Cementitious materials. Include brand, type, and name of manufacturer.
 3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
 4. Grout mixes. Include description of type and proportions of ingredients.
 5. Reinforcing bars.
 6. Joint reinforcement.
 7. Anchors, ties, and metal accessories.
- H. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- I. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
- J. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.8 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.
- D. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.
- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of typical wall area as shown on Drawings.
 - 2. Build mockups for typical exterior wall in sizes approximately 60 inches long by 60 inches high by full thickness, including face and backup wall and accessories.
 - a. Include a sealant-filled joint at least 16 inches long in each exterior wall mockup.
 - b. Include lower corner of window opening framed with pre-cast water table at upper corner of exterior wall mockup. Make opening approximately 12 inches wide by 16 inches high.
 - c. Include through-wall flashing installed for a 24-inch length in corner of exterior wall mockup approximately 16 inches (down from top of mockup, with a 12-inch length of flashing left exposed to view.
 - d. Include metal studs, sheathing, sheathing joint-and-penetration treatment, exterior rigid insulation, veneer anchors, flashing, cavity drainage material, and weep holes in exterior masonry-veneer wall mockup.
 - 3. Clean one-half of exposed faces of mockups with masonry cleaner as indicated.
 - 4. Protect accepted mockups from the elements with weather-resistant membrane.
 - 5. Approval of mockups is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.
 - a. Approval of mockups is also for other material and construction qualities specifically approved by Architect in writing.
 - b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect in writing.
 - 6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.10 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides of walls and hold cover securely in place.
 - 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.
- B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

2.2 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
 - 2. Provide square-edged units for outside corners unless otherwise indicated.
- B. CMUs: ASTM C 90.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi.
 - 2. Density Classification: Normal weight.
 - 3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
- C. Concrete Building Brick: ASTM C 55.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi.
 - 2. Density Classification: Normal weight.
 - 3. Size nominal dimensions.

2.3 ROUGH STONE CLAD WALL

- A. Manufacturer: New York Quarries, Alcove, NY; 518-756-3138, www.newyorkquarries.com.
 - 1. Name: Alcove Split Block and Split Bar Blend, bluestone veneer
 - 2. Depth: 4" nominal
 - 3. Size range: Height: 4.5" to 12"; Length: 7" to 30", mason to trim ends to fit required joint size.
 - 4. Pattern: Ashlar (Alcove Split Block and Alcove Split Bar Blend)
 - 5. Finish: Split Face.

2.4 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.
- D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979. Use only pigments with a record of satisfactory performance in masonry mortar.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Davis Colors; True Tone Mortar Colors.
 - b. Lanxess Corporation; Bayferrox Iron Oxide Pigments.
 - c. Solomon Colors, Inc.; SGS Mortar Colors.
- E. Aggregate for Mortar: ASTM C 144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
- F. Aggregate for Grout: ASTM C 404.
- G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated, prior approval must be obtained from engineer or architect.
- H. Water: Potable.

2.5 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.
- B. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.
 - 1. Exterior Walls: Stainless-steel, Type 304.
 - 2. Wire Size for Side Rods: 0.148-inch diameter.
 - 3. Wire Size for Cross Rods: 0.148-inch diameter.
 - 4. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
 - 5. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: ladder with single pair of side rods.

2.6 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
 - 1. Stainless-Steel Wire, Type 304.
- B. Adjustable Masonry-Veneer Anchors:
 - 1. General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to wood or metal studs, and as follows:
 - 2. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie and a metal anchor section.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Hohmann & Barnard, Inc. X-Seal Anchors, Stainless-Steel Type 304.
 - 3. Stainless-Steel Drill Screws for Steel Studs: Proprietary fastener consisting of carbon-steel drill point and 300 Series stainless-steel shank, complying with ASTM C 954 except manufactured with hex washer head and neoprene or EPDM washer, #12-14 300 series stainless steel metal screws by length required to penetrate steel stud flange with not less than three exposed threads.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Dayton Superior Corporation, Dur-O-Wal Division; Stainless Steel SX Fastener D/A 995.

2.7 MISCELLANEOUS ANCHORS

- A. Anchor Bolts: Headed steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

2.8 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing complying with Division 07 Section "Sheet Metal Flashing and Trim" and as follows:
 - 1. Copper: ASTM B 370, Temper H00, cold-rolled copper sheet, 16 oz/sq. ft.
 - 2. Thru-wall flashing shall be stainless steel, Type 304; Hohmann & Barnard, Inc. Mighty-Flash or approved equal.
 - 3. Fabricate through-wall flashing with drip edge where indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.
 - 4. Copper-Laminated Flashing: 6-oz./sq. ft. copper sheet bonded between 2 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.

- a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Hohmann & Barnard, Inc.; H & B C- Copper Tuff.
 - 2) Phoenix Building Products; Type FCC-Fabric Covered Copper.
 - 3) Sandell Manufacturing Co., Inc.; Copper Fabric Flashing.
 - 4) York Manufacturing, Inc.; Multi-Flash 500.
- B. Application: Unless otherwise indicated, use the following:
 - 1. Where flashing is indicated to receive counterflashing, use metal flashing.
 - 2. Where flashing is indicated to be turned down at or beyond the wall face, use metal flashing.
 - 3. Where flashing is partly exposed and is indicated to terminate at the wall face, use metal flashing with a drip edge.
 - 4. Where flashing is fully concealed, use flexible flashing.
- C. Solder and Sealants for Sheet Metal Flashings:
 - 1. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
 - 2. Elastomeric Sealant: ASTM C 920, chemically curing silicone sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight
- D. Sealants for Flexible Flashing: Karnak 19 Ultra Rubberized Asphalt Caulk or Dow Corning 791 Silicone Weatherproofing Sealant or equal. Sealant utilized contingent upon flashing selected.

2.9 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Weep/Vent Products: Use the following unless otherwise indicated:
 - 1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Hohmann & Barnard, Inc.; Quadro-Vent.
- E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following.
 - a. H&B, Dur-O-Wal Division; Mortar Trap.
 2. Provide one of the following configurations:
 - a. Strips, full-depth of cavity and 10 inches high, with dovetail shaped notches 7 inches (175 mm) deep that prevent clogging with mortar droppings.
- F. Termination Bar: 26 ga. x 1-1/2"x 8' long, 1/4" holes spaced 8" on center, has a 3/8" flange on top for easy caulking. Fabricated from Type 304 Stainless Steel.

2.10 CAVITY-WALL INSULATION

- A. Per Division 07 Thermal Insulation and Weather Barrier.

2.11 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Diedrich Technologies, Inc.
 - b. EaCo Chem, Inc.
 - c. ProSoCo, Inc.

2.12 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
1. Do not use calcium chloride in mortar or grout.
 2. Use portland cement-lime mortar unless otherwise indicated.
 3. For exterior masonry, use portland cement-lime.
 4. For reinforced masonry, use portland cement-lime mortar.
 5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.

1. For masonry below grade or in contact with earth, use Type S.
 2. For reinforced masonry, use Type S.
 3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
- C. Pigmented Mortar: Use proportion pigments with other ingredients to produce color required.
1. Pigments shall not exceed 10 percent of portland cement by weight.
 2. Mix to match Architect's sample.
 3. Application: Use pigmented mortar for exposed mortar joints with the following units:
 - a. Face brick.
- D. Grout for Unit Masonry: Comply with ASTM C 476.
1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 2. Proportion grout in accordance with ASTM C 476, paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
 3. Provide grout with a slump of 10 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 2. Verify that foundations are within tolerances specified.
 3. Verify that reinforcing dowels are properly placed.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

- 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
- 2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
- 3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

- 1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
- 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
- 3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
- 4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
- 5. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
- 6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
- 7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- C. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- E. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- G. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.

4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.6 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
 1. Space reinforcement not more than 16 inches o.c.
 2. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 ANCHORING MASONRY VENEERS

- A. Anchor masonry veneers to wall framing with masonry-veneer anchors to comply with the following requirements:
 1. Fasten screw-attached anchors through sheathing to wall framing with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
 2. Embed tie sections in masonry joints.
 3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
 4. Space anchors as indicated, but not more than 18 inches o.c. vertically and 24 inches o.c. horizontally, with not less than 1 anchor for each 2 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 8 inches, around perimeter.

3.8 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

- B. Form control joints in concrete masonry as follows:
 - 1. Install preformed control-joint gaskets designed to fit standard sash block.
- C. Form expansion joints in brick as follows:
 - 1. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch for installation of sealant and backer rod specified in Division 07 Section "Joint Sealants."
- D. Provide horizontal, pressure-relieving joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Joint Sealants," but not less than 3/8 inch.
 - 1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

3.9 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
 - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
 - 2. At masonry-veneer walls, extend flashing through veneer, across air space behind veneer, and up face of sheathing at least 8 inches; with upper edge tucked under building paper or building wrap, lapping at least 4 inches.
 - 3. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
 - 4. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.
- C. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
- D. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
 - 1. Use specified weep/vent products to form weep holes.
 - 2. Space weep holes 24 inches o.c. unless otherwise indicated.
- E. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.
- F. Install vents in head joints in exterior wythes at spacing indicated.

3.10 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 - 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

3.11 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections: Level 1 special inspections according to the "Building Code of NYS."
 - 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
 - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
 - 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.
- F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.
- G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.

- H. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for compressive strength.
- I. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.12 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
 - 6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
 - 7. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
 - 8. Clean stone trim to comply with stone supplier's written instructions.
 - 9. Clean limestone units to comply with recommendations in ILI's "Indiana Limestone Handbook."

3.13 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Crush masonry waste to less than 4 inches in each dimension.
 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Division 31 Section "Earth Moving."
 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END of SECTION 04 4300

SECTION 04 4301

STONE MASONRY RESTORATION

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section as shown or specified shall be in accordance with the requirements of the Contract Documents.
- B. All Sections in Division 01 – General Requirements.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of masonry restoration as shown on the Drawings, as specified herein, and as may be required by conditions and authorities having jurisdiction, including, but not limited to, the following:
 - 1. Rebuilding stone masonry, including infilling openings, as indicated on Drawings using salvaged stone and new stone matching original stone.
 - 2. Rebuilding areas of stone masonry where stone is missing using salvaged stone and new stone matching original stone.
 - 3. Replacing deteriorated stone with new stone matching existing stone.
 - 4. Repairing cracks in stone masonry.
 - 5. Preparing and pointing joints in which mortar is deteriorated, joints from which mortar is missing, and joints as indicated on Drawings with mortar matching color and texture of original mortar.
 - 6. Performing other stone masonry restoration work as indicated on Drawings.

1.3 RELATED SECTIONS

- A. Section 07 9213 – Joint Sealants.
- B. Section 32 1440 – Stone Steps, Copings, & Curbs.

1.4 QUALITY ASSURANCE

- A. Masonry Restoration Specialist: Contractor that performs masonry restoration shall be regularly engaged in restoration of stone masonry and shall demonstrate to Owner's satisfaction that, within previous five years, firm has successfully performed and completed in a timely manner at least three projects similar in scope and type to work required on this Project.
- B. Laws, Codes, and Regulations: Work of this Section shall comply with all applicable federal, state, and local laws, codes, and regulations.
- C. Sources of Materials: Obtain each type of material required for work of this Section from a single source to ensure a match in quality, performance, and appearance.
- D. Access for Observation and Approvals: Provide Architect access on a continuing basis to locations on which mock-ups are being carried out, on which work is ongoing, and where work has been completed to allow for observation and approvals. Provide pipe scaffolding and

manpower to move scaffolding and planking, personnel lift and manpower to operate lift, or other means of access complying with all laws, codes, and regulations regarding safety and acceptable to Architect. Provide manpower and equipment to facilitate observation and approvals.

- E. Repair or Damage: Repair or replace all broken, lost, and damaged masonry resulting from work of this Section to Architect's satisfaction at no additional cost to Owner.

1.5 SUBMITTALS

- A. General: Submit the following in compliance with the requirements of the Contract Documents. Revise and resubmit each item as required to obtain Architect's approval.
- B. Qualification Data: Qualification data for firm and personnel specified in "Quality Assurance" Article that demonstrates that both firm and personnel have capabilities and experience complying with requirements specified. For firm and foreman, provide a list of at least three completed projects similar in size and scope to work required on this Project. For each project list project name, address, architect, supervising preservation agency, scope of contractor's work, and other relevant information. Submit this information with the bid.
- C. Work Proposal for Cold Weather Masonry and/or Hot Weather Masonry: Proposal for executing masonry work during cold weather or hot weather. Include proposed materials, equipment, methods, and procedures to ensure that cold weather masonry work and hot weather masonry work comply with requirements of this Section.
- D. Product Literature: Manufacturer's published technical data for each product to be used in work of this Section. Include physical and chemical properties, recommendations for application and use, test reports and certificates verifying that product complies with specified requirements, and Material Safety Data Sheets (MSDS).
- E. Samples
 - 1. Salvaged Stone: Clean, sound, salvaged stone free of mortar and contaminants, 2 units.
 - 2. Replacement Stone: Sets including sufficient numbers to show full range of colors and textures to be expected in completed work.
 - 3. Ties and Anchors: Each type specified and proposed for use in work of this Section.
 - 4. Reinforcing: Each type specified and proposed for use in work of this Section, 12-inch length.
 - 5. Pointing Mortar: Cured samples of mortar set in 1/2-inch by 6-inch plastic or aluminum channels for approval of color and texture. Include list of ingredients and proportions.
- F. Sand for Mortar: Two-pound sample of each type of sand proposed for use. Include source, sieve analysis, and previous test data.
- G. Prepare mock-ups as specified in Article "Mock-ups," below.

1.6 MOCK-UPS

- A. General: Before beginning general masonry restoration, prepare mock-ups to provide standards for work of this Section. Do not proceed with masonry restoration work until Architect has approved relevant mock-ups.
- B. Locate mock-ups as directed by Architect.
 - 1. Notify Architect 48 hours prior to start of each mock-up.

2. Use crew that will execute the work and comply with requirements of this Section.
3. Repeat mock-ups as necessary to obtain Architect's approval.
4. Allow mock-ups to cure until mortar is dry and has reached its natural color (seven days, minimum). Notify Architect when mock-ups are ready for inspection.
5. Protect approved mock-ups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
6. Approved mock-ups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
7. Approved mock-ups will represent minimum acceptable standard for each kind of masonry restoration work. Subsequent masonry restoration work that does not meet standard of approved mock-ups will be rejected.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store materials in manufacturers' original sealed containers or packaging, clearly labeled with manufacturer's name, address and product identification, including grade, type, and color. Immediately reseal containers after partial use.
- B. Deliver, store, and handle products and materials to prevent damage, deterioration, degradation, and intrusion of foreign material.
 1. Maintain temperatures in storage spaces within range recommended by manufacturer of material being stored in each case. Protect liquid components from freezing.
 2. Store products and materials at least 4 inches above floor and protect them from water, dampness, and high humidity. Bulk Aggregate: Store aggregate in manner that will keep aggregate clean and protected from weather.
- C. Discard and remove from site deteriorated materials, contaminated materials, and products that have exceeded their shelf life as indicated by manufacturer. Replace with fresh materials.

1.8 PROJECT CONDITIONS

- A. Safety: Protect all persons, whether or not involved with work of this Section, from harm caused by work of this Section.
 1. Protection from Hazardous Materials: Protect workers and other persons from contact with hazardous materials used in or resulting from work of this Section.
 - a. Silica: Exposure to respirable crystalline silica may lead to silicosis, a disabling, nonreversible, and sometimes fatal lung disease. Provide protections necessary to prevent workers from exposure to respirable crystalline silica.
- B. Protection of Building: Protect elements and finishes from damage and from deterioration caused by work of this Section. Repair damage to materials and damage to finishes to Architect's satisfaction at no additional cost to Owner.
 1. Cover areas from which masonry been removed, areas from which mortar has been removed from joints, and other open areas at all periods during which work is suspended to ensure materials and finishes are not damaged by wind, water, or other environmental forces.
 - a. Protect adjacent materials during masonry restoration as necessary to avoid damage to other elements. Prevent mortar from staining face of wall. Protect facade projections and other facade elements from droppings of mortar. Immediately remove mortar or grout in contact with facade surfaces.

2. Protect storm drainage systems from blockage and damage by wastes resulting from work of this Section.
 - C. Protection of Site and Surroundings: Protect site, public rights of way, motor vehicles, and other surrounding elements from damage and deterioration resulting from work of this Section.
 - D. Dust: Minimize dissemination of dust to greatest extent possible.
 - E. Protection from Rain: Protect newly placed mortar with heavy waterproof sheeting from direct attack by rain or other precipitation for at least 24 hours after mortar has been applied. Install and remove sheeting without damaging masonry.
 - F. Coordination: Coordinate work of this Section with work of other Sections to ensure proper completion of all work.
 - G. Contract Drawings: The Drawings are two-dimensional representations of three-dimensional objects and do not show all surfaces. Perform work on all surfaces of projections, reveals, and other elements associated with areas on which work is indicated.
- 1.9 ENVIRONMENTAL REQUIREMENTS
- A. General: Do not use any material in masonry restoration work unless air and masonry temperatures are within range recommended by material manufacturer or specified herein. In case of conflict, the most restrictive requirement shall govern.
 - B. Cold Weather Masonry Restoration: Cold weather masonry restoration shall comply with the following requirements for work, performed in ambient temperatures indicated. In case of conflict, the most stringent requirements shall govern. Work shall not be permitted in freezing weather, or when temperature of air or wall is at or below freezing or expected to freeze within 48 hours of work without prior written approval from Architect. No work shall begin when any part of wall or materials in use are frozen or subject to freezing temperatures.
 - C. Hot Weather Masonry Restoration: Take measures necessary, including, but not limited to, those specified herein, to ensure that masonry work in hot weather is not adversely affected by sun, heat, and/or wind and that no masonry work is subjected to conditions causing too-rapid or premature drying.
 - D. Damage Caused by Freezing and/or Too-Rapid Drying: Remove masonry restoration work damaged by freezing and masonry restoration work damaged by heat or too-rapid drying as determined by Architect. Replace work to comply with requirements of this Section.

1.10 REFERENCES

- A. ASTM International (ASTM)
 1. ASTM A 580, Standard Specification for Stainless Steel Wire.
 2. ASTM A 666, Standard Specification for Annealed or Cold-Worked Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar.
 3. ASTM A 951, Standard Specification for Steel Wire for Masonry Joint Reinforcement.
 4. ASTM C 144, Standard Specification for Aggregate for Masonry Mortar.
 5. ASTM C 150, Standard Specification for Portland Cement.
 6. ASTM C 207, Standard Specification for Hydrated Lime for Masonry Purposes.
 7. ASTM C 270, Standard Specification for Mortar for Unit Masonry.

PART 2 - PART 2 – PRODUCTS

2.1 MASONRY UNITS

- A. Salvaged Stone: Sound, salvaged stone matching adjacent stone and cleaned free of mortar and of contaminants that might adversely affect adhesion of mortar and durability of masonry.
- B. New Stone to Match Existing: matching cleaned existing original stone in weatherability, dimensions, color, and surface texture and reflectance.

2.2 MORTAR INGREDIENTS

- A. White Portland Cement: Type I or Type II, ASTM C 150, non-staining.
- B. Portland Cement: Type I or Type II, ASTM C 150, non-staining. Do not use masonry cement.
- C. Hydrated Lime: ASTM C 207, Type S.
- D. Sand: Clean sharp sand, free of loam, silt, soluble salts, organic matter, and other deleterious substances and graded in compliance with ASTM C 144. Select sand or other aggregate with size, color, and distribution of particles to provide mortar matching color and texture of original mortar (with minimum addition of pigment).
- E. Water: Clean, potable, and free of materials that might adversely affect setting, cure, and performance of mortar or might adversely affect masonry units or embedded metal elements.
- F. Prohibited Materials: Do not use masonry cements, chlorides, or other additives or admixtures that are not specifically specified herein.

2.3 ANCHORS, FASTENERS, AND REINFORCING

- A. General: Anchors, fasteners, and reinforcing used for work of this Section shall be of Type 302, Type 304, or Type 316 stainless steel. No other materials will be permitted.

2.4 MORTAR MIX PROPORTIONS

- A. Mortar for Setting Stone Masonry (ASTM C 270, Type N, Parts by Volume)
 - 1. 1 part Portland cement (Type I) (white, gray, or a mixture to provide mortar color matching color of original mortar with minimum addition of pigment)
 - 2. 1 parts hydrated lime (Type S)
 - 3. 6 parts damp, loose sand (selected to match sand in original mortar)
 - 4. Oxide pigments as necessary to adjust mortar color to match original mortar color but not to exceed 7 percent of the weight of the cement.
- B. Mortar for Pointing Stone Masonry (ASTM C 270, Type O, Parts by Volume)
 - 1. 1 part Portland cement (Type I) (white, gray, or a mixture to provide mortar color matching color of original mortar with minimum addition of pigment)
 - 2. 2 parts hydrated lime (Type S)
 - 3. 8 parts damp, loose sand (selected to match sand in original mortar)
 - 4. Oxide pigments as necessary to adjust mortar color to match original mortar color but not to exceed 7 percent of the weight of the cement.

2.5 MIXING OF MORTARS

- A. Measure mortar ingredients carefully so that proportions are controlled and maintained throughout all work periods.
- B. Mix mortar in an approved type of power-operated batch mixer. Mix for time required to produce a homogeneous plastic mortar but not for less than five minutes: approximately two

minutes for mixing dry materials and not less than three minutes for mixing after water has been added.

- C. Use minimum amount of water to produce a workable consistency for mortar's intended purpose.
 - 1. Mortar for Pointing: As dry a consistency as will produce a mortar sufficiently plastic to be worked into joints.
- D. Where mortar is required in small batches of less than one cubic yard and Architect specifically approves, mortar may be mixed by hand in clean wooden or metal boxes prepared for that purpose provided Architect approves mixing boxes and methods of mixing and transferring mortar.
- E. After mixing, mortars for setting masonry units and mortars for pointing joints in masonry shall sit for 20 minutes prior to use to allow for initial shrinkage. Place mortar in final position within one-and-one-half hours of mixing. Re-tempering of partially hardened material is not permitted.

PART 3 - PART 3 - EXECUTION

3.1 GENERAL

- A. Examination: Examine areas and conditions where masonry restoration is to be performed and notify Architect of conditions detrimental to proper and timely completion of work. Do not begin masonry restoration until unsatisfactory conditions have been corrected.

3.2 REMOVAL OF EXISTING STONE TO BE REBUILT

- A. Comply with requirements of Section 02 4113 – "Selective Demolition"

3.3 REBUILDING STONE MASONRY, GENERAL

- A. Lay plumb, level and true to line. Match existing original bond pattern and joint configuration. Provide uniform joints. Install sills and lintels at new opening tops and bottoms as applicable.
- B. Fill joints between stone masonry and other masonry materials with mortar as each course is laid.
 - 1. Bed Joints: Form bed joints in one of the following ways:
 - a. Apply a thick layer of smooth or slightly furrowed mortar on top of units previously laid and shove stone in place.
 - b. Apply a full coat of mortar to bottom of stone and shove it into place.
 - 2. Head and Collar Joints: Form head and collar joints by applying a full coat of mortar to entire end or entire side as case requires and shoving mortar-covered end and/or side of brick tightly against bricks previously laid. Apply 3/8-inch-thick coat of mortar to back of facing brick before unit is installed. All head and collar joints shall be full shoved joints.
 - a. Do not slush head and collar joints. Evidence of voids in head or collar joints or of unsound mortar will be grounds for Architect to reject brick masonry. Remove and replace rejected masonry to comply with requirements of this Section at no additional cost.
- C. Ties and Anchors: Install anchors as necessary to securely anchor masonry.

- D. Wet stone masonry substrate and stone to be laid prior to installation in a manner to ensure that masonry elements are nearly saturated but free of surface water when laid (saturated, surface dry).
- E. Rake back unfinished work. Do not tooth in.
- F. Before leaving fresh or unfinished work, cover and protect wall against rain and wind in an approved manner. Before continuing, sweep clean previously laid work.
- G. Incorporated Elements: As work progresses, build in items specified in this and other specification sections and as noted on Drawings.
- H. Cutting: Where stone is to be cut to size, cut neatly with power-driven saw. Do not expose cut face to weather.
- I. Remove masonry units disturbed after laying and relay in fresh mortar. If adjustment is required, do not pound stone but remove stone and all mortar from substrate and reset in fresh mortar.
- J. Remove and replace stones that are loose, chipped, broken, stained, or damaged by freezing or for any other reason or if units do not match adjoining units as intended. Furnish new units to match adjoining units and install in fresh mortar, pointed to eliminate evidence of replacement.
- K. Preparation and Pointing: Rake joints 3/4 inch deep to prepare for pointing. Prepare and point joints to comply with requirements of Articles "Preparing Joints for Pointing" and "Pointing Joints," below.
- L. Curing: Keep new masonry work damp for at least 72 hours after mortar has been placed. Do not apply a direct stream of water to masonry for at least 24 hours after mortar has been placed.

3.4 REPLACING DAMAGED AND DETERIORATED STONE

- A. General: Replace damaged and deteriorated stone with salvaged stone or new stone where salvaged stone is not available to match original in size, color, surface texture, light reflectance, and other physical properties.
- B. Removal: Carefully remove stone to be replaced and mortar from joints around it. Do not disturb adjacent stone. In each case where bond of stone is broken, remove stone and mortar around and reset.
- C. Cleaning: Remove dirt and dust from hole using stiff bristle brush followed by clean compressed air.
- D. Wetting: Thoroughly wet stone to be inserted and surfaces at hole in masonry to receive stone to ensure that masonry is damp but without water on surface (saturated, surface dry) at time of installation.
- E. Inserting Stone: Apply mortar to all surfaces in hole to receive replacement and to all surfaces of stone to be inserted, except for surfaces to be exposed, to ensure that voids are filled with mortar. Excess mortar shall be squeezed out of joints around stone as it is inserted.
- F. Pointing Joints: Rake joints to prepare for pointing. Prepare and point joints to comply with requirements of Articles "Preparing Joints for Pointing" and "Pointing Joints," below.
- G. Curing: Keep new masonry work damp for at least 72 hours after mortar has been placed. Do not apply a direct stream of water to masonry for at least 24 hours after mortar has been placed.

3.5 PREPARING JOINTS FOR POINTING

- A. General: Remove mortar from joints to a depth of 3/4 inch or to sound mortar, whichever is greater. In all cases remove weathered, loose, and deteriorated material. Clean joint free of dirt and debris.
- B. Take precautions necessary to ensure that faces and arises of masonry units are not damaged in any way during joint preparation.
- C. Joint preparation shall cease if, in Architect's judgment, Contractor's methods are damaging masonry units. Work shall not resume until tools, workmen, and methodology are corrected to meet quality standard of approved quality control panel.
- D. Remove all mortar from surfaces of masonry units adjoining joint to allow new mortar to bond directly with masonry units. Surface at rear of joint shall be uniform and roughly perpendicular to sides of joint.
- E. Mortar Removal
 - 1. Hand Tools: Use hand tools for removal of mortar from mortar joints less than 6 inches long, from joints in recesses where power tools are awkward and hard to control, and from other joints in which use of power tools might cause damage to masonry units. Use hand tools to complete mortar removal from joints where power tools have been used to partially remove mortar.
 - a. For narrow joints of 1/8 inch or less in width, rake mortar from joints manually with a sharp knife blade or cutter made for this purpose. Cutter may be used with or without a hammer.
 - b. Sharpen chisels as necessary to minimize chipping but no less than hourly.
 - 2. Power Tools: With specific prior approval from Architect following successful demonstrations of skill by mechanics, power grinders may be used to partially remove mortar from joints longer than 6 inches and in open areas so that power tools can be easily controlled where there is no danger of cutting into adjacent masonry units.
 - a. Demonstrated Ability of Mechanics: Prior to commencing work, demonstrate that all workmen using power tools are proficient in use of power tools for joint preparation. Failure to demonstrate to Architect's satisfaction that each worker is proficient, and that power tool joint preparation does not result in damage to masonry to remain shall result in prohibition of use of power tools for joint preparation. If proficiency is not demonstrated, or if work in progress results in damage to masonry to remain, all power tool work shall cease, and joints shall be prepared using hand tools.
 - b. Limitations on Use of Power Tools
 - i. Do not use power grinders on joints less than 3/16-inch wide or less than 6-inches long or where ornament, other surface irregularity, or recess in surface plane makes damage to masonry units likely.
 - ii. Use power grinder only to score one kerf cut in center of each joint to depth of mortar removal required. Remove remaining mortar using hand tools or approved pneumatic-operated chisels.
 - iii. Stop kerf at least 4 inches from inside corners and projecting elements. Remove remaining mortar using hand tools or approved pneumatic-operated chisels.
 - iv. Construct jigs as necessary to guide power tools and to prevent damage to adjacent masonry.

- F. Cleaning: Remove loose mortar and foreign material from raked joints using a fine, stiff natural bristle brush. Remove remaining particles, dust, and dirt using filtered, oil-free compressed air. Ensure that dust and dirt are not blown back into joints that have previously been cleaned.
- G. Repair or replace masonry units damaged during joint preparation process to Architect's satisfaction at no additional cost.

3.6 POINTING JOINTS

- A. Wetting: Thoroughly wet masonry 24 hours prior to and again immediately before pointing. Let surfaces dry slightly. At time of pointing, surfaces should be damp, so that they do not rapidly absorb moisture, but free of standing water (saturated, surface dry).
- B. Pointing: Point joints as follows:
 - 1. Using a long, thin pointing trowel, tightly pack mortar into joints in layers not exceeding 1/4 inch to fill joint to match original sound joints.
 - 2. Begin by filling areas from which mortar is missing to a depth greater than 3/4 inch in 1/4-inch -thick layers to within 3/4 inch of wall surface to provide a uniform substrate for final pointing. Fill final 3/4-inch-depth continuously and uniformly in 1/4-inch-thick layers.
 - 3. Firmly iron each layer to compact mortar to ensure a full bond between mortar and masonry and a firm, solid joint.
 - 4. Allow each layer to reach thumbprint hardness before applying succeeding layer. Do not let previous layer dry out before applying succeeding layer. Construct uniform joints.
 - 5. Do not spread mortar over edges onto exposed surfaces of masonry units. Do not featheredge mortar.
 - 6. When stopping work, at end of each day or for other reasons, stagger layers of mortar so that there will be no through joints in pointing. Stagger joints in layers so that they are at least 3 inches from each other.
 - 7. Where one day's work joins that of the previous day, dampen previous work so that a good bond will be formed.
- C. Tooling: Tool joints after final layer is "leather hard" with a flat rule jointer, or as directed by Architect.
 - 1. Profile: Tool joints to profile matching original joint profile as directed by Architect. Solidly compress mortar so that it adheres well to masonry on both sides and forms a dense surface. Unacceptable finishes resulting from premature or late tooling will be rejected. Remove mortar from joints in which finishes have been rejected to a minimum depth of 3/4 inch, prepare joints, provide new mortar, and tool joints properly following requirements of this Section at no additional cost to Owner.
 - 2. Curing: Keep newly pointed joints damp for at least 48 hours after mortar has been inserted. Do not apply a direct stream of water to joints for at least 24 hours after mortar has been placed.
- D. Cleaning and Repair of Mortar Joints
 - 1. Water Washing: Wash all pointed masonry with clean filtered water and nonabrasive hand tools to remove mortar debris from masonry surfaces.
 - 2. Wash within 48 hours following completion of pointing.
 - 3. Use blunt-edged wood scrapers, stiff natural bristle brushes, and rough towels along with water to remove mortar debris. Do not use wire brushes.
 - 4. Repair of Pointed Joints: As cleaning progresses, examine joints to locate cracks, holes and other defects. Carefully point up and fill such defects with mortar. Where necessary

in opinion of Architect, cut out joints and refill with pointing mortar using care to ensure that color matches that of original pointing work. Exposed joint surfaces shall be free from protruding mortar, holes, pits, depressions, and other defects.

3.7 CLEANING

- A. Cleaning Stone Masonry: Clean masonry prior to final setting of mortar. Remove mortar and stains from face of work with dry, stiff bristle brushes. Architect may require additional cleaning procedures if masonry staining occurs. After mortar has cured, perform final cleaning, using only clean water and stiff fiber brushes.

END OF SECTION 04 4301

SECTION 05 5213
ORNAMENTAL STEEL RAILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

A. Section Includes:

- 1. Furnish and erect ornamental steel railings for steps and ramps as shown on the plans.
- 2. All handrails, including extensions shall comply with Americans with Disabilities Act (ADA) provisions as described in ANSI A117.11-2010 (or most recent edition).

1.3 REFERENCES

- A. ANSI A117.11-2010 Department of Justice 2010 ADA Standards for Accessible Design
- B. ASTM F-1083 Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
- C. ASTM E 894 Standard Test Method for Anchorage of Permanent Metal Railing Systems and Rails for Buildings
- D. ASTM E 935 Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings
- E. ASTM 985 Standard Test Method for Steel Investment Castings
- F. ASTM D 3359 Standard Test Methods for Rating Adhesion by Tape Test
- G. ASTM C 1107 Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
- H. National Association of Architectural Metal Manufacturers (NAAMM).

1.4 RELATED SECTIONS:

- A. Section 03 3100 Cast-in-place Concrete
- B. Section 32 1440 Stone Steps, Copings, & Curbs

1.5 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design railings, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
 - 1. Steel: 72 percent of minimum yield strength.
- C. Structural Performance: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
 - b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
 - E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
- 1.6 ACTION SUBMITTALS
- A. Product Data: For the following:
 1. Steel posts
 2. Railings (extruded profile)
 3. Railings (steel flat bar)
 4. Steel handrail fitting (Volute)
 5. Steel primer and paint
 6. Grout and anchoring cement
 - B. Shop Drawings
 1. Plans, elevations, sections, details, and attachments to other work. Shop drawings to include complete details of railing construction, height, post spacing layout, dimensions, and concrete footing details.
 2. Show all locations, markings, quantities, materials, sizes and shapes.
 3. Show full size details of fabrication and installation for each ornamental metal item required including plans, elevations, profiles of fittings, connections, anchors, details of components and attachments to other units of Work.
 - a. Indicate materials, profiles of each ornamental metalwork member and fitting, joinery, finishes, fasteners, anchorages and accessory items.
 - b. Include setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed as unit of Work of other Sections.
 4. Do not fabricate before approval of Shop Drawings.
 5. Calculations
 - a. Where metal items are required to comply with certain design loadings, submit structural design, structural calculations, materials properties, and other information needed for structural analysis, signed and sealed by the New York State licensed Professional Engineer responsible for their preparation.
 - C. Samples for Initial Selection: For products involving selection of color, texture, or design.
 1. Steel volute fitting
 2. Handrail profile
 3. Paint color and finish sample
 - D. Samples for Verification: For each type of exposed finish required.
 1. Sections of each distinctly different linear railing member, including post, flat bar support, extruded handrail profile, volute end piece, and fittings.

2. Assembled Sample of railing system, made from full-size components, including post, flat bar support, extruded handrail profile, volute end piece, and fittings.
 3. Sample need not be full height.
 - a. Show method of finishing and connecting members at intersections.
 4. Sample(s) shall be primed and painted.
- E. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- 1.7 INFORMATIONAL SUBMITTALS
- A. Qualification Data: For qualified professional engineer.
 - B. Mill Certificates: Signed by manufacturers of steel products certifying that products furnished comply with requirements.
 - C. Welding certificates.
 - D. Submit certification that the powder coating materials used comply with this specification.
 - E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.
- 1.8 QUALITY ASSURANCE
- A. Source Limitations: Obtain each type of railing from single source from single manufacturer.
 - B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - C. Welding Qualifications: Qualify procedures and personnel according to the following:
 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- 1.9 PROJECT CONDITIONS
- A. Field Measurements: Verify actual locations of curbs and pavements and other construction contiguous with metal fabrications by field measurements before fabrication.
- 1.10 COORDINATION AND SCHEDULING
- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
 - B. Schedule installation so attachments are made only to completed elements. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

- B. Extruded profile, fittings, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

2.2 STEEL AND IRON

- A. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.

2.3 HANDRAIL PROFILE AND END FITTING

- A. Handrail profile shall be C1010 hot-rolled carbon steel moulding, Julius Blum Model #4435, 2.65 lbs/ft, as manufactured by Julius Blum, www.juliusblum.com
- B. Handrail shall be securely welded to steel flat bar plate, 1/4-inch x 2-inches.
- C. Flat bar shall be securely welded to steel posts.
- D. End fitting shall be compatible with handrail profile and shall be Julius Blum Model #4435-V Volute end fitting, as manufactured by Julius Blum, www.juliusblum.com. Volute shall be securely welded to assembled railing.

2.4 POSTS

- A. Posts shall be round tapered forged steel posts (tapered from 1-1/2" diameter to 1-1/4" diameter), Julius Blum Model # 326L, as manufactured by Julius Blum, www.juliusblum.com.
- B. Posts shall conform to ASTM 985 concentrated test load requirements.

2.5 FASTENERS

- A. Type 304 stainless-steel or hot-dip zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.
- B. Fasteners for Interconnecting Railing Components:
 - 1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.
 - 2. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.
- C. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.

2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Electrodes: Wires used for electrodes or welding rods shall be an approved covered commercial steel wire made for this purpose, of uniform homogeneous physical structure, free from irregularities in surface, from hardness, segregation, foreign matter, oxides, pipes, seams, or other defects.
 - 1. Either the recommendations of the electrode manufacturer, or information based on the tests of the same kind of electrodes with the same kind of current shall be used in determining the range of current values for each electrode size.

- C. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for exterior applications.
- D. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
 - 1. Water-Resistant Product: At exterior locations provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.
- E. Grout for handrail posts shall be non-shrink, cement-based grout such as Sonneborn 10K Grout as manufactured by BASF Building Systems, Shakopee, MN or SikaGrout 212, as manufactured by Sika Corporation, Lyndhurst, NJ, or approved equal.
- F. Sealant around handrail post shall be one-part polyurethane, elastomeric adhesive such as Sonneborn's Ultra Sealant, as manufactured by ChemRex, Shakopee, MN or Sikaflex-1a, as manufactured by Sika Corporation, Lyndhurst, NJ, or approved equal.

2.7 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections unless otherwise indicated.
- H. Welded Connections: See welding.
- I. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
 - 1. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.
- J. Form changes in direction as follows:
 - 1. As detailed.
 - 2. By bending
- K. Bend members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

- L. Close exposed ends of railing members with prefabricated “Volute” end fittings .
- M. Brackets, Flanges, Fittings, and Anchors: Provide brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members as required.
- N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- O. For railing posts set in concrete, provide steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with metal plate forming bottom closure.

2.8 WELDING

- A. All welding shall be done by the electric arc method or other approved method and the welding operators shall be experienced in this particular class of work.
- B. Preparation: Surfaces to be welded shall be reasonably cleaned by wire brushing, chipping or hammering of loose scale, rust, paint or other foreign matter; except that a thin coating of linseed oil need not be removed before welding.
- C. During welding, the parts to be welded shall be held by sufficient clamps or other adequate means to keep them straight and in close contact.
- D. Welding: In any respect not covered by the above provisions the work shall conform to the National Association of Architectural Metal Manufacturers (NAAMM) standards.
- E. Welds: All slag shall be removed from finished welds and they shall show uniform section, smoothness of weld metal, feather edges without overlaps and freedom from porosity and clinkers. Visual inspection at edges and ends of fillets and butt joint welds shall indicate good fusion with, and penetration into, base metals.
- F. Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Welding shall be done by competent mechanics and all welds shall be ground smooth.
 - 2. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 3. Obtain fusion without undercut or overlap.
 - 4. Remove flux immediately.
 - 5. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

2.9 FINISHES, GENERAL

- A. The entire railing system shall receive three coats of paint.
- B. Color to be BLACK unless otherwise indicated on the plans. Finish shall be flat, semi-gloss, or gloss as selected by the Landscape Architect.
- C. Preparation: Immediately prior to painting, all surfaces of assembled railing shall be thoroughly cleaned.
 - 1. All surfaces shall be cleaned in accordance with SP-1, Solvent Cleaning. Cleaning shall be performed with a solvent such as mineral spirits, xylol or turpentine to remove all dirt, grease and foreign matter.

2. Surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter shall be cleaned in accordance with SP-2, Hand Tool Cleaning, a method generally confined to wire brushing, sandpaper, hand scrapers or hand impact tools or SP-3, Power Tool Cleaning, a method generally confined to power wire brushes, impact tools, power sanders and grinders to achieve a sound substrate.
 3. Paint shall be applied immediately after a final SP-1 solvent cleaning and drying.
- D. All paints shall be applied when ambient air temperature is 50 degrees F. and rising and surfaces to be painted are moisture free.
1. No painting will be allowed below the minimum ambient air temperature. In addition, no painting will be allowed below the temperature at which moisture will condense on surfaces.
- E. All painting shall be done in a neat and workmanlike manner. The paint shall be applied by brush, and thoroughly worked into the surface and into all cracks and fissures without leaving fins or runs.
- F. Paint shall be shop applied.
- G. After the fence has been cleaned and prepared, it shall be painted as follows:
1. Primer: First coat shall be shop applied Red Oxide acrylic primer for galvanized surfaces such as Sherwin Williams Pro-Cryl® Universal Primer, B66-310, as manufactured by Sherwin Williams Company, Woodside, NY, or approved.
 - a. Primer shall be a fast drying, 53% + 2% weight solids, VOC compliant, corrosion resistant with a dry film thickness of 2-4 mils.
 - b. Paint requires four (4) hours drying time before recoating (with alkyds). Performance shall meet or exceed the standards of Federal Specification TT-P-86H, Type III and IV, and TT-P-664D.
 2. Second coat: shall be a shop applied High Solids Alkyd Metal Primer, such as Sherwin Williams High Solids Alkyd Metal Primer, B50 Series, as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal.
 - a. Primer is an alkyd, low luster coating having a dry film thickness of 3-5 Mills, requires 4 hours drying time before recoating (with alkyds).
 3. Third Coat: shall be a silicon alkyd, high gloss coating such as Sherwin Williams Steel Master 9500 Silicone Alkyd # B56-300, Black, or approved equal.
 - a. Topcoat is a silicon alkyd, high gloss coating having a dry film thickness of 2 -4 mils. Paint requires 6 hours drying time @ 45° F; 8 hours @ 77° F (tack free)
- H. For field touch-up painting, drop cloths shall be used to protect existing ground surfaces and adjacent appurtenances.

2.10 APPEARANCE OF FINISHED WORK

- A. Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- B. Provide any exposed fasteners with finish matching appearance, including color and texture, of railings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Field verify measurements of location(s) to receive ornamental steel railings.
- B. Coordinate work with others installing adjacent structures and or finishes.

3.2 INSTALLATION, GENERAL

- A. The posts shall be set in holes which shall have been pre-formed or core-drilled in the steps or footings, as shown on the plans or directed by the Construction Manager.
- B. Fit exposed connections together to form tight, hairline joints.
- C. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- E. After the posts have been set in place and properly supported to hold them to line and grade, the remaining space shall be neatly filled with a grout consisting of one (1) part cement and two (2) parts sand.
 - 1. Color of grout shall match surrounding pavement or stone.

3.3 RAILING CONNECTIONS

- A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.
- B. Welded Connections: Use fully welded joints for permanently connecting railing components. All welding shall be performed in the shop.
- C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

- A. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or [anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
 - 1. Leave anchorage joint exposed with 1/8-inch buildup, sloped away from post.
- B. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:

3.5 ATTACHING RAILINGS

- A. Anchor railing as indicated on approved shop drawings.
- B. Attach railings to posts with wall brackets. Provide brackets with 1-1/2-inch minimum clearance from inside face of handrail and post surface. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
 - 1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt or predrilled hole for exposed bolt anchorage as approved on shop drawings.
 - 2. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

3.6 CLEANING, ADJUSTING AND TOUCH-UP

- A. Clean installed ornamental steel pipe railing assemblies by washing thoroughly with clean water and soap and rinsing with clean water.
- B. For minor damage caused by installation or transportation and field welded metal powder coated surfaces, clean welds, bolted connections, and abraded areas.
 - 1. On damaged powder coated surfaces, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of 3 (three) feet.
 - 2. On damaged galvanized surfaces, apply organic zinc repair paint complying with ASTM A780. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.

3.7 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

END OF SECTION 05 5213

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SECTION 07 9213

JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 DESCRIPTION OF WORK

- A. Provide all joint sealer Work as indicated on the Drawings, as required for the completed Work, and as specified herein.

1.3 RELATED SECTIONS

- A. Section 03 3100 Cast-In-Place Concrete
- B. Section 32 1440 Stone Steps, Copings, & Curbs.

1.4 REFERENCES

- A. References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work
 - 1. American Society for Testing and Materials (ASTM)

1.5 SUBMITTALS

- A. Product Data

Catalog sheets, specifications, and installation instructions for each product specified except miscellaneous materials.
- B. Samples for Initial Selection:
 - 1. Provide Manufacturer's color charts consisting of strips of cured sealants showing the full range of Manufacturer's standard colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-(13-mm-) wide joints formed between two 6-inch-(150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants

D. Quality Control Submittals

1. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
2. Installer's Qualifications Data: Affidavit required under Quality Assurance Article.
3. Company Field Advisor Data: Name, business address, and telephone number of Company Field Advisor.
4. Test Results
 - a. Sealant manufacturer's test reports certifying compatibility with all contiguous materials.
 - b. Sealant manufacturer's test reports certifying that the sealant will not stain contiguous materials.
 - c. The results of field adhesion testing.

1.6 QUALITY ASSURANCE

A. Installer's Qualifications

The persons installing the sealants and their supervisor shall be personally experienced in the installation of sealants and shall have been regularly employed by a company engaged in the installation of sealants for a minimum of two years.

1. Furnish a letter from the sealant manufacturer, stating that the Installer is authorized to install the manufacturer's sealant materials.

B. Container Labels

Include manufacturer's name, trade name of product, kind of material, federal specification number (if applicable), expiration date (if applicable), and packaging date or batch number.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle joint sealer materials as recommended by the Manufacturer, to protect from damage.

1.8 PROJECT CONDITIONS

A. Environmental Requirements

1. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants at temperatures below 40 degrees F or above 85 degrees F.

2. Humidity and Moisture: Do not install the Work of this Section under conditions that are detrimental to the application, curing, and performance of the materials.
3. Ventilation: Provide sufficient ventilation wherever sealants, primers, and other similar materials are installed in enclosed spaces. Follow manufacturer's recommendations.
4. Do not proceed with installation of joint sealants under the following conditions
 - a. When joint substrates are wet.
 - b. Where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
 - c. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - d. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
 - e. Surfaces are frozen.
 - f. Surfaces are superheated by the sun.

B. Protection

1. Protect all surfaces adjacent to sealants with non-staining removable tape or other approved covering to prevent soiling or staining.
2. Protect all other surfaces in the Work area with tarps, plastic sheets, or other approved covering to prevent defacement from droppings.
3. Protect any painted surfaces which are not included in the Work from impact or damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. General Electric Co., Waterford, NY 12188
- B. Tremco Sealing and Coatings, Wading River, NY 11792
- C. Sika Corporation, Lyndhurst, NJ 07071
- D. Approved equal

2.2 SEALANTS

- A. Sealant for all applications: Premium grade, high performance, 1-component, polyurethane base, non-sag elastomeric sealant. Polyurethane sealant shall be as follows: Sikaflex - 1a Elastic Sealant.

2.3 JOINT FILLERS

- A. Elastomeric Tubing Sealant Backings: (for precast panel joints not compatible with Silicone Sealants): Neoprene, butyl or EPDM tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

ASTM D 1056, Class SC (oil resistant and medium swell), 2 to 5 psi compression deflection.

- B. Expanded Polyethylene Joint Filler (for existing joints)
Flexible, compressible, closed-cell polyethylene of not less than 10 psi compression deflection (25 percent).
- C. ASTM D1056, Class RE41 (for masonry joints) where shown on the Drawings.

2.4 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
- D. Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
 - 1. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), O (open-cell material)] or B (bicellular material with a surface skin, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- E. Bond Breaker Tape

Polyethylene or other plastic tape as recommended by the sealant manufacturer; non-bonding to sealant; self-adhesive where applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all joint surfaces for conditions that may be detrimental to the performance of the completed Work. Do not proceed until satisfactory corrections have been made.

3.2 PREPARATION

- A. Clean joint surfaces immediately before installation of sealant and other materials specified in this Section.
 - 1. Remove all loose materials, dirt, dust, rust, oils and other foreign matter that will impair the performance of materials installed under this Section.
 - 2. Remove lacquers, protective coatings and similar materials from joint faces with manufacturer's recommended solvents.
 - 3. Use methods such as grinding, acid etching or other approved and manufacturer's recommended means, if required, to clean the joint surfaces, assuring that the sealant materials will obtain positive and permanent adhesion.

3.3 JOINT BACKING INSTALLATION

- A. Install bond breaker tape in relaxed condition as it comes off the roll. Do not stretch the tape. Lap individual lengths.
- B. Install backer rod of sufficient size to fill the joint width at all points in a compressed state. Compress backer rod at the widest part of the joint by a minimum of 25 percent. Do not cut or puncture the surface skin of the rod.

3.4 SEALANT INSTALLATION

- A. Except as shown or specified otherwise, install sealants in accordance with the manufacturer's printed instructions.
- B. Install sealants with ratchet handgun or other approved mechanical gun. Where gun application is impracticable, install sealant by knife or by pouring, as applicable.
- C. Finishing

Tool all vertical, non-sag sealants so as to compress the sealant, eliminating all air voids and providing a neat smoothly finished joint. Provide slightly concave joint surface, unless otherwise indicated or recommended by the manufacturer.

- 1. Use tool wetting agents as recommended by the sealant manufacturer.

3.5 FIELD QUALITY CONTROL

- A. Field Adhesion Testing of Sealants - Test completed elastomeric joints as follows:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:
 - a. Perform 2 tests for each type of elastomeric sealant and joint substrate.
2. Test Method – Test joints by hand pull method described below:
 - a. Make knife cuts from one side of the joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting crosscut at one end. Place a mark 1 inch from cross-cut end of 2-inch piece.
 - b. Use fingers to grasp 2-inch piece of sealant between cross-cut end and 1” mark, pull firmly at a 90-degree angle or more in direction of side cuts while holding a ruler along sides of sealant. Pull sealant out of joint to the distance recommended by the sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension, hold this position for 10 seconds.
 - c. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side.
3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
4. Inspect tested joints and report on the following:
 - a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
 - b. Whether sealants filled joint cavities and are free of voids.
 - c. Whether sealant dimensions and configurations comply with specified requirements.
5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
7. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.6 CLEANING

- A. Immediately remove misapplied sealant and droppings from metal surfaces with solvents and wiping cloths. On other materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.
- B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up remaining defacement caused by the Work.

END OF SECTION 07 9213

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SECTION 22 4723

ADA BOTTLE FILLER/DRINKING FOUNTAIN

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment and services necessary to complete the work as shown on the drawings and/or specified herein, including but not necessarily limited to the following:

- 1. Free standing Bottle Filler / Drinking Fountain

1.3 RELATED SECTIONS

- A. 31 2000 Earthwork
- B. 32 0516 Aggregates for Exterior Improvements
- C. 33 1100 Water Distribution System
- D. 33 4000 Stormwater Utilities

1.4 SUBMITTALS

- A. Product Data: For Free standing Bottle Filler / Drinking Fountains
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 2. Include operating characteristics, and furnished specialties and accessories.
 - 3. Submit a catalogue cut and a complete dimensional Shop Drawing of the bottle filler showing all components including color, internal plumbing, access panels, gauges of metal and thickness of wall construction at least twelve (12) weeks in advance of shipping.
- B. Provide color sample of drinking fountain and finish of ground hydrant for approval.

1.5 FEES, PERMITS AND CERTIFICATES

- A. The Contractor shall obtain all permits, inspections, and approvals as required by all authorities having jurisdiction. All fees and costs of any nature whatsoever incidental to these permits, inspections and approvals shall be assumed and paid for by the Contractor.

1.6 UTILITIES AND SITE PROTECTION

- A. Existing Utilities:
 - 1. Owner shall supply site utility and all pertinent background information relating to the existing conditions of the site to the Contractor.
 - 2. Contractor shall be thoroughly acquainted with all site conditions. Should utilities not shown on the plans be found during excavations, contractor shall promptly notify the

owner's representative for instructions as to further action. Failure to do so will make Contractor liable for any and all damage thereto arising from his/her operations subsequent to discovery of such utilities not shown on plan.

3. Contractor shall make necessary adjustments in the layout as may be required to connect the existing stub-outs. Should such stubs not be located exactly as shown, Contractor may be required to work around existing conditions at no cost to the Owner.

1.7 QUALITY ASSURANCE

- A. Provide all accessories and fittings from a single source.
- B. Warrantee: The Manufacturer warrants that the bottle filler and accessory to be free from defects in material and workmanship under normal use for (1) year from date of installation or eighteen (18) months from date of shipment from the factory, whichever occurs first. Manufacturer's standard one-year warrantee shall be submitted.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Protection: Use all means necessary to protect materials, before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacement necessary to the acceptance of the Architect and at no additional cost to the Owner.

1.9 FEES, PERMITS AND CERTIFICATES

- A. The Contractor shall obtain all permits, inspections, and approvals as required by all authorities having jurisdiction. All fees and costs of any nature whatsoever incidental to these permits, inspections and approvals shall be assumed and paid for by the Contractor.

1.10 UTILITIES AND SITE PROTECTION

- A. Existing Utilities:
 1. Owner shall supply site utility and all pertinent background information relating to the existing conditions of the site to the Contractor.
 2. Contractor shall be thoroughly acquainted with all site conditions. Should utilities not shown on the plans be found during excavations, contractor shall promptly notify the owner's representative for instructions as to further action. Failure to do so will make Contractor liable for any and all damage thereto arising from his/her operations subsequent to discovery of such utilities not shown on plan.
 3. Contractor shall make necessary adjustments in the layout as may be required to connect the existing stub-outs. Should such stubs not be located exactly as shown, Contractor may be required to work around existing conditions at no cost to the Owner.

1.11 OPERATION AND MAINTENANCE MANUAL:

- A. The Contractor shall furnish an Operation and Maintenance (O & M) Manual prepared in conjunction with the manufacturers of equipment in this specification. The O & M manual shall contain the following:
 1. Description of system operation.
 2. Troubleshooting and Repair Guide.
 3. List of parts with their model numbers.

PART 2 - PRODUCTS

2.1 BASIS OF DESIGN

- A. All product manufacturers listed are basis of design – approved equals shall be accepted.

2.2 FREE STANDING BOTTLE FILLER AND ADA HIGH-LOW DRINKING FOUNTAIN

- A. Free standing Bottle Filler and Drinking Fountain shall be an outdoor bottle filler with hi-lo drinking fountains, Model # 10145 SM Bottle Filler with hi and lo (ADA) drinking fountains, as manufactured by Most Dependable Fountains, Inc. 5705 Commander Dr. PO Box 587, Arlington, TN 38002-0587, 901-867-0039, www.mostdependable.com, locally represented by Beachum Recreation, 901-237-9265, or approved equal.
 - 1. All parts and installation shall meet applicable requirements of N.Y.S. Codes, including type “K” copper tubing throughout for water supply within unit.
 - 2. Bottle filler and hi-lo drinking fountains shall be a one-piece 3/16” thick black iron pipe /cylindrical column 10-inches diameter with recess for water bottle filling, and two drinking fountains, one high and one low (ADA-compliant). Column and related parts shall be power coated. Color shall be Black.
 - 3. Provide with 10” stainless steel surface carrier.
 - 4. Tubular Body- Shall be either pipe or tubular steel or fabricated 304 stainless steel, 12 gauge or better.
 - 5. Access covers- shall be located for easy access to facilitate maintenance and replacement of parts and shall be fastened with vandal resistant stainless-steel screws.
 - 6. Corrosion Resistant Treatment- All fabrication and welding shall be completed prior to application of the corrosion resistant coating, metal pieces shall be cleaned of all weld spatter, mill scale, varnish, rust, grease, and the like and the surface mechanically and chemically prepared to receive the coating. This corrosion resistant coating shall a thermal spray zinc coating or electrostatic or immersion applied primer with a minimum thickness of 3 mils. All metal pieces, including welds, shall receive the coating inside and out.
 - 7. Polyester Powder Coating- A surface coat shall be applied to the thermal zinc coated metal pieces in such a manner that the coating will not peel off. The manufacturer shall perform all processes required to achieve a smooth material bond. An epoxy or acrylic polymer primer shall be applied prior to application of powder coating. The surface coat shall be an electrostatically sprayed, lead-free, super durable TGIC (triglycidyl isocyanurate) polyester powder coating applied to a minimum of five (5) mil thickness which shall be oven cured. The TGIC polyester powder coating shall be UV resistant and comply with the ASTM standards.
 - 8. Hardware- All hardware, fittings, and fasteners shall be tamper-resistant 18-8 stainless steel, type 304 in accordance with ASTM F593 of sizes as indicated on the shop drawings and as required to complete the installation. Anchor bolts shall be minimum 3/8 inch, ten (10”) inches long and may be either stainless steel or galvanized steel, quantity as required by the manufacturer.
 - 9. Bubbler Head: Bubblers shall be rounded one-piece design, vandal-resistant type, certified to be lead-free. Bubblers shall be heavy-duty stainless steel.
 - 10. Push Button- Shall be stainless steel valve body with a 1 1/2" diameter feather touch vandal resistant push button. Push button for bottle filler and accessible “lo” basin shall be activated by a maximum five (5) pounds of pressure, in compliance with ADA.
 - 11. Stainless Steel Bowls- Shall be 18 gauge or better stainless steel, type 304, satin finish to comply with ASTM A380 and ASTM A967 standards, install with tamper-proof stainless-steel screws.

12. Waste Strainer-Shall be stainless-steel waste strainer with a 1-1/4" O.D. tailpiece. Plastic waste drain/strainers are not acceptable. Plumbing: The manufacturer shall have all factory installed plumbing components pre-tested installed before delivery to site. All factory connections to be made by a licensed plumber.
13. Manufacturer's directions for storage and use shall be strictly adhered to. Material surfaces shall be protected during shipment to arrive dent and scratch free in the field.
14. Color- Shall be powder coated 'Black'.

2.3 PLUMBING

- A. The manufacturer for the drinking fountain shall have all factory installed plumbing components pre-tested installed before delivery to site. All factory connections to be made by a licensed plumber.
- B. All pipe, fittings, valves and other components necessary to complete the plumbing for the connections and concrete pit. The drainpipe shall extend five (5) feet beyond the foundation and connected to the sanitary drain line as shown on the plans. The 1 1/4" inch cold water line shall be extended five (5') feet beyond the foundation and connected to the water supply pipe as shown on the plans.
- C. Connection to water supply shall be made with a threaded, extra heavy fitting. The Contractor shall provide dielectric fitting at appropriate locations, as shown on plan.
- D. Water Piping shall be one and one-quarter (1 1/4") inch rigid hard temper type "K" copper tubing as shown on the plans meeting the specification for ASTM B88. Fittings shall be approved wrought copper and bronze solder-joint pressure fitting (A.N.S.I. B16.22).
- E. Water Pipes through foundation wall shall be protected with a sleeve caulked watertight with a silicone sealant. All appurtenances such as 1 1/4" Gate Valve, 3/4" drain cock, reducer coupling and 3/8" pressure regulator valve shall be installed as per plans, and as directed by the Engineer.
- F. Pipe Supports-Pipe clamps shall be made up of 1" x 3/8" strap iron galvanized and shall be constructed to rigidly hold the pipes firmly in place. Clamps shall be held in place with anchor bolts set in fountain shaft or base.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for water-supply and sanitary drainage. Water supply and drainage lines shall be installed as shown on the detail and the plans. Prior to placement of concrete pad or precast concrete plumbing pit, the subgrade and broken stone shall be level and compacted. Concrete pad shall be a smooth, flat, broom finished surface installed flush with adjacent pavement grade and in accordance with the plans and details.
- B. Adjacent pavement shall be pitched away from bottle filler. Water supply and drainage lines shall be installed as shown on the detail and the plans.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install fixtures level and plumb according to roughing-in drawings. For fixtures indicated for children, install at height required by authorities having jurisdiction.

- B. Set pedestal drinking fountains on base.
- C. Install water-supply piping with shutoff valve on supply to each fixture to be connected to domestic-water distribution piping. Use ball, gate, or globe valve. Install valves in locations where they can be easily reached for operation. Valves are specified in Section 331416 "Site Water Utility Distribution Piping." 331213 "Water Service Connections."
- D. Install waste piping on drain outlet of each fixture to a porous gravel fill located below frost line. Bury depths between 48" and 72", coordinate with site contractor. Minimum 5 cubic feet porous gravel fill.

3.3 CONNECTIONS

- A. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- B. Comply with water piping requirements specified in Section 331213 "Water Service Connections."
- C. Install ball, gate, or globe shutoff valve on water supply to each fixture. Comply with valve requirements specified in Section 331213 "Water Service Connections."
- D. Comply with soil and waste piping requirements specified in Section 334100 "Storm Drainage Piping."

3.4 ADJUSTING

- A. Adjust fixture flow regulators for proper flow and stream height.

3.5 CLEANING

- A. After installing fixtures, inspect unit. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish.
- B. Clean fixtures, on completion of installation, according to manufacturer's written instructions.
- C. Provide protective covering for installed fixtures.
- D. Do not allow use of fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 22 4723

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SECTION 22 5200

WATER PLAY ELEMENTS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section as shown or specified shall be in accordance with the requirements of the Contract Documents.
- B. All Sections in Division 01 – General Requirements.

1.2 SECTION INCLUDES

- A. Water play spray
- B. Piping
- C. Push Button Hydraulic Activator
- D. Concrete footings

1.3 RELATED SECTIONS

- A. All Sections in Division 01 – General Requirements.
- B. Section 03 3100 – Cast-in-Place Concrete
- C. Section 33 1100 – Water Distribution System

1.4 SUBMITTALS

- A. Product data: for each supplied item.
- B. Shop Drawings: The Contractor shall submit Shop Drawings of the spray fixtures (including spray nozzles and colors), activation bollard, programmable controller, solenoid valve, flow distribution manifold, and underground water management system for review and approval.
- C. Calculations: TBD by manufacturer.
- D. Operation and Maintenance Manual: The Contractor shall furnish an Operation and Maintenance (O & M) Manual prepared in conjunction with the manufacturers of equipment in this specification. The O & M manual shall contain the following:
 - 1. Description of system operation and operating modes.
 - 2. Start-Up Procedures.
 - 3. Troubleshooting and Repair Guide.
 - 4. List of parts with their model numbers.
 - 5. Electrical diagram showing the valve assembly, the controller, the activation bollard, the power supply, and all operating switches.
 - 6. O & M Manual & Videotape: The three (3) copies of the Operation & Maintenance Manual and one (1) instructional video supplied on a CD or thumb drive (all labeled with name of site and contract number) shall be distributed by the Engineer as follows:
- E. Laminated manual: Contractor shall supply one (1) laminated manual to be kept at the site, in the equipment vault.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with applicable state and local standards.

1.6 REFERENCES

- A. ASTM – American Society for Testing and Materials.
- B. ANSI – American National Standards Institute.

PART 2 - PRODUCTS

2.1 CONCRETE FOOTINGS

- A. Concrete footings for spray feature and activation bollard and underground water management system shall be in accordance with Section 03 3100 Cast-in-Place Concrete.

2.2 WATER PLAY ELEMENTS

- A. Fountain Spray No 2, Model VOR-7676 .4000 as manufactured by Vortex; www.vortex-intl.com; and represented locally by Sal Romanello, Playsafe Playground Systems of N.Y., playgroundman@msn.com, phone 516-677-9249 or approved equal.
 - 1. Effect: Vertical water jet
 - 2. Fountain Spray No 2 shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 3" (7.6cm). The lead-free brass spray cap shall be threaded into the stainless-steel spray head housing using a tamper-resistant tool. Tamper resistant brass winter cap shall be included. The Embedded anchoring and leveling system shall be used.
 - 3. Height above ground shall be zero inches.
 - 4. Hydraulic Activity/Components: A lead-free brass spray head nozzle shall be mounted flush with the surface of the volcano nose cap and shall produce six (6) particularized, soft stream spray effects.
 - 5. Hydraulic Requirements: The hydraulic requirements shall be 1-5 gpm (4 – 19 lpm) @ 5-10 psi (0.4 – 0.7 bar).
 - 6. Spray Zone: 144 inches x 144 inches
 - 7. Pressure: 5.00 to 10.00 PSI
 - 8. Flow: 1.00 to 5.00 GPM
 - 9. Components shall include all anchor hardware and stainless-steel fasteners.
 - 10. Each fixture shall have a one-inch (1") male or a one-and-one-half inch (1-1/2") threaded female water inlet attached at a point relative to the bottom of the fixture to facilitate water hook up.
- B. Spray Loop, Model VOR-519.2008 shall be as manufactured by Vortex; www.vortex-intl.com; and represented locally by Sal Romanello, Playsafe Playground Systems of N.Y., playgroundman@msn.com, phone 516-677-9249 or approved equal.
 - 1. Effect: spray mist in all directions inside a loop
 - 2. Loop shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 3½" (8.9cm) and a wall thickness of 0.120" (3mm). The loop shall be constructed of one continuous piece of tubing rolled to no less than a 72" (183cm) diameter with no joints or ripples. The loop shall be mounted on a reinforced base plate to facilitate installation. The SAFESWAP™ anchoring and leveling system shall be used.
 - 3. Height above ground shall be 64" (162 cm).

4. Hydraulic Activity/Components: The loop shall have five (5) stainless steel nozzles that produce misty water effect.
5. Hydraulic Requirements: The combined hydraulic requirements of all five (5) spray nozzles shall be 5-10 gpm (18-38 lpm) @ 10-25 psi (0.7-1.7 bar).
6. The nozzle can be set in a -high flow- position in the case of water recirculation system to prevent clogging.

2.3 PUSH BUTTON ACTIVATOR

- A. Push button activator shall be VOR-605.0000 as manufactured by Vortex; www.vortex-intl.com; and represented locally by Sal Romanello, Playsafe Playground Systems of N.Y., playgroundman@msn.com, phone 516-677-9249 or approved equal.
- B. The Push Button Activator shall be the direct interface between the users of the aquatic play area and the aquatic Play Products. The aquatic Play Products shall be activated only when the Push Button Activator is pressed by the user.
- C. Push button activator shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 4½" (11.4cm) and a wall thickness of 0.120" (3mm). The top of the post assembly shall be fitted with a heat-cured, polyester painted handle-sphere, consisting of two (2) half spheres constructed of high-density, high-impact 356.2 aluminum, with a heat-cured polyester coat finish. Each half sphere shall be assembled to the other using a tamper resistant stainless-steel system.
- D. The activator shall consist of a Brass Hydraulic solenoid valve and a stainless-steel push-button activator. The hydraulic solenoid valve and push-button activator shall be factory assembled. The hydraulic solenoid valve shall be located in the underground vault while the push-button activator shall be recessed into the upper portion of the tubular post.
- E. The hydraulic valve assembly shall control the operation of the Play Product(s). Once activated the flow of water will commence for a period of 3-4 minutes, before re-activation is required.
- F. The mechanical vault shall be a prefabricated unit attached to the lower portion of the tubular section and act as the anchoring system for the entire unit. It shall house one (1) main water inlet that shall have a 1½" (40mm) National Pipe Thread connection that shall be pre-assembled to a 1½" (40mm) hydraulic solenoid valve. The vault shall also house three (3) 1" (25mm) National Pipe Thread water outlet for the Play Product(s). Each outlet shall have a gate valve for individual flow control. The vault shall be accessible via removable stainless steel access panels. The drainage system shall consist of a 1/2" (15mm) PVC ball valve in the vault.
- G. The above ground height shall be 38" (96 cm) from final grade.
- H. Color: to be selected from manufacturer's standard color selection.

2.4 SOLENOID VALVES

- A. The Solenoid valves shall be a normally closed solenoid actuated globe pattern with a balanced pressure diaphragm as manufactured by Rain Bird Sprinkler Corp., Glendora, California or approved equal.
- B. The valve shall have a manual flow control for manual opening and closing the valve without electrically energizing the solenoid. The valve shall have a flow range of 5 to 40 GPM for 1" diameter and 20 to 130 GPM for 1 ½" diameter. The operating pressure shall be 15 to 220 PSI. The valve body and bonnet shall be constructed of brass and all other internal parts shall be made of bronze and stainless steel to ensure corrosion resistance.

- C. Flow Distribution Manifold: The manifold shall be constructed of three (3") inch, Schedule 10 (minimum) Type 304/304L stainless steel pipe, with female threading at both ends. Unit shall be factory assembled and water pressure tested. It shall be equipped with pressure gauge, mounting brackets and anchor bolts for mounting on a concrete wall.

2.5 COPPER TUBING

- A. The water service pipe shall be hard temper Type "K" copper tubing meeting the Department of Purchase Specification No. 32-T-1.64 and ASTM No. B88-1974. All tubing and fittings shall be as specified and paid for in the 'Copper Tubing' Item. Copper tubing and fittings are to be supplied from valves on the water supply line to the fixtures, with the connection at the fixture to be made with a dielectric coupling.

2.6 FITTINGS

- A. Fittings shall be approved red brass Class "A" threadless type, containing no less than eighty five percent (85%) copper, adaptable for copper tubing.

2.7 JOINTS

- A. Joints shall be made by soldering, using 95-5 tin antimony solder.

2.8 HARDWARE

- A. All hardware, fittings, and fastenings shall be as indicated on the shop drawings and as required to complete the installation. Lag bolts shall be of best quality stainless steel with side-slot flat type vandal proof head in the sizes indicated on the plans. Anchors shall be stainless steel in the sizes required. Tamper proof hardware shall be stainless steel.

PART 3 - EXECUTION

3.1 EXCAVATING FOR FOUNDATION

- A. All excavation shall be cut accurately to required lines and dimensions for work on drawings and shall be large enough to provide adequate clearance for the proper execution of the work within them.

3.2 WATER FEATURE FIXTURES

- A. Spray fixtures shall be installed in accordance with the manufacturers written directions. Entire assemblies shall be installed in accurate locations, square and plumb on concrete footings and in required locations to surrounding finished grade, as shown on the plans. Anchor bolts shall be accurately set, plumb and true, in concrete footings, using templates supplied by the manufacturer.

3.3 TRAINING AND DEMONSTRATION

- A. After testing is completed and approved by the Engineer, a training and demonstration session shall be held for the City DPW Maintenance staff. The installed spray feature system shall be demonstrated for the City DPW Maintenance staff.
- B. The demonstrations shall include manual and automatic operations.
- C. The demonstration shall also include identification and operation of each component, trouble shooting for each component, winterizing the system, removal and replacement of defective components, general and specific requirements for system maintenance, and a check list for frequent attention of components.
- D. Highlights of the demonstration, including identification of components shall be videotaped for future City DPW Maintenance staff training.
- E. O & M Manual & Video: The Contractor shall furnish three (3) copies (see Submittals) of the O & M Manual (Operation & Maintenance Manual) for the spray shower system and the associated mechanical system.
 - 1. The manual shall include a checklist for trouble shooting and corrective measures in addition to operation and maintenance instructions.
 - 2. The Contractor shall also furnish an instructional video (VHS or DVD) of highlights of the M & O Training and Demonstration, including identification of components of the spray shower system.

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SECTION 31 2000

EARTHWORK

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Provide all labor, materials, equipment and incidentals necessary to perform all excavation, backfill, fill and grading required to complete the work as required and specified herein. The work shall include, but not necessarily be limited to; excavation for structures, pipe, roads; all backfilling and fill; embankment and grading; disposal of waste and surplus materials; and all related work such as sheeting, bracing and pumping.
- B. If existing gas or water pipes, buried electrical, telephone or telegraph ducts, conduits, sewers, drains or poles are blocked or interfered with by the excavation required on this project, maintain these facilities in continuous operation and restore to their original condition.

PART 2 - PART 2 - MATERIALS & PRODUCTS

2.1 NATURAL MATERIALS DEFINED

- A. Borrow: as classified herein is defined as material required for earthwork construction in excess of suitable material available from excavating or grading. Borrow may be necessary even though not shown on the plans. It shall be the responsibility of the Contractor, at his own expense, to supply borrow wherever and whenever required in the work, unless payment for same, at a mutually agreed upon price, is authorized in writing by the Owner's Representative and approved by the Owner. All borrow, before being used in the work, must be approved by the Owner's Representative.
- B. Crushed Stone: as classified herein shall meet New York State Department of Transportation Specifications 703-02 and shall conform to the requirements of Tables 703-2 and 703-3 of those specifications.
 - 1. Crushed stone for structure and slab foundations shall be New York State Department of Transportation material designation 703-0201. Stone shall have a primary size of (1.5) inches and a size designation of 3A.
 - 2. Embedment material is the material which forms the contact between a pipe being laid in a trench, the trench wall and the foundation upon which it rests. As classified herein it shall mean clean, durable, sharp angled fragments of uniform quality, crushed stone which conforms Class 1 Angular standards, dense or open graded, with little or no fines (1/4 inch to 1" inch in size)
- C. Granular Subbase Material: as classified herein shall be a selected, graded gravel conforming to New York State Department of Transportation (DOT) Specification 304-2.02, Type 4 (item 304.05). All materials shall be well graded from coarse to fine and free from organic or other deleterious materials. Gradation shall conform to the table below:

| <u>Sieve Size Designation</u> | <u>Percent Passing by Weight</u> |
|-------------------------------|----------------------------------|
| 2 inch | 100 |
| ¼ inch | 30 - 65 |
| No. 40 | 5 - 40 |
| No. 200 | 0 - 10 |

Not more than thirty (30) percent, by weight, of the particles retained on a one-half (½) inch sieve shall consist of flat or elongated particles. A flat or elongated particle is defined herein as one which has its greatest dimension more than three (3) times its least dimension.

Foundation material shall be used in locations designated on the Contract Plans and Drawings. Foundation material may be used in slab and foundation construction, roadway subgrade construction, and pipe installation.

- D. Run-of-bank gravel as it pertains to this specification, and as classified herein, shall mean a naturally occurring mixture of stones, and clayey and/or sandy soil particles, of varying sizes, which are generally the result of glacial deposition. Run-of-bank gravel may also be referred to as "R-O-B", "run of bank material," "bank run gravel," or "gravel." Run-of-bank gravel shall be a well integrated mixture of somewhat spherically shaped and flattish type, round edged stones of like nature. No stones shall exceed four (4) inches in its greatest dimension. Colors may vary depending on geographical locations. Run-of-bank gravel shall be free from overburden, refuse, debris, plant growth, woody vegetation, organic substances, loam or silt, and such other deleterious materials. All run-of-bank gravel shall be approved by the Owner's Representative prior to its use.
- E. Processed Gravel: as it pertains to this specification, and as classified herein, shall mean a naturally occurring mixture of stones, and clayey and/or sandy soil particles, of varying sizes, which are generally the result of glacial deposition. Processed gravel shall be a well integrated mixture of somewhat spherically shaped and flattish type, round edged stones of like nature. Processed gravel shall consist of screened material with no stones exceeding ½ inches in its greatest dimension. Colors may vary depending on geographical locations. Processed gravel shall have little or no fines and be free from overburden, refuse, debris, plant growth, woody vegetation, organic substances, loam or silt, and such other deleterious materials. Processed gravel shall be approved by the Owner's Representative prior to its use.
- F. Sand, where required and approved for use by the Owner's Representative shall mean a fine man-made or naturally occurring aggregate composed of loose, hard, gritty, grains of crushed or disintegrated rock, free from a coating of any material or substance which might inhibit essential cohesion between sand and cement. Aggregates from more than one (1) source or more than one (1) type of material may be blended if such blending does not result in a violation of any conditions of this specification.

When dry, sand shall meet the following gradation requirements:

| <u>Sieve Size</u> | <u>Percent Passing by Weight</u> |
|-------------------|----------------------------------|
| 3/8 inch | 100 |
| No. 4 | 90 - 100 |
| No. 8 | 75 - 90 |
| No. 16 | 50 - 80 |

| | |
|---------|---------|
| No. 30 | 25 - 60 |
| No. 50 | 10 - 30 |
| No. 100 | 1 - 10 |

Sand containing lumps of clay, woody material, organic substances or an excess of 10% by volume of loam or silt is not acceptable.

- G. Clay Material: where required and approved for use by the Owner's Representative shall mean soil material free from excessive moisture, frost, stumps, tree roots, sod, muck, marl, vegetative matter, refuse or other unsuitable materials. Maximum particle size shall be no greater than three (3) inches in any dimension and meet or exceed the following criteria:
1. The coefficient of permeability must be equal to or less than 1×10^{-6} cm/sec as determined by ASTM-D5084.
 2. The soil particle size shall have a minimum of fifty (50) percent by weight passing the #200 sieve as determined by ASTM-D422
- H. Trench Material: as classified herein shall consist of material removed from the excavation that is suitable for final backfill, provided, however, that such material is free of sod, roots, spongy material, pieces of pavement, frozen clumps, lumps or clods of soil, mush, clay, cinders, slag, ashes, rubbish, rocks or pieces of rock measuring more than one-half (1/2) cubic foot, but in no case shall the excavation be backfilled with material which contains more than twenty (20) percent of rock, unless well blended with other acceptable material. If the material excavated is not acceptable to the Owner's Representative, and/or does not meet the above requirements, trench material shall be equivalent to run-of-bank gravel.
- I. Bedding Material: as classified herein shall consist of angular, crushed stone and stone/sand mixtures with gradations selected to minimize migration of adjacent soils and contain little or no fines.
- J. Geotextile: is herein defined as AMOCO 2002 woven geotextile or equivalent material approved by the Owner's Representative.
- K. Suitable Material: is herein defined as a material whose composition is satisfactory for use in embankment construction. The moisture content has no bearing upon such designation. In general, any mineral (inorganic) soil, blasted or broken rock and similar materials of natural or man made origin, including mixtures thereof, are considered as suitable materials. Determinations of whether a specific material is a suitable material shall be made by the Owner's Representative on the above basis.
- L. Rip-Rap: is defined herein as stone fitted and placed on streambanks or in channels in order to provide protection against erosion. Stone for RipRap shall consist of field stone or rough unhewn quarry stone. The stone shall be hard and angular and of a quality that will not disintegrate on exposure to water or weathering. The specific gravity of the individual stones shall be at least 2.5. Riprap shall be composed of a well-graded mixture of stone size so that 50 percent of the pieces, by weight, shall be larger than the d_{50} size indicated on the plans. A well graded mixture as used herein is defined as a mixture composed primarily of larger stone sizes to fill smaller voids between the stones. The diameter of the largest stone size in such as mixture shall be 1.5 times the d_{50} size. The gradation of materials provided for use as dry riprap will be accepted or rejected based on a visual examination of the material by the Engineer.

PART 3 - PART 3 - EXECUTION

3.1 GENERAL

A. Topsoil stripping & storage

1. Remove topsoil from areas which will be disturbed by construction of grading operations and stockpile in designated areas for reuse.

B. Earth removal

1. Excavate to the elevations, conditions, and dimensions indicated on the Contract Drawings plus sufficient space to permit erection of forms, and inspection of foundations. Provide and install temporary sheeting, bracing, required to maintain the excavation in a condition to permit the safe and efficient installation of the work. Upon completion of the permanent work, remove temporary work, unless directed otherwise by the Owner's Representative.
2. It shall be the responsibility of the Contractor to examine the site of the work, and after investigation, to decide for himself the character of materials to be encountered and all other existing conditions affecting the work. The Contractor shall employ the most efficient method or methods in excavating the materials so encountered. He will not be permitted to use archaic or inefficient methods or procedures which could result in a request for extra work. Bulldozers, backhoes, scrapers, excavators, front end loaders, augers, hand tools, and other equipment may be permitted for use.
3. Excavations shall be made to the dimensions and elevations indicated on the Contract Plans and Drawings. Should unsuitable material be encountered at elevations indicated, excavations shall be carried to such greater depths as may be required by the Owner's Representative to provide adequate bearing capacity. Should excavations, through error be carried to a greater depth or size than indicated or required, such additional depth or size shall be filled with foundation material to the proper elevation or size. Foundation material shall be placed in lifts not greater than six (6) inches and compacted to (95%) Standard Proctor Density. All expense required to correct this "error" shall be paid for by the Contractor.

C. Sheeting & Bracing

1. Submit shop drawings showing proposed method of providing security for excavation work including dimensions of members and the methods for fastening or securing components of the protective work.
2. Install temporary sheeting, bracing, required to maintain excavations in a condition to permit safe and efficient installation of the work and the protection of surrounding facilities. When the work is complete, remove temporary forms, shores and bracing. During withdrawal, carefully fill vacancies left by the sheeting with run-of-bank gravel or sand as conditions permit and compact.

D. Protection against water

1. Do ditching, diking, pumping, well pointing, and bailing, build drains, and do other work necessary to keep the excavation clear of ground water, sewage, or storm water during the progress of the work and until the finished work is safe from injury.
2. Dispose of water pumped or drained from the work to prevent damage to adjacent

property or to other work under construction. Protect construction against flooding.

3. Pump water from excavations into a suitable siltation basin as required by applicable regulations before discharging into any waterway.

E. Backfilling

1. Except where specifically referenced in other Detail Specifications, backfilling shall conform to the following specifications and as shown on the Detail Drawings for a particular item on the Plans and Drawings relating to this Contract:
2. In general, material removed from the excavation is suitable for final backfill, provided, however, that such material is free of sod, roots, spongy material, pieces of pavement, frozen clumps, lumps or clods of soil, mush, clay, cinders, slag, ashes, rubbish, rocks or pieces of rock measuring more than one-half ($\frac{1}{2}$) cubic foot, but in no case shall the excavation be backfilled with material which contains more than twenty (20) percent of rock, unless well blended with other acceptable material. If the material excavated is not acceptable to the Owner's Representative, the excavation shall be backfilled with run-of-bank gravel or other material approved by the Owner's Representative. Run-of-bank gravel shall be placed to a total thickness conforming to the Detail Drawings for that item, in equal lifts, with no one (1) lift exceeding six (6) inches in thickness. Each lift shall be compacted to 95% Standard Proctor Density before the next is placed. Regardless of the type or kind of backfill used, material shall not be placed in lifts exceeding eight (8) inches in depth and each lift shall be compacted to ninety-five (95) percent Standard Proctor Density before the next lift is placed. The last two (2) lifts before grade level, shall be six (6) inches and compacted to the density indicated.

F. Waste material disposal

1. Provide labor, material and equipment to remove and dispose of unsuitable and excess excavated material off the site.
2. Load waste material in trucks of sufficient capacity and tight construction to prevent spillage. Take necessary measures to prevent the propagation of dust.
3. Obtain an off-site disposal area before beginning demolition or excavation operations.
4. If the disposal site is located on private property, submit to the Owner's Representative written permission from the Owner prior to the start of dumping.
5. Dispose of waste material in locations and under conditions that comply with federal, state and local laws and regulations.
6. Do not obstruct the flow of natural water courses with disposed waste material. At no time shall any waste material be deposited in stream corridors, flood plains, or wetlands but shall be disposed of as directed by the Owner's Representative.
7. Upon completion of disposal operations, leave the site in a condition acceptable to the Owner.

G. Site Grading

1. Grade the project site as indicated on the contract drawings. Begin grading after other

construction and backfilling is complete. Do not disturb or damage underground construction such as sewers, drainage pipes or drainage structures.

2. Rough grade as follows:

- a. Grade areas with ground cover to four (4) to six (6) inches below finished grade and grade areas within rough graded roadways to conform to surrounding areas, approximate 22 inches below final road elevation.

H. Finish grading

1. Finish grade the completed work area within the limits designated on the Contract Drawings.
2. Do not commence finish grading until construction, fill, backfilling, and rough grading operations have been completed and approved, except as authorized by the Owner's Representative.
3. Grade lawns, when compacted, to the elevations and grades shown on the Contract Drawings. Use topsoil previously stripped and stockpiled or, if required, obtained from off the site. Provide topsoil from off the site at no additional cost to the Owner. Topsoil shall be spread to depths not less than four (4) nor greater than six (6) inches.
4. Prior to landscaping operations, the landscaper shall inspect the finish grading and notify the Contractor and Owner's Representative if additional soil is required.

3.2 STRUCTURE EXCAVATION AND COMPACTION PROCEDURES

- A. Excavation shall be made to such widths as will give suitable room for construction or installation of the structures, for bracing and supporting, pumping and draining; and the bottom of the excavation shall be rendered firm and dry and in all respects acceptable to the Owner's Representative.
- B. Excavation and dewatering shall be accomplished by methods which preserve the undisturbed state of subgrade soils. Subgrade soils which become soft, loose, "quick", or otherwise unsatisfactory for support of structures as a result of inadequate excavation, dewatering or other construction methods shall be removed and replaced by Run-of-bank gravel or other suitable material as required by the Owner's Representative at the Contractor's expense.
- C. Dewatering shall be such as to prevent boiling or detrimental under seepage at the base of the excavation as specified herein before. The Contractor shall install such means as required to preserve the stability of the base of the operation. (See Section 312319.)
- D. Excavating equipment shall be satisfactory for carrying out the work in accordance with the Specifications. Archaic and inefficient methods will not be permitted. During final excavation to subgrade level, take whatever precautions are required to prevent disturbance and remolding of the subgrade. Material at the below subgrade level which has become softened with water shall be removed. In bearing soil, final excavation to subgrade by hand shovels or machines equipped with smooth edged buckets will be required as necessary to obtain a satisfactory undisturbed bottom. The Owner's Representative will be the sole judge as to whether the work has been accomplished satisfactorily.
- E. When excavation has reached prescribed depths, the Owner's Representative shall be notified

and he will inspect conditions. If materials and conditions are not satisfactory to the Owner's Representative, the excavation shall be carried to such greater depths as may be required to provide adequate bearing capacity.

- F. Bedding material of the type as shown on the Contract Plans and Drawings shall be placed in lifts not greater than six (6) inches. Each lift shall be compacted to at least ninety-five (95) percent Standard Proctor Density before the next lift is placed. Where no bedding material has been specified, crushed stone shall be used under all structure and slab foundations.
- G. Fill bedding materials and foundation material shall not be placed on a frozen surface or one covered by snow, or ice, nor shall snow, ice or frozen earth be incorporated in the compacted fill.

3.3 COMPACTION - GENERAL

- A. Compaction shall be performed as specified hereinafter for the particular materials and operations.
 - 1. Self-propelled compactors shall make compaction passes at a speed of approximately five (5) miles per hour.
 - 2. A pass shall be one complete coverage of the area to be compacted by the rear wheel tire treads or tractor treads in contact with the flat earth surface.
 - 3. Areas adjacent to structures, and other areas inaccessible to a roller or truck shall be compacted with approved mechanical compaction equipment. The Contractor shall also conform to additional backfilling requirements at structures as specified elsewhere in the Section or other parts of these specifications. Compaction of the fill by such means shall be to the same degree of compaction as obtained by other approved equipment and the Owner's Representative may make the necessary tests to determine the amount of compactive effort necessary to obtain equal compaction. Unless such tests indicate that modifications may be made, the fill compacted by mechanical compactors shall be placed in six (6) inch lifts and thoroughly tamped over the entire surface. Compaction equipment is subject to approval by the Owner's Representative.
- B. In freezing weather, a layer of fill shall not be left in an uncompacted state at the close of the day's operations. Prior to terminating work for the day, the final layer of compacted fill shall be rolled with a smooth-wheeled roller to eliminate ridges of soil left by compaction equipment.
- C. The surface of filled areas shall be graded to smooth true lines, strictly conforming to grades indicated, and no soft spots or uncompacted areas will be allowed in the work.
- D. Temporary bracing shall be provided as required during filling and backfilling of all structures to protect partially completed structures against all construction equipment loads, hydraulic pressures, and earth pressures.

3.4 TRENCH EXCAVATION AND BACKFILLING

- A. All trenches shall be excavated to the line, grade and typical section as shown on the plans and drawings, including any deviation(s) which may have been approved by the Owner's Representative and shall comply with all applicable regulations, laws and ordinances then in force at the time and place of construction.

1. **Removal of Improved Surfaces:**
Before any excavation is made, improved surfaces such as bituminous or concrete pavement, etc., existing over the area of the proposed trench, shall be removed. Before removal of such material is attempted, that part of the surface being removed shall be separated from the part which is to remain by the use of such tools and methods as will result in a clean line of separation between the two sections. Pavement saws, power chisels, spades, etc., capable of cutting through the material being removed shall be used and under no circumstances shall the pavement be struck or lifted until the section over the proposed excavation can safely be removed without damage to the adjacent pavement. Material so removed shall be classified as "spoil" and disposed of as per the provisions of that specification.
2. **Trench Width:**
Trench width at the ground surface may vary depending on depth, type of soil and position of surface structures, but the minimum clear width of trench, sheeted or not sheeted, measured at the spring-line of the pipe to be installed should be twelve (12) inches greater than the outside diameter of the pipe. The maximum clear width of the trench at the top of the pipe should be equal to the pipe outside diameter plus two (2) feet. In cases where the trench is exceptionally deep or where extra thick sheeting, bracing, or other systems of trench support is required, the Owner's Representative may vary these trench widths. The contractor will not be permitted to use methods of excavation which cause excessively wide trenches, undue disturbance of existing pavement or unreasonable interference with traffic.
3. **Trench Support**
Where an unstable or flowing soil condition is encountered in the trench wall, such as may be found when excavating below ground water level or in weak or non-cohesive soils, such conditions must be stabilized before any attempt is made to install pipe, manholes, catch basins or other appurtenances in the trench. The method used to obtain this stabilization is dependant upon the cause and severity of the condition. The contractor may use tight or skeleton sheeting, stay bracing, or trench jacks to support the trench during pipe laying operations, but the method which he contemplates using shall be subject to review and approval by the Owner's Representative before any support system is adopted.

Under certain conditions it may be necessary to leave sheeting in place to prevent migration between material used beneath and around the pipe and trench wall material. Timber sheeting, when used below the top of the pipe, shall be driven approximately two (2) feet below the bottom of the pipe and when there is a possibility that "pulling" the sheeting might result in a collapse of the trench wall and a widening of the trench at the top of the conduit before backfill can be placed, the Owner's Representative may direct that all or a part of the sheeting be left in place. The Owner's Representative may also direct that sheeting be cut off and left in place approximately one and one-half (1½) feet above the top of the pipe, if there is a possibility that removal of the sheeting would leave a void in the embedment material between the pipe and the trench wall after embedment material has been compacted. Steel sheeting, because of it's thinness, and when properly installed, may be withdrawn with about the same factor of safety against settlement of the surfaces adjacent to the trench wall as that for timber sheeting left in the trench. Removal of bracing between sheeting shall be carried out as backfilling proceeds and in such manner that does not relax trench support.
4. **Trench Bottom**
The trench bottom shall be smooth and free from stones, clods, frozen soil or any deleterious material which will hamper the installation of pipes, conduits, structures

and appurtenances. In most installations where the pipe to be laid does not exceed twelve (12) inches in diameter, the trench should be undercut by machine and brought up to grade by use of granular embedment material or other material approved the Owner's Representative.

5. Dewatering:
Where conditions are such that running or standing water occurs in the trench bottom, or the soil in the trench bottom displays a "quick" tendency, the water shall be removed by pumps or other suitable means such as well points or pervious under drain bedding until the pipe has been installed and sufficient backfill has been placed over the pipe to prevent floatation of the pipeline.
6. Conflicting Obstructions:
Certain conflicting obstructions may be encountered in excavating trenches relative to this classification which may, or may not, be shown on the plans and drawings. Such obstructions may be, but are not limited to, public, private, or utility owned surface or subsurface structures such as water, sewer or gas lines; electric, telephone or cable-vision cables, conduits, boxes or vaults; manholes, catch basins, cesspools or septic tanks; all, some, or none of which may be in current use. The contractor shall be responsible for all conflicting surface and sub-surface structures, utilities and obstructions. He shall bear all expense arising from obstructions encountered and shall perform all locating or causing to be located, protection, repair of damage, and necessary removal, adjustment and relocation. When a conflicting publicly or privately owned utility is required to be relocated by its owner, the contractor shall cooperate with the utility owner and shall locate, excavate, protect and expose the utility at the contractor's expense. The contractor shall not be due claims for damages arising from any delays encountered thereby.
7. Storage and Disposal of Suitable Material:
All excavated material, which is suitable and approved for backfill or fill, shall be placed in storage piles until it can be used in the work. It shall not be placed close to the sides of excavations, where the weight of the material could create a surcharge on such sides, whether sheeted or not. Places for storage shall be as provided by the contractor. Hydrants under pressure, water and gas valves, manhole covers, fire and police call boxes, or other utility controls shall be left unobstructed and accessible at all times. Gutters shall be kept open or other satisfactory provisions made for street drainage. Natural water courses shall not be obstructed and, unless otherwise approved, stockpiles shall not obstruct adjacent streets, walks or driveways. Excavated material in excess of that required for backfill, fill, topsoil or other purposes, as shown or directed, including any stored surplus, shall remain the property of the owner and stockpiled as directed by the Owner's Representative, unless the contractor is directed in writing to dispose of said material.
8. Disposal of Unsuitable Material:
All excavated material classified as spoil shall be disposed of as per Article 312000-1.07 of these specifications.
9. Over Excavating:
During the course of construction, if the trench bottom should be inadvertently excavated below grade, more than twelve (12) inches, it shall be brought back to grade by filling with foundation material compacted in 6" lifts to 95% Standard Proctor Density, with the cost of labor and material being borne by the contractor.
10. Dust Control:

Provision shall be made at every job site to control the amount of airborne dust resulting from construction operations by wetting debris and other materials and the immediate work area with appropriate spraying agents or other means acceptable to the Owner's Representative.

11. Landmarks:

It shall be the responsibility of the Contractor to take all precautionary measures necessary to insure that all survey markers, bench marks, property line markers, monuments, etc. are not disturbed during the work. However, if any of the markers so mentioned are moved inadvertently or otherwise during the work, the Contractor shall be responsible for their being replaced in the exact location which they occupied before being moved. Should there be any question regarding the exact location called for, the Contractor shall immediately notify the Owner's Representative who will arrange for the location(s) to be re-established by survey at the Contractor's expense.

12. Backfilling – General:

After the pipe has been installed, inspected and referenced by the Owner's Representative as called for in other parts of these specifications, the trench shall be backfilled in such manner as will conform to the following specifications and as shown on the detail drawing of a typical pipe and accessory installation, on the plans and drawings relating to this project (contract).

a. Initial Backfill

Backfill shall be carefully placed in the trench in lifts not to exceed eight (8) inches in depth, with each lift being evenly hand-leveled from trench wall to trench wall and carefully compacted to ninety-five percent (95%) Standard Proctor Density (see ASTM D698 or AASHTO T99). Materials and depths of materials shall be in accordance with the plan details and other contract documents.

b. Final Backfill under Roadways

Under improved surfaces or surfaces to be improved and shoulders of streets, roads, aprons, curbs and walks, final backfill material shall be placed in lifts not exceeding eight (8) inches in depth and each lift compacted to a ninety-five percent (95%) Standard Proctor Density before the next lift is placed in the trench. The last twelve inches (12") before subbase level shall be placed in two (2) six inch (6") lifts, which shall be leveled to correspond with adjacent surfaces within plus or minus (\pm), one (1) inch after compacting.

In general, material removed from the trench during excavation is suitable for final backfill, provided, however, that such material is free of sod, roots, spongy material, pieces of pavement, frozen clumps, lumps or clods of soil, mush, clay, cinders, slag, ashes, rubbish, rocks or pieces of rock measuring more than one half ($\frac{1}{2}$) cubic foot, but in no case is the trench to be backfilled with material which contains more than twenty percent (20%) of rock, unless well blended with other acceptable material. If material excavated from the trench is not acceptable to the Owner's Representative, the trench shall be backfilled with a good grade of run-of-bank gravel or other material which has been approved by the Owner's Representative. Regardless of the type or kind of backfill used, specifications relating to lifts and compaction shall be observed. For backfilling on slopes refer to subparagraph (d) of this Article.

c. Final Backfill under Lawns, Open Fields and Unimproved Rights-of-Way

Final backfill material used under lawns, open fields and unimproved rights-of-way need not be as carefully selected as was the material specified for use under improved surfaces but material containing roots, slop, spongy material, pieces of pavement, frozen lumps of soil, mush, clay, rubbish or rocks more than one half (½) cubic foot will not be considered acceptable. With the exception of finished lawn areas and unless otherwise ordered by the Owner's Representative, mechanical compaction as called for under improved surfaces will not be required. Material shall be deposited in lifts and machine spread until the surface layer can be rolled with the placement equipment. Unless topsoiling and seeding is to follow, the surface shall be mounded and maintained by filling all sunken areas until final acceptance of the work. In areas where seeding is to follow, the top four (4) to six (6) inches of the trench shall be filled with topsoil as specified in Part 1 of this specification. For backfilling on slopes refer to subparagraph (d) of the Article.

d Backfilling on Slopes

In trenches on slopes, the "French Drain" effect on fill which has not been completely consolidated may result in surface or groundwater, washing out soil from under or around the pipe, thus reducing or eliminating support of the pipeline. Where such conditions are present, lifts in the final backfill shall be reduced to four (4) inches in depth with each lift being compacted as called for in subparagraph (b) of this Article. Under conditions where the slope is extreme, the Owner's Representative may order the installation of concrete collars, keyed into the trench sides and foundation as a precaution against pipeline failure.

13. Protect areas that have been finish graded from construction traffic. Repair any area that has become rutted or has settled below the indicated grades.

3.5 HAND AND PNEUMATIC EXCAVATION

- A. Trenching/Excavation shall be accomplished either by hand or with a pneumatic device such as an Air-Spade® CGP System, as manufactured by Concept Engineering Group, Inc. Verona, PA, or approved equal.
- B. The Contractor shall provide a compressor unit for operating the pneumatic excavator rated at one hundred fifty standard cubic feet per minute (150 scfm) at ninety pounds per square foot gauge (90 psfg).
- C. All pneumatic excavation shall be as minimal as possible in width and depth, thereby minimizing the impact on tree roots and other areas where the Owner's Representative determines that conventional machine excavation may be detrimental.
 1. Different nozzles may be used on the air spade to expedite the work or minimize the amount of airborne material.
 2. Depth shall be as indicated on Contract Drawings or as directed by the Owner's Representative.

- 3. Depths greater than 18" shall require removal of soil by hand shovel, or other appropriate means.
- D. Where a pneumatic device is used, care shall be taken to avoid rocks being scattered and inadvertently damaging private or public property.
- E. Operators must be equipped with adequate protective clothing and gear, in accordance with manufacturer's recommendations.
- F. All tree roots exposed by the pneumatic or hand excavation operation must be kept constantly moist with burlap covered with white plastic and checked a minimum of two (2) times a day, once in the morning and once in the afternoon, for a maximum of forty-eight (48) hours, until backfill is complete as directed by the Owner's Representative, or his designated representative. If directed, soaker hoses shall be installed to facilitate properly moist conditions.
- G. Necessary inspections of piping shall be scheduled in advance, especially those involving inspections performed by outside Agencies.
- H. In cases where roots must be cut, the Contractor must receive written approval from the Owner's Representative or his designated representative prior to cutting any roots.
 - 1. Roots must be cut cleanly with pruning shears, loppers, or pruning saws.
 - 2. All root cuts must be approved by the Owner's Representative prior to backfilling.
- I. Any overruns of quantity on this item shall be identified and approved prior to use, in writing, by the Owner's Representative.
- J. Disposal: Where required, disposal of materials designated as contaminated (hazardous and non-hazardous) shall be paid for separately under their respective contract items.
- K. Cleaning: At completion of work, Contractor shall remove excess soil material and dust. Dust that has settled on work to remain or surrounding structures adjacent to work area shall also be removed.

PART 4 - PART 4 - QUALITY ASSURANCE & QUALITY CONTROL

4.1 QUALITY ASSURANCE

- A. All finished grades shall be as shown on the drawings or as specified by the Owner's Representative.
- B. The Contractor shall provide on-site at least one person who shall supervise the soil compaction operations and who shall be thoroughly familiar with the various types of compaction equipment, proper compacting techniques and methods, and soil behavior, and who shall direct the compaction operations.
- C. All appropriate erosion control measures shall be performed in accordance with the contract documents.

- D. Clear and grub in accordance with Section 311000.

4.2 SUBMITTALS

- A. The Contractor shall submit adequate copies of details and full descriptions of his proposed construction methods to the Owner's Representative in advance of the use of any sheeting or other method of structure or earth support.
- B. Submit copies of permits to the Owner's Representative obtained for off-site borrow areas prior to hauling these materials to the site.
- C. Contractor shall submit sieve analysis (ATSM-D422); and modified / standard proctor test results (ASTM-D698,D1557)for all soil material used as trench backfill, road subbase and foundation subbase. Test results shall be submitted to Owner's Representative prior to placement of material. Material shall not be placed until permission for use is given by the Owner's Representative.

4.3 COMPACTION FIELD QUALITY CONTROL

- A. The Owner's Representative shall request soil testing to be performed by the Contractor at his discretion in accordance with the following average frequencies:
1. Roads and Driveway Areas - One test for each layer of compacted fill and base materials at intervals of approximately 200 feet along roadway or one test every 2500 square feet of parking for each layer of compacted fill or backfill.
 2. Under Structures, Foundations, Slabs, and Footings - One test for every 100 square foot area for each layer of compacted fill or backfill.
 3. Embankments - One test for every 100 feet of compacted fill layer placed or one test for each 2500 square feet of parking area per layer of compacted fill.

4.4 COMPACTION PERFORMANCE STANDARDS

- A. Compaction densities shown are percentages of the maximum density obtainable at optimum moisture content as determined by ASTM D1557, Method C. Field tests may be performed by the Owner in accordance with either ASTM D1556 or D2022 to verify compaction.
- B. Moisten or dry each layer of material to achieve optimum moisture content. Unless otherwise specified or directed by the Owner's Representative, compact each layer of material to the following required densities:

| <u>Location</u> | <u>Percentage of Modified Proctor Test Density</u> |
|--|--|
| Under Concrete Slabs, Structures, Foundations and Footings: | |
| - embankment foundations (upper 12"; in fill sections) | 95% |
| - subgrade surface(upper 12"; in cut sections) | 95% |

- embankment below subbase 95%
- subbase 98%

Under Paved Areas:

- embankment foundation (upper 12"; in fill sections) 95%
- subgrade surface (upper 12"; in cut sections) 95%
- embankment below subbase 95%
- subbase 98%

Trench Backfill

- under traffic areas (including sidewalks) 95%
- non-traffic areas 90%

Backfilling at Structures 95%

Undercut Backfill 95%

Lawn Areas (non-load bearing) 90%

END of SECTION 31 2000

SECTION 31 2316

ROCK REMOVAL

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section as shown or specified shall be in accordance with the requirements of the Contract Documents. Cost for rock removal work shall be covered under a change order established prior to removal.
- B. All Sections in Division 01 – General Requirements.

1.2 SECTION INCLUDES

- A. Rock: Limestone, sandstone, shale, granite, and similar material in solid beds or masses in its original or stratified position which can be removed only by blasting operations, drilling, wedging, or use of pneumatic tools, and boulders with a volume greater than 1.0 cu yd. Concrete building foundations and concrete slabs, not indicated, with a volume greater than 1.0 cu yd shall be classified as rock.
 - 1. Limestone, sandstone, shale, granite, and similar material in a broken or weathered condition which can be removed with an excavator or backhoe equipped with a bucket with ripping teeth or any other style bucket shall be classified as earth excavation.
 - 2. Masonry building foundations, whether indicated or not, shall be classified as earth excavation.
- B. Unauthorized Rock Removal:
 - 1. The removal of any rock prior to performing the measurements/work required to determine quantities.
 - 2. The removal of material below required elevation indicated on the Drawings or beyond lateral dimensions indicated or specified without specific written direction by the Director.
- C. General Rock Removal: Quantities of rock removal will be paid for as General Rock Removal when:
 - 1. The width of rock removed, as per measurement limits, is greater than or equal to the total excavation depth required.
 - 2. Boulders removed have a volume greater than 1.0 cu yd.
- D. Trench and Pier Rock Removal: Quantities of rock removal will be paid for as Trench and Pier Rock Removal when the width of rock removed, as per measurement limits, is less than the total excavation depth required.

1.3 REFERENCES

- A. Comply with the applicable requirements of the Code of Federal Regulations Title 29 - Labor, Part 1926 Safety and Health Regulations for Construction (OSHA).

1.4 SUBMITTALS

- A. Rock Removal Procedure: Submit a detailed outline of intended rock removal procedure for the Director's information. This submittal will not relieve the Contractor of responsibility for the successful performance of method used.
- B. Measurement data for quantities of rock removal.

1.5 QUALITY ASSURANCE

- A. Pre-Rock Removal Conference: Before the rock removal work is scheduled to commence, a conference will be called by the Director's Representative at the site for the purpose of reviewing the Contract Documents and discussing requirements for the Work. The conference shall be attended by the Contractor's Representative and the person supervising the rock removal operations.

1.6 PROJECT CONDITIONS

- A. Blasting and the use of explosive materials will not be permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Backfill Materials and Other Related Earthwork: As specified in Section 31 2000.

PART 3 - EXECUTION

3.1 EXAMINATION, VERIFICATION & MEASUREMENT

- A. Examination of Existing Property and Construction: Prior to starting rock removal Work, thoroughly examine the existing property and construction at the site and record, with notes and drawings or other documentation, existing defects and deterioration. Make this information available to the Director's Representative upon request.
- B. Prior to removing material classified as rock, excavate test pits down to rock for the purpose of verifying the presence of sound rock and determining top of rock elevations.
 - 1. Verification of Sound Rock: Demonstrate to the Director's Representative that materials to be classified as rock cannot be removed utilizing a backhoe or excavator equipped with any form of bucket, including a bucket equipped with ripping teeth.
 - 2. Required Measurements: Take elevations and measurements as required for the purpose of determining the quantities of rock removal. Record all measurement

data and submit a copy of the data to the Director's Representative. Backfill test pits prior to rock removal as directed. Unless otherwise indicated or directed, excavate test pits as follows:

- a. For Structures: One pit for each structure or one pit for each 1000 sq ft, whichever is greater.
- b. For Paved Areas: 3 pits for each 2500 sq ft.
- c. For Utility Lines: One pit for each 100 lin ft.

3.2 SITE PREPARATION

- A. Schedule a site meeting with the Director's Representative and facility personnel to review the rock removal procedures in detail.
- B. If required, have seismographs in place and operational as well as all safety equipment and/or fencing.

3.3 ROCK REMOVAL

- A. Remove rock as required by the Drawings and as necessary for the installation of the Work. Make sufficient clearance, within the limits specified, for the proper execution of the Work.
- B. Volume Determination: To be coordinated among all parties prior to start of actual work.

3.4 FIELD QUALITY CONTROL

- A. Provide the Director's Representative with the recorded top of rock elevations. Prior to the performance of any rock removal operations obtain, in writing, that the Director's Representative has reviewed the information and is in agreement with the measurements taken.
- B. Allow time for visual inspection of bottom of rock cut required for the Work.

3.5 DISPOSAL OF EXCESS AND UNSUITABLE MATERIALS.

- A. Remove from site property and dispose of excess and unsuitable rock materials.
- B. Transport excess and unsuitable rock materials to areas designated by the Director's Representative, and dispose of such materials as directed.

3.6 CLEANING

- A. Where footings and walls will rest entirely on rock, clean rock surfaces free of soil and loose rock.

END OF SECTION 31 2316

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SECTION 31 2333

ROOT PINNING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY OF WORK

- A. Contractor shall perform root pinning, in accordance with the plans, specifications, and as directed by the Owner's Representative.

1.3 RELATED SECTIONS

- A. Section 31 2000 – Earthwork.

PART 2 - PRODUCTS

2.1 STEEL REBAR

- A. Steel rebar shall be size No. 2, a minimum of four (4) feet in length, adequate for effective driving depth.

2.2 FOAM PIPE INSULATION

- A. Foam pipe insulation shall be foam pipe insulation a minimum of half (1/2) inch thick and fits snugly around quarter (1/4) inch pipe.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF ROOTS TO BE PINNED

- A. No roots shall be pinned except as directed by and in the presence of the Owner's Representative or his designated representative. Root Pinning may not be performed when the ground is frozen.
- B. Prior to beginning work, the area to be excavated shall be thoroughly wetted, 24 hours in advance, to minimize dust to the greatest extent possible.
- C. All tree roots exposed by the pneumatic or hand excavation operation must be kept constantly moist with burlap covered with white plastic and checked a minimum of two (2) times a day, once in the morning and once in the afternoon, for a maximum of forty-eight (48) hours, until

backfill is complete as directed by the Owner's Representative, or his designated representative. If directed, soaker hoses shall be installed to facilitate properly moist conditions.

3.2 HAND/PNEUMATIC EXCAVATION

- A. Roots shall be exposed in accordance with Section 31 2000 "hand pneumatic excavation" item.
 - 1. All soil surrounding the offending root shall be removed cautiously either by hand or with a pneumatic device such as an Air-Spade® CGP System, as manufactured by Concept Engineering Group, Inc. Verona, PA, or approved equal.
 - 2. The Contractor shall provide a compressor unit for operating the pneumatic excavator rated at one hundred fifty standard cubic feet per minute (150 scfm) at ninety pounds per square foot gauge (90 psfg).
 - 3. All excavation shall be as minimal as possible in width and depth to obtain the necessary clearance to allow for the elevation of the root to be altered accordingly and in the direction of the Owner's Representative, thereby minimizing the impact on tree roots.
 - 4. Different nozzles may be used on the air spade to expedite the work or minimize the amount of airborne material.
 - 5. Where a pneumatic device is used, care shall be taken to avoid rocks being scattered and inadvertently damaging private or public property.
 - 6. In addition, operators must be equipped with adequate protective clothing and gear, in accordance with manufacturer's recommendations.

3.3 BENDING

- A. All steel rebar shall be bent cold.
- B. Only competent mechanics shall be employed for cutting and bending, and proper appliances shall be provided for such work.
- C. The reinforcement shall be bent to the shapes shown on the plans or approved shop drawings.
- D. Bends shall be made around a pin having a diameter not less than six times the minimum thickness of the bar, except that for bar larger than one inch the pin shall not be less than eight times the minimum thickness of the bar.
- E. Reinforcement shall be formed to the approximate diameter of the root.

3.4 CUSHIONING

- A. The foam pipe insulation shall be wrapped around each bar and positioned to prevent the steel rebar from directly contacting the root.
- B. Steel Rebar wrapped in pipe insulation shall be spaced not more than two (2) feet apart, perpendicular to the orientation of the root, as determined by the Owner's Representative, and driven into the sub grade to a depth that is adequate in permanently pinning the root to the altered elevation.

END OF SECTION 31 2333

SECTION 31 2500

EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 RELATED SECTIONS

- A. Section 312000 - Earthwork.

1.2 REFERENCES

- A. Erosion and Sediment Control Guidelines: Conform to the latest edition of “NEW YORK STANDARDS and SPECIFICATIONS for EROSION and SEDIMENT CONTROL” by NYS Department of Environmental Conservation DOW (i.e., Bluebook). Refer to these guidelines for construction and maintenance of all items (Temporary and Permanent Structural, Vegetative and Biotechnical).
- B. Storm Water Management: Conform to the latest edition of “NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL” prepared by Center for Watershed Protection for NYS Department of Environmental Conservation.

1.3 RESPONSIBILITY

- A. During construction conduct operations in such a manner as to prevent or reduce to a minimum any damage to any water body from pollution by debris, sediment, chemical or other foreign material, or from the manipulation of equipment and/or materials in or near a stream or ditch flowing directly to a stream. Any water which has been used for wash purposes or other similar operations which become polluted with sewage, silt, cement, concentrated chlorine, oil, fuels, lubricants, bitumens, or other impurities shall not be discharged into any water body.
- B. In the event of conflict between these specifications and the regulation of other Federal, State, or local jurisdictions, the more restrictive regulations shall apply.

1.4 SECTION INCLUDES

- A. The Work shall consist of furnishing, installing, inspecting, maintaining, and removing soil and erosion control measures as shown on the contract documents or as ordered by the Owner’s Representative during the life of the contract to provide erosion and sediment control.
- B. Temporary structural measures provide erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion. These are used during construction to prevent offsite sedimentation. Temporary structural measures shall include check dams, construction road stabilization, stabilized construction entrance, dust control, earth dike, level spreader, perimeter dike/swale, pipe slope drain, portable sediment

tank, rock dam, sediment basin, sediment traps, silt fence, storm drain inlet protection, straw/hay bale dike, access waterway crossing, storm drain diversion, temporary swale, turbidity curtain, water bars or other erosion control devices or methods as required.

- C. Permanent structural measures also control protection to a critical area. They are used to convey runoff to a safe outlet. They remain in place and continue to function after completion of construction. Permanent structural measures shall include debris basins, diversion, grade stabilization structure, land grading, lined waterway (rock), paved channel, paved flume, retaining wall, riprap, rock outlets, and stream bank protection or other erosion control devices or methods as required.
- D. Vegetative measures shall include brush matting, dune stabilization, grassed waterway, vegetating waterway, mulching, protecting vegetation, seeding, sod, straw/hay bale dike, stream bank protection, temporary swale, topsoil, and vegetating waterways.
- E. Biotechnical measures shall include wattling (live fascines, brush matting, brush layering, live cribwall, and branchpacking) vegetated rock gabions, live staking, tree revetment, and fiber rolls.
- F. Weekly inspections will be completed by the Owner's Representative. Comply with and correct all deficiencies found as a result of these inspections. At the end of the construction season when soil disturbance activities will be finalized or suspended until the following spring, the frequency of the inspections may be reduced. If soil disturbance is completely suspended and the site is properly stabilized, a minimum of monthly inspections must be maintained. The stabilization activities must be completed before snow cover or frozen ground. If vegetation is required, seeding, planting and/or sodding must be scheduled to avoid die-off from fall frosts and allow for proper germination/establishment. Weekly inspections must resume no later than March 15.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All materials shall be submitted for approval prior to installation.
- B. Materials may include hay bales, straw, fiber mats, fiber netting, wood cellulose, fiber fabric, gravel, and other suitable materials, and shall be reasonably clean, free of deleterious materials, and certified weed free.
- C. Silt Fence:
 - 1. Standard silt fence with a minimum flow-through-rate of 25 gal/min/sf shall be used. Silt fence shall have a minimum tensile strength of 110 lbs, burst strength of 300 psi, and puncture strength of 60 lbs.
 - 2. Fence posts shall be a minimum of 36 inches long with a 16 inch minimum embedment. Posts shall be of quality hardwood with a minimum cross sectional area of 3.5 square inches.
- D. Silt Sacks shall be used on all storm water catch basins through the project duration to prevent sediment from entering the storm water system. Silt sacks shall be woven polypropylene geotextile. Seams shall conform to ASTM D-4884 standards.

- E. Grass Seed:
 - 1. Temporary grass cover, if required, shall be a quick growing species, suitable to the area, in accordance with local criteria and permit requirements, which will provide temporary cover, and not compete with the grasses sown for permanent cover.
 - 2. All grass seed shall be approved by the Architect and/or Engineer and in accordance with local regulations prior to installation.
- F. Fertilizer and soil conditioners shall be approved by the Architect and/or Engineer and in accordance with local regulations prior to installation.
- G. A controlled entrance shall be maintained to prevent sediment from being tracked off-site. Entrance shall be crushed stone or gravel between 1 inch and 4 inch diameter. Entrance shall be a minimum of 50 feet long and 12 feet wide. Entrance material shall be re-worked as required to maintain a thickness of 6 inches material.
- H. A concrete washout pit shall be provided for all concrete trucks and similar equipment. The pit shall be of minimum dimensions of 8' x 8' x 2' deep, lined with plastic sheeting with a minimum thickness of 10 mils with no holes or tears. Plastic sheeting shall be anchored beyond the top of the pit. Wastewater/material shall be disposed of properly off-site per local requirements.

PART 3 - EXECUTION

3.1 WORK AREAS

- A. The Owner's Representative has the authority to limit the surface area of erodible earth exposed by earthwork operations and to direct the Contractor to provide immediate temporary or permanent erosion measures to minimize damage to property and contamination of watercourses and water impoundments. The Owner's Representative may limit the area of clearing and grubbing and earthwork operations in progress commensurate with the Contractor's demonstrated capability in protecting erodible earth surfaces with temporary, permanent, vegetative or biotechnical erosion control measures.
- B. Schedule the work so as to minimize the time that earth areas will be exposed to erosive conditions. Provide temporary structural measures immediately to prevent any soil erosion.
- C. Provide temporary seeding on disturbed earth or soil stockpiles exposed for more than 7 days or for any temporary shutdown of construction. In spring, summer or early fall apply rye grass at a rate of 1 lb/ 1000 sq.ft. In late fall or early spring, apply certified Aroostook Rye at a rate of 2.5 lbs./ 1000 sq. ft. Apply hay or straw at a rate of 2 bales/ 1000 sq. ft. or wood fiber hydromulch at the manufacturer's recommended rate. Hay or straw shall be anchored.
- D. Coordinate the use of permanent controls or finish materials shown with the temporary erosion measures.
- E. All erosion and sediment control devices must be maintained in working order until the site is stabilized. All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, or re-mulching, must be performed immediately.
- F. After final stabilization has been achieved temporary sediment and erosion controls must be removed. Areas disturbed during removal must be stabilized immediately.

END OF SECTION 31 2500

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SECTION 32 0516

AGGREGATES FOR EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SECTION INCLUDES

- A. Open graded aggregate subbase course, ASTM (C-33) Size 1
- B. Well-graded aggregate base course, ASTM (C-33) Size 3
- C. Open graded aggregate (no fines) choker course, ASTM (C-33) Size 57
- D. Open graded aggregate (no fines), ASTM (C-33) Size 67
- E. Open graded fine aggregate setting bed/ joint filler, ASTM (C-33) Size 8
- F. ~~Rounded River Stone, Small and Large~~

1.3 RELATED SECTIONS

- A. All Sections in Division 01 – General Requirements.
- B. Section 03 3100 Cast-in-Place Concrete - Sitework
- C. Section 31 2000 Earthwork
- D. Section 32 0519 Geotextiles
- E. Section 32 1420 Stone Unit Pavers
- F. Section 32 4000 Landscape Boulders and Stone Seating
- G. Section 32 9113 Planting Soils
- H. Section 329 300 Landscape Planting

1.4 SUBMITTALS

- A. Test reports: Reference Specification 013300 for requirements of test report submittals.
- B. Contractor will submit gradation and mechanical analysis for each aggregate sub-base material to be used, for approval prior to ordering or delivering to site. The latest test for a source is two years old.

1.5 QUALITY ASSURANCE

- A. Testing and Inspection Service: Owner shall employ and pay for a qualified independent geotechnical testing and inspection service/laboratory to perform soil testing and inspection service during earthwork operations. Contractor shall notify Owner at least (2) two days prior to activity requiring testing, or of resumption of work following stoppages.

- B. Testing Laboratory Qualifications: To qualify for acceptance, the geotechnical testing and inspection service/ laboratory must demonstrate to Owner's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct required field and laboratory geotechnical testing without delaying the progress of the work.
- C. Perform work in accordance with applicable state and local standards.

1.6 REFERENCES

- A. ASTM C33 Standard Specification for Concrete Aggregates
- B. ASTM D1557 Test Methods for Moisture Density Relations of Soils and Soil Aggregate Mixtures.
- C. ASTM D2167 Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- D. ASTM D2922 Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth).
- E. ASTM D3017 Test Methods for Moisture Content of Soil and Soil Aggregate Mixtures.
- F. ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- G. NYSDOT Standard Specifications (latest edition) section 203-3.12 compaction.
- H. NYSDOT Standard Specifications (latest edition), Section 300 - Bases and Subbases, Section 703 - Aggregates.
- I. AASHTO M147 Materials for Aggregate and Soil Aggregate.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aggregate shall be crushed ledge rock. Material shall consist of clean, durable, sharp=angled fragments of rock of uniform quality. The crushed stone used shall be obtained from sources conforming to the requirements of the State Department of Transportation for the project site location and shall conform to the sampling, testing methods and other required procedures.
- B. Bedding and void opening aggregates shall be crushed blue stone. The granular bedding material shall be graded in accordance with the requirements of ASTM C 33.
- C. Aggregate materials used in the construction of permeable pavements shall be clean, be free of coatings, have zero plasticity and contain no No. 200 sieve size materials.
- D. The aggregate materials must serve as the structural load bearing platform of the pavement as well as a temporary receptor for the infiltrated water that is collected through the openings in the pavement's surface.
- E. Recycled Concrete Aggregate shall not be accepted.

2.2 OPEN GRADED AGGREGATE SUBBASE COURSE, ASTM (C-33) SIZE 1

- A. Size 1: Nominal 3-1/2" to 1-1/2" crushed ledge rock, open graded, washed and non-frost susceptible conforming to ASTM (C-33), Size 1 and conforming to the following gradation requirements and suitable for drainage applications:

| 1. | <u>Sieve Size</u> | <u>Percent Passing by Weight</u> |
|----|---------------------|----------------------------------|
| | 4 inch (100 mm) | 100 |
| | 3-1/2 inch (90 mm) | 90-100 |
| | 3 inch (75 mm) | - |
| | 2-1/2 inch (63 mm) | 25-60 |
| | 2 inch (50 mm) | - |
| | 1-1/2 inch (37.5mm) | 0-15 |
| | 1 inch (25 mm) | - |
| | 3/4 inch(19 mm) | 0-5 |
| | 1/2 inch(12.5 mm) | - |
| | 3/8 inch(9.5 mm) | - |
| | No. 4 (4.75 mm) | - |
| | No. 8 (2.36 mm) | - |

2.3 WELL GRADED AGGREGATE BASE COURSE, ASTM (C-33) SIZE 3

- A. Size 3: Nominal 2" to 1" crushed ledge rock, well-graded, washed and non-frost susceptible conforming to ASTM (C-33), Size 3 and conforming to the following gradation requirements and suitable for impermeable pavements and foundations:

| 1. | <u>Sieve Size</u> | <u>Percent Passing by Weight</u> |
|----|---------------------|----------------------------------|
| | 2-1/2 inch (63 mm) | 100 |
| | 2 inch (50 mm) | 90-100 |
| | 1-1/2 inch (37.5mm) | 35-70 |
| | 1 inch (25 mm) | 0-15 |
| | 3/4 inch(19 mm) | - |
| | 1/2 inch(12.5 mm) | 0-5 |
| | 3/8 inch(9.5 mm) | - |
| | No. 4 (4.75 mm) | - |
| | No. 8 (2.36 mm) | - |

2.4 OPEN GRADED AGGREGATE (NO FINES) CHOKER COURSE, ASTM (C-33) SIZE 57

- A. Size 57: Nominal 1 to #4 Sieve crushed ledge rock, open graded, without fines, washed and non-frost susceptible conforming to ASTM (C-33), Size 57 and conforming to the following gradation requirements and suitable for permeable layer between fine and coarse materials:

| 1. | <u>Sieve Size</u> | <u>Percent Passing by Weight</u> |
|----|---------------------|----------------------------------|
| | 1-1/2 inch (37.5mm) | 100 |
| | 1 inch (25 mm) | 95-100 |
| | 3/4 inch(19 mm) | - |

| | |
|-------------------|-------|
| 1/2 inch(12.5 mm) | 25-60 |
| 3/8 inch(9.5 mm) | - |
| No. 4 (4.75 mm) | 0-10 |
| No. 8 (2.36 mm) | 0-5 |
| No. 16 (1.18 mm) | - |

2.5 OPEN GRADED AGGREGATE (NO FINES), ASTM (C-33) SIZE 67

- A. Size 67: Nominal 1/2-inch graded limestone, open graded, without fines, washed and non-frost susceptible conforming to ASTM (C-33), Size 67 and conforming to the following gradation requirements and suitable as permeable layer but having minimal compaction:

| 1. Sieve Size | Percent Passing by Weight |
|-------------------|---------------------------|
| 1 inch (25 mm) | 100 |
| 3/4 inch(19 mm) | 90-100 |
| 1/2 inch(12.5 mm) | - |
| 3/8 inch(9.5 mm) | 20-55 |
| No. 4 (4.75 mm) | 0-10 |
| No. 8 (2.36 mm) | 0-5 |
| No. 16 (1.18 mm) | - |

2.6 OPEN GRADED FINE AGGREGATE SETTING BED/ JOINT FILLER, ASTM (C-33) SIZE 8

- A. Size 8: Nominal 3/8" to #8 Sieve crushed ledge rock, open graded, washed and non-frost susceptible conforming to ASTM (C-33), Size 8 and conforming to the following gradation requirements and suitable for permeable setting beds and joint filler:

| 1. Sieve Size | Percent Passing by Weight |
|------------------|---------------------------|
| 1/2 in (12.5 mm) | 100 |
| 3/8 in (9.5 mm) | 85 to 100 |
| No. 4 (4.75 mm) | 10 to 30 |
| No. 8 (2.36 mm) | 0 to 10 |
| No. 16 (1.18 mm) | 0 to 5 |

~~2.7 ROUNDED RIVER STONE~~

- ~~A. Rounded River Stone shall be a clean, washed decorative stone and shall be rounded stone in similar to river stone. Stone shall be grey, red and tan blend color equal to "Delaware Blend" as supplied by Geo. Schofield Co., Inc. Bound Brook, NJ 800-827-57; New York Sand and Stone, Brooklyn, NY 718-596-2897; Bedford Gravel & Landscape Supply, Mount Kisco, 914-241-3851 or approved equal.~~

- ~~1. Medium Rounded River Stone shall have an average length of 12 inches to 14 inches and shall be at least half as wide in diameter measurement.~~
- ~~2. Small Rounded River Stone shall have an average length of 6 inches to 8 inches and shall be at least half as wide in diameter measurement.~~

- ~~B. Rounded River Stone shall be free of all mud, dust or other coatings and shall be power washed to enhance appearance following installation.~~

2.8 SOURCE QUALITY CONTROL

- A. Perform testing and analysis of aggregate material in accordance with ASTM C136.
1. If tests indicate materials do not meet specified requirements, change material or material source and retest.
 2. Provide materials of each type from same source throughout the work.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify substrate has been inspected, gradients and elevations are correct, including crowns and cross sections, and is dry.

3.2 STOCKPILING

- A. Stockpile materials on site as needed at locations designated by the Owner's Representative.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.3 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.
- C. Proof roll sub-grade thoroughly using a 10-ton roller with two passes, the second pass perpendicular to the first.

3.4 AGGREGATE PLACEMENT

- A. Place aggregate sub-base on the prepared sub-grade in layers of uniform thickness, conforming to the cross-section and thickness indicated on the plans. Maintain the optimum moisture content for compacting the aggregate sub-base during placement operations.
- B. When a compacted aggregate sub-base course is shown to be 6" thick or more, place the material in equal layers, except no single layer more than 8" or less than 3" in thickness when compacted.
- C. Level and contour surfaces to elevations and gradients indicated. Place in such a manner to minimize segregation. No aggregate sub-base shall be placed under adverse weather conditions.
- D. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
- E. All compaction requirements shall be in accordance with NYSDOT Standard Specification section 203-3.12. The depth of each sub-base course shall not exceed the compactor's capability. Each compactor lacking the original manufacturer identification plates, or with altered or

illegible plates, will not be recognized as acceptable compaction equipment and shall be removed from the site.

- F. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- G. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- H. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
- I. When the pavement sub-base becomes mixed with the sub-grade or any other material, it shall be removed and replaced with the appropriate material. The movement of any traffic over the fine graded aggregate sub-base is not recommended. When damage or contamination occurs, it must be repaired before paving begins.

3.5 TOLERANCES

- A. Fine grading of the pavement sub-base finish course shall not vary more than 1/2 inch above or below true grade at any point.
- B. Scheduled Compacted Thickness: Within 1/4 inch.
- C. Flatness: Maximum variation of 1/2 inch measured with a 10-foot straight edge.

3.6 FIELD QUALITY CONTROL

- A. Quality Control Testing during construction: Allow testing service to inspect, test and approve each aggregate sub-base layer before further backfill or construction work is performed. Testing service shall review and test material and determine optimum moisture at which maximum density can be obtained in accordance with ASTM D 1557, modified proctor.
- B. Field Compaction testing will be performed in accordance with ASTM D1556 (sand cone method), ASTM D2167 (rubber balloon method), or ASTM D2922 (nuclear method).
- C. If tests indicate work does not meet specified requirements, remove work, replace and re-test.
- D. Frequency of Tests: Make at least one field density test for each layer of aggregate sub-base every 2,000 sq. ft.

3.7 MAINTENANCE AND CLEAN-UP

- A. Protection of graded areas: Protect newly graded and compacted aggregate sub-base courses from traffic and erosion. Repair and re-establish grades in settled, eroded and rutted areas.
- B. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.
- C. Remove all excess materials and debris from the Owner's property.

END OF SECTION 32 0516

SECTION 32 0519

GEOTEXTILES

PART 1 - GENERAL

A. RELATED DOCUMENTS:

1. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SECTION INCLUDES

A. Work shall include furnishing and installing geotextiles as follows:

1. Geotextile – separation
2. Geotextile – stabilization
3. Geotextile - drainage

1.3 RELATED SECTIONS

- A. All Sections in Division 01 – General Requirements.
- B. Section 31 2000 Earthworks
- C. Section 32 0516 Aggregates for Exterior Improvements

1.4 REFERENCES

- A. References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.
- B. American Society for Testing and Materials (ASTM)
 1. ASTM D4595- 17 Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method
 2. ASTM D4632- Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
 3. ASTM D4533- Standard Test Method for Trapezoid Tearing Strength of Geotextiles
 4. ASTM D4833- Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
 5. ASTM D4491- Standard Test Methods for Water Permeability of Geotextiles by Permittivity
 6. ASTM D4751- Standard Test Methods for Determining Apparent Opening Size of a Geotextile
- C. AASHTO
 1. AASHTO-M-288-Standard Specification for Geotextile Specification for Highway Applications

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, standard detail, and installation instructions. Certify products meet or exceed specified requirements.
- B. Samples: Submit two samples of the geotextiles intended for use in the work for approval. The label shall include the manufacturer's product name, the type of fabric, and the weight of grade of the material. Geotextiles used in the work shall conform to the approved samples.
- C. Soil Testing for Large Quantities: Where quantity of Geotextile - Drainage exceeds four hundred and fifty (450) square yards, the Contractor shall submit soil testing of existing soil prior to the selection and submittal of the specific geotextile.
 - 1. The Contractor shall furnish a certified report by an approved Materials Testing Laboratory showing the in-situ soil condition.
 - 2. Contractor shall submit the result of the sieve analysis indicating percent passing through a standard No. 200 US Sieve along with the Geotextile sample.
 - 3. The grain size analysis of in-situ soil shall be in accordance with AASHTO T88. Contractor shall obtain a minimum of one soil sample per one hundred and fifty (150) square yards of area covered.
 - 4. The Contractor shall bear responsibility for all costs associated with laboratory testing.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Each geotextile roll shall be wrapped with a material that will protect the geotextile, including the ends of the roll, from damage due to shipment, water, sunlight, and contaminants.
- B. The protective wrapping shall be maintained during periods of shipment and storage.
- C. During storage, geotextile rolls shall be elevated off the ground and adequately covered to protect them from the following: site construction damage, precipitation, extended ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, and any environmental condition that may damage the physical property values of the geotextile.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Geotextiles, except where otherwise described in other sections shall be as indicated below.
- B. Fibers used in the manufacture of geotextiles, and the threads used in joining geotextiles by sewing, shall consist of long-chain, synthetic polymers, composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The geotextile and the threads used in sewing geotextiles, shall be resistant to chemical attack, rot, and mildew. The geotextile shall have no tears or defects which adversely alter its physical properties. They shall be formed into a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages. The geotextile shall have no tears or defects which adversely alter its physical properties.

2.2 SEPARATION GEOTEXTILE

- A. Geotextile used in separation applications shall be FX66 manufactured by Carthage Mills, Cincinnati, OH, or 600X (woven) or 160N (nonwoven) as manufactured by Mirafi, Inc., Charlotte, NC, or TerraTex HD (woven) or TerraTex N06 (nonwoven) as manufactured by Hanes Geo Components, Edison, NJ, or approved equal.

- B. Separation application is defined as the placement of a flexible porous geotextile between dissimilar materials so that the integrity and functioning of both materials can be maintained or improved, but where water seepage through the geotextile is not a critical function.
- C. Geotextiles used in separation applications shall conform to the following AASHTO-M-288 properties for separation geotextiles.

| Structure | ASTM TEST | Woven | Non Woven |
|---------------------------------|-----------|--|--|
| Elongation | D4595 | < 50% | ≥ 50% |
| Grab Strength (Minimum) | D4632 | 1100 N (247 LBF) | 700 N (157 LBF) |
| Tear Strength (Minimum) | D4533 | 400 N (90 LBF) | 250 N (56 LBF) |
| Puncture Strength (Minimum) | D4833 | 400 N (90 LBF) | 250 N (56 LBF) |
| Permitivity (Minimum) | D4491 | 0.02 /sec. | 0.02 /sec. |
| Apparent Opening Size (Maximum) | D4751 | 0.6 mm (0.023 inch) Std. No. 30 sieve | 0.6 mm (0.023 inch) Std. No. 30 sieve |

2.3 STABILIZATION GEOTEXTILE

- A. Geotextile used in stabilization applications shall be (woven) FX66 by Carthage Mills, or (woven) 600X as manufactured by Mirafi, Inc. or (woven) TerraTex HD as manufactured by Hanes Geo Components or approved equal.
- B. Stabilization application is utilized in wet, saturated conditions to provide the coincident functions of separation and filtration. In some installations, the geotextile can also provide the function of reinforcement. The stabilization application is appropriate for subgrade soils that are saturated due to a high groundwater table or due to prolonged periods of wet weather.
- C. Geotextiles used in stabilization applications shall conform to the following AASHTO M-288 properties for stabilization geotextiles:

| | ASTM Test | | |
|---------------------------------|-----------|--|--|
| Structure | | Woven | Non Woven |
| Elongation | D4595 | < 50% | ≥ 50% |
| Grab Strength (Minimum) | D4632 | 1400 N (315 LBF) | 900 N (205 LBF) |
| Tear Strength (Minimum) | D4533 | 500 N (112 LBF) | 360 N (80 LBF) |
| Puncture Strength (Minimum) | D4833 | 350 N (79 LBF) | 580 N (130 LBF) |
| Permitivity (Minimum) | D4491 | 0.05/sec. | 0.05/sec. |
| Apparent Opening Size (Maximum) | D4751 | 0.43 mm (0.0165 inch) Std. No. 40 sieve | 0.43 mm (0.0165 inch) Std. No. 40 sieve |

2.4 DRAINAGE GEOTEXTILE

- A. Geotextiles for drainage shall be FX-60HS (nonwoven) as manufactured by Carthage Mills, Cincinnati, OH, or 160N (nonwoven) by Mirafi, Inc., Charlotte, NC, or TerraTex N06 (nonwoven) by Hanes Geo Components, Edison, NJ, approved equal. Contractor shall submit product data showing that the proposed geotextile is suitable for the soil condition on site.
- B. Drainage application is defined as a soil to geotextile system that allows for long-term, adequate liquid flow normal to the geotextile with limited soil loss across the plane of the geotextile.
- C. Geotextiles used in drainage applications shall be Class 2 and shall conform to the following AASHTO-M-288 properties for drainage geotextiles:

| Property | ASTM Test | <i>Insitu Soil requirements-% passing through a Standard No. 200 US sieve</i> | | | | | |
|------------------------------|------------|---|----------------|---|----------------|---|----------------|
| | | Less than 15% | | 15% to 50% | | Greater than 50% | |
| Structure | | Woven | Non-Woven | Woven | Non-Woven | Woven | Non-Woven |
| Elongation | ASTM D4595 | <50% | >=50% | <50% | >=50% | <50% | >=50% |
| Grab Strength (Min.) | ASTM D4632 | 1100N (247 LBF) | 700N (157 LBF) | 1100N (247 LBF) | 700N (157 LBF) | 1100N (247 LBF) | 700N (157 LBF) |
| Tear Strength (Min.) | ASTM D4533 | 400N (90 LBF) | 250N (56 LBF) | 400N (90 LBF) | 250N (56 LBF) | 400N (90 LBF) | 250N (56 LBF) |
| Puncture Strength (Min.) | ASTM D4833 | 400N (90 LBF) | 250N (56 LBF) | 400N (90 LBF) | 250N (56 LBF) | 400N (90 LBF) | 250N (56 LBF) |
| Permitivity (Min.) | ASTM D4491 | 0.51/sec. | | 0.21 / sec. | | 0.11 / sec. | |
| Apparent Opening Size (Max.) | ASTM D4751 | 0.43 mm (0.01645 inch) Std No. 40 sieve | | 0.25 mm (0.0098 inch) Std. No. 60 sieve | | 0.22 mm (0.0083 inch) Std. No. 70 sieve | |

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Before beginning installation, verify that conditions installed under other sections are acceptable for installation of geotextile in accordance with manufacturer's and fabricator's installation instructions.

3.2 INSTALLATION GENERAL

- A. The ground shall be prepared by removing stumps and other organic material, along with any large boulders and sharp objects which may tear or damage the fabric.
- B. All repaired / replaced fabric surface costs will be at no additional cost to the Owner.

3.3 INSTALLATION SEPARATAION AND STABILIZATION GEOTEXTILE

- A. After the ground has been prepared, the fabric shall be rolled directly on the ground. All seams shall be overlapped approximately six (6") inches.
- B. No equipment, materials or machinery shall be placed on or be transported over exposed fabric.
- C. Aggregate, topsoil backfill, or other clean fill shall then be carefully placed to prevent dislocation of the fabric.
- D. If the fabric is damaged during installation, the rupture shall be removed, and the damaged area shall be covered with a patch of new fabric which will overlap the undamaged fabric approximately six (6") inches in all directions.

3.4 INSTALLATION DRAINAGE GEOTEXTILE

- A. Install geotextile for drainage at elevations and alignments as indicated on the drawings or as directed by the Construction Manager.
- B. The drainage geotextile shall be placed loosely with no wrinkles or folds. Care will be taken to place the geotextile in intimate contact with the soil so that no void spaces occur between the geotextile and trench or ground. Where the geotextile is to be installed in a trench, the geotextile shall be overlapped at the top of the trench, twelve (12") inches or the full width of the trench, whichever is less.
- C. If the geotextile is damaged during installation, the rupture shall be removed, and the damaged area shall be covered with a patch of new fabric which will overlap the undamaged fabric approximately six (6") inches in all directions.

END OF SECTION 32 0519

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SECTION 321243
GRASS PAVING [ADA]

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 DESCRIPTION OF WORK

A. Work Included:

1. Provide Grass Pave2 Paving System products including GrassPave2 units, Hydrogrow soil polymer, and installation per the manufacturer's instructions furnished under this section to provide an ADA accessible turf area in the location(s) shown on the plans.
2. Provide and install sandy gravel base.
3. Provide and install clean sharp sand to fill the GrassPave2 units, when needed.
4. Provide and establish turf by installing grass by using dp50 turf plugs.

B. Related Sections:

1. Subgrade preparation under Section 31 2000 Earthwork.
2. Section 033100 – Cast-in-Place Concrete

1.3 QUALITY ASSURANCE

- A. Follow Section 01 3323 Shop Drawings, Product Data, and Samples requirements.
- B. Installation: Performed only by skilled workpeople with satisfactory record of performance on landscaping or paving projects of comparable size and quality.

1.4 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions.
- B. Submit a 10" x 10" section of GrassPave2 material for review. Reviewed and accepted samples will be returned to the contractor.
- C. Submit material certificates for base course and sand fill materials.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect GrassPave2 units from damage during delivery and store under tarp to protect from sunlight, when time from delivery to installation exceeds one week.
- B. Keep Hydrogrow in a dark and dry location.

1.6 PROJECT CONDITIONS

- A. Review installation procedures and coordinate GrassPave2 work with other work affected. Generally, GrassPave2 is installed at the same time as project turf installation.
- B. All hard surface paving adjacent to GrassPave2 areas, including concrete walks and asphalt paving must be completed prior to installation of GrassPave2.
- C. Gradients for grass porous paving surfaces can vary from flat to 20%, depending upon vehicle types to use the surface.
 - 1. ADA accessible use areas require a gradient less than 2%.
 - 2. Please note that fire lanes, or other emergency vehicles, may require a gradient that is less than 6%.
- D. Cold weather:
 - 1. Do not use frozen materials or materials mixed or coated with ice or frost. Be careful in handling rolls of GrassPave2 in temperatures below 50 degrees F, as product connectors become stiff and can separate, and the individual units will retain the roll curl until warmed to room temperature (aided by placement in sun for 15 to 20 minutes). If cold weather is anticipated, GrassPave2 can be shipped in flat sheets that measure 1-meter (40") square.
 - 2. Do not build on frozen work or wet, saturated or muddy subgrade.
- E. Protect partially completed paving against damage from other construction traffic when work is in progress, and until grass root system has matured (about 3 to 4 weeks). Any barricades constructed must still be accessible by emergency and fire equipment during and after installation.
- F. Protect adjacent work from damage during GrassPave2 installation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. GrassPave2 manufacturers:
 - 1. GrassPave 2 (ADA Accessible) as manufactured by Invisible Structures, Inc, www.invisiblestructures.com, or approved equal. Note that approved equal must provide ADA accessible turf area.
 - 2. GrassPave2 Units shall be ADA accessible, Lightweight injection-moulded plastic units 0.5x0.5x0.025m (20"x20"x1" high, 2.7 ft² each) with hollow rings rising from a strong open grid allowing maximum grass root penetration and growth.
 - 3. Unit weight = 510 g (18 oz.), volume = 8% solid.

4. The plastic shall be 100% pre-consumer recycled HDPE plastic resin, with minimum 3% carbon black concentrate added for UV protection.
 5. Loading capability is equal to 402 kg/cm² (5721 psi, 823,824 psf, 7.4 million psy, 39,273 kPa, 3707 tons/sq.yd.) when filled with sand, over an appropriate depth of base.
 6. GrassPave2 is shipped in pre-assembled rolls that vary from 10 square meters (108 sf) to 50 square meters (1345 sf).
 7. Male/Female Fastener Tensile Strength (from a Pull Test) is equal to 80,208 N/m (450 lbs. f/in.)
 8. Standard color is black.
 9. Any products failing to meet these standards will be rejected.
- B. Hydrogrow Mix: A soil amendment provided with GrassPaver2 units.
- C. Aggregate Materials-See Specification Section 32 0516 Aggregates for Exterior Improvements.
1. Base Course: Sandy gravel material from local sources commonly used for road base construction, passing the following sieve analysis.

| Sieve | %Passing |
|-----------|----------|
| 1" 100 | |
| 3/4" | 90-100 |
| 3/8" | 70-80 |
| #4 55-70 | |
| #10 45-55 | |
| #40 25-35 | |
| #200 3-8 | |
 2. Sources of the material can include either "pit run" or "crusher run." Crusher run material will generally require sharp sand to be added to mixture (33% by volume) to ensure long-term porosity. If there is difficulty in finding local sources to meet this sieve analysis, and alternative mixture can be created by mixing 2/3 crushed drainage rock (0.75" dia) with 1/3 coarse, well-draining sand (AASHTO M6 or ASTM C-33).
 3. Selected materials should be nearly neutral in pH (range from 6.5 to 7.2) to provide adequate root zone development for turf.
 4. Compost – 10% by volume.
- D. Sandy Loam: To fill the rings and spaces between the rings when seeding or when using sod:
1. United States Golf Association (USGA) greens (section) sand mix – “The Root Zone Mixture.”
- E. Grass: See Section 32 99201 Aerate Top-dress and Overseed Existing Lawn for grass seed mix.
1. Seed: Use seed materials, of the preferred species for local environmental and projected traffic conditions, from certified sources. Seed shall be provided in containers clearly labeled to show seed name, lot number, net

weight, % weed seed content, and guaranteed % of purity and germination. Pure Live Seed types and amount shall be as shown on plans.

Mulch: (Needed only for seeding.) Shall be of wood or paper cellulose types of commercial mulch materials often used in conjunction with hydroseeding operations. Mulches of straw, pine needles, etc. will not be acceptable because of their low moisture holding capacity.

- F. Fertilizer: A commercial "starter" fertilizer, with Guaranteed Analysis of 17-23-6, or as recommended by local grass supplier, for rapid germination and root development.
- G. GrassPave2 Sign: A sign to identify the presence of GrassPave2s, stating that special maintenance is required, with the Manufacturer's phone number, and made of durable materials for outdoor exposure shall be provided and installed.

~~2.2~~ CONCRETE MARKERS

- A. ~~Cast In Place or PreCast Unit Pavers, Light Gray to White in color, to mark the boundaries of porous turf pavement, as shown on the plans.~~

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine subgrade and base course installed conditions. Do not start GrassPave2 installation until unsatisfactory conditions are corrected. Check for improperly compacted trenches, debris, and improper gradients.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found unsatisfactory, contact Project Manager for resolution.

3.2 PREPARATION

- A. Place base course material over prepared structural soil to grades shown on plans, in lifts not to exceed 150 mm (6"), compacting each lift separately to 95% Modified Proctor. Leave minimum 25 mm (1") to 35 mm (1.5") for GrassPave2 unit and sand/sod fill to Final Grade.
- B. Spread all Hydrogrow mix provided (spreader rate = 4.53 kg per 100 m² (10 lbs per 1076 ft²) evenly over the surface of the base course with a hand-held, or wheeled, rotary spreader. The Hydrogrow mix should be placed immediately before installing the GrassPave2 units to assure that the polymer does not become wet and expanded when installing the units.

3.3 INSTALLATION OF GRASSPAVE2 UNITS

- A. Install the GrassPave2 units by placing units with rings facing up, and using pegs and holes provided to maintain proper spacing and interlock the units. Units can be easily shaped with pruning shears or knife. Units placed on curves and slopes shall be anchored to the base course, using 16d Common nails with fender washer, as required to secure units in place. Tops of rings shall be between 6 mm to 13 mm (0.25" to 0.5") below the surface of adjacent hard-surface pavements.

- B. Install sand in rings as they are laid in sections by "back-dumping" directly from a dump truck, or from buckets mounted on tractors, which then exit the site by driving over rings already filled with sand. The sand is then spread laterally from the pile using flat bottomed shovels and/or wide "asphalt rakes" to fill the rings. A stiff bristled broom should be used for final "finishing" of the sand. The sand must be "compacted" by using water from hose, irrigation heads, or rainfall, with the finish grade no less than the top of rings and no more than 6 mm (0.25") above top of rings.
 - 1. Modify sand installation for small site applications.

3.4 ~~INSTALLATION OF CONCRETE MARKER PAVERS~~

- A. ~~Form and pour concrete markers, or set precast unit pavers, as shown on the plans.~~

3.5 INSTALLATION OF GRASS

- A. Install grass in accordance with Specification Section 329201 Aerate Top-dress and Overseed Existing Lawn. Installation of pd50 grass plugs is also required to quickly establish good grass cover.

3.6 PROTECTION

- A. Seeded / planted areas must be protected from any traffic, other than emergency vehicles, for a period of 4 to 8 weeks, or until the grass is mature to handle traffic.

3.7 CLEANING

- A. Remove and replace segments of GrassPave2 units where three or more adjacent rings are broken or damaged, reinstalling as specified, so no evidence of replacement is apparent.
- B. Perform cleaning during the installation of work and upon completion of the work. Remove all excess materials, debris, and equipment from site. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

END OF SECTION 32 1243

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SECTION 32 1440

STONE STEPS, COPINGS, & CURBS

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. Bluestone Stone steps.
 - 2. Bluestone Stone copings.
 - 3. Bluestone block curb.
 - 4. Bluestone block mow strip, and
 - 5. Salvaged Granite curbs.

1.3 RELATED SECTIONS

- A. Section 03 3100 - Cast-in-Place Concrete
- B. Section 05 5213 - Ornamental Steel Pipe Railings

1.4 ACTION SUBMITTALS

- A. Product Data and Samples: Submit stone sample of specified units. Subject to the approval of the Landscape Architect.
- B. Shop Drawings:
 - 1. Stone Trim Units: Show sizes, profiles, and locations of each stone units required.
- C. Samples for Verification:
 - 1. Stone sample of specified units INFORMATIONAL SUBMITTALS

1.5

- A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
 - 1. Submittal is for information only. Receipt of list does not constitute approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.
- B. Qualification Data: For testing agency.
- C. Material Certificates: For each type and size of the following:
 - 1. Stone units.

- a. Include: data on material properties, material test reports substantiating compliance with specifications.
 - b. For stone, include size-variation data verifying that actual range of sizes falls within specified tolerances.
- 2. Cementitious materials. Include name of manufacturer, brand name, and type.
- 3. Joint filler.
- 4. Anchors, ties, and metal accessories.
- D. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.
 - 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
 - 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- E. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.
- B. Mockup: Build mockup to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.
 - 1. Build mockup for two risers and one coping as an in-place mock-up for approval prior to setting all steps and copings.
 - 2. Protect approved mockup from the elements with weather-resistant membrane.
 - 3. Approval of mockup is for color, texture, and blending of stone units; relationship of mortar and sealant colors to stone unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Construction Manager in writing.
 - a. Approval of sample mockups does not constitute approval of deviations from the Contract Documents contained in sample mockups unless Construction Manager specifically approves such deviations in writing.
 - 4. Clean exposed faces of mockups with stone cleaner as indicated.
 - 5. Protect accepted mockups from the elements with weather-resistant membrane.
 - 6. Approval of mockups is for color, texture, and blending of stone units; relationship of mortar and sealant colors to stone unit colors; tooling of joints; and aesthetic qualities of workmanship.
 - a. Approval of mockups is also for other material and construction qualities specifically approved by Architect in writing.
 - b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Construction Manager specifically approves such deviations in writing.
 - 7. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store stone units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained, and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store stone accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.8 FIELD CONDITIONS

- A. Protection of stone: During construction, cover tops of curbs with waterproof sheeting at end of each day's work. Cover partially completed sections when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.
- B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of stone to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such stone.
 - 1. Protect base of curbs from rain-splashed mud and from mortar splatter by spreading coverings on ground and over curbs.
- C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit stone damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until stone has dried, but not less than seven days after completing cleaning.
- D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 ALCOVE BLUESTONE

- A. Supplier & Fabricator:
New York Quarries, 305 County Route 111, Alcove, NY 12007
Telephone: (518) 756-3138
Website: <http://www.newyorkquarries.com/>
- B. Alcove Bluestone shall have the following physical properties:
 - 1. ASTM C-97: Absorption and Bulk Specific Gravity – Average 168.35

2. ASTM C-170: Compressive strength, parallel to the grain 35,000 PSI, perpendicular to the grain 24,250 PSI.
3. ASTM C-99: Modulus of Rupture parallel to the grain 2,245 PSI and perpendicular to the grain 2,742 PSI
4. ASTM C-241: Abrasion Resistance, Natural Cleft Surface 36.4, Thermoaled Finish 33.74, Honed Finish 41.83.
5. Atomic Absorption Analysis:
 - a. Calcium Oxide 2.43%
 - b. Magnesium Oxide 1.13%
 - c. Silica Dioxide 74.91%
 - d. Iron Oxide 4.54%
 - e. Aluminum Oxide 8.58%
 - f. Sodium Oxide 0.96%
 - g. Potassium Oxide 1.5%
 - h. Loss on Ignition 2.43%

2.2 STRAIGHT STEPS

- A. Straight steps shall be Alcove Bluestone.
- B. Dimensions and Finishes: As shown on drawings.
- C. Pre-drilled dowel holes (2 min per stone)

2.3 SLAB STEPS

- A. Slab steps shall be Alcove Bluestone.
- B. Dimensions and Finishes: As shown on drawings.
- C. Pre-drilled dowel holes (2 min per stone)

2.4 COPING STONES

- A. Coping stones shall be Alcove Bluestone.
- B. Dimensions and Finishes: As shown on drawings.
- C. Provide a drip groove on coping stones as indicated on details.
- D. Pre-drilled dowel holes (3 min per stone)

2.5 BLUESTONE BLOCK CURB

- A. Bluestone block curb shall be Alcove Bluestone.
- B. Dimensions and Finishes: As shown on drawings.
- C. Set in concrete cradle.

2.6 BLUESTONE BLOCK MOW STRIP

- A. Bluestone block mow strip shall be Alcove Bluestone.
- B. Dimensions and Finishes: As shown on drawings.
- C. Set in concrete cradle.

2.7 SALVAGED GRANITE CURBS

- A. Salvaged granite curb shall be salvaged, cut, and cleaned for reuse.
- B. Dimensions and Finishes: As shown on drawings.
- C. Set in concrete cradle.

2.8 FLASHING AND DRIP EDGE

- A. Thru-wall flashing shall be stainless steel, Type 304; Hohmann & Barnard, Inc. Mighty-Flash or approved equal.
- B. Drip edge shall be #110 Alloy Copper; Hohmann & Barnard, Inc. Drip Plate or approved equal.

2.9 TIES AND ANCHORS

- A. Dowels shall be Type 304 stainless steel of size and length as shown on drawings.
- B. Shims – As required and to be approved by the engineer.
- C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.
 - 1. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches long but may be used for stone construction from solid units.
 - 2. Compressible Filler: Pre-molded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent of width and thickness indicated; formulated from neoprene urethane.
 - 3. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226 / D 226M, Type I (No. 15 asphalt felt).

2.10 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color cement as required to produce mortar color indicated.
 - 1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C 114.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Mortar Cement: ASTM C 1329/C 1329M.
- E. Aggregate for Mortar: ASTM C 144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 - 2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. sieve.
- F. Aggregate for Grout: ASTM C 404.
- G. Epoxy Pointing Mortar: ASTM C 395, epoxy-resin-based material formulated for use as pointing mortar for glazed or pre-faced stone units (and approved for such use by manufacturer of units); in color indicated or, if not otherwise indicated, as selected by Construction Manager from manufacturer's colors.
- H. Cold-Weather Admixture: Not permitted unless requested, and then approved by engineer.

- I. Water: Potable.

2.11 MORTAR MIX PROPORTIONS

- A. Setting mortar (ASTM C 270, Type M, Parts by Volume).
 - 1. 1 part Portland cement (Type I) (color to be selected by architect).
 - 2. ¼ part hydrated lime (Type S).
 - 3. 3 ½ parts damp, loose sand (selected by architect).
- B. Pointing Mortar (ASTM C 270, Type S, Parts by Volume).
 - 1. 1 part Portland cement (Type I) (color to be selected by architect).
 - 2. ½ part hydrated lime (Type S).
 - 3. 4 ½ parts damp, loose sand (selected by architect).

2.12 MIXING OF MORTARS

- A. Measure mortar ingredients carefully so that proportions are controlled and maintained throughout all work periods.
- B. Mix mortar in an approved type of power operated batch mixer. Mix for time required to produce a homogeneous plastic mortar but not for less than five minutes: approximately two minutes for mixing dry materials and not less than three minutes for mixing after water has been added.
- C. Use minimum amount of water to produce a workable consistency for mortar's intended purpose.
 - 1. Pointing Mortar: As dry a consistency as will produce a mortar sufficiently plastic to be worked into joints.
- D. Where mortar is required in small batches of less than one cubic yard and architect specifically approves, mortar may be mixed by hand in clean wooden or metal boxes prepared for that purpose provided architect approves mixing boxes and methods of mixing and transferring mortar.
- E. After mixing, mortars for setting masonry units and mortars for pointing joints in masonry shall sit for 20 minutes prior to use to allow for initial shrinkage. Place mortar in final position within one-and-a-half hours of mixing. Re-tempering of partially hardened material is not permitted.

2.13 STONE CURB CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new stone installations without discoloring or damaging surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of stone units being cleaned.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Remedy any conditions detrimental to performance of the Work before beginning Work.
 2. Verify that subbase is within tolerances specified.
 3. Verify that reinforcing dowels are properly placed.
 4. Verify that substrates are free of substances that impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for any piping or other systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other stone construction to full thickness shown. Build single-wythe walls to actual widths of stone units, using units of widths indicated.
- B. Use full-size units without cutting if possible. If cutting is required to provide a continuous curve or pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- C. Select and arrange units for exposed unit stone to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.
- D. Build chases and recesses to accommodate items specified in this and other Sections.
- E. Leave openings for equipment to be installed before completing stone. After installing equipment, complete stone to match construction immediately adjacent to opening.

3.3 STONE RISER INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced stone elements during construction.
1. Intent is to form continuous curves with straight, segmented stone pieces.
 2. Construct formwork to provide shape, line, and dimensions of completed stone as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of concrete.
 3. Do not remove forms and shores until concrete has hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.
- B. Risers shall be installed with precision and shall have a slight wash for drainage as indicated on grading plan.

3.4 STONE COPING INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced stone elements during construction.
1. Intent is to form continuous curves with straight, segmented stone pieces.
 2. Construct formwork to provide shape, line, and dimensions of completed stone as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of concrete.
 3. Do not remove forms and shores until concrete has hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

3.5 LAYING STONE CURB

- A. Lay stone curb advance for accurate spacing and uniform joint thicknesses and for accurate location of curb ramps joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, and, where possible, at other locations.
- B. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with stone around built-in items.
- C. Fill space between steel reinforcement and stone solidly with mortar unless otherwise indicated.

3.6 CONCRETE CRADLE

- A. Lay stone curbs in cast in place concrete cradle per details.
- B. Set stone units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
 - 1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
 - 2. Allow cleaned surfaces to dry before setting.
 - 3. Wet joint surfaces thoroughly before applying mortar.
 - 4. Rake out mortar joints for pointing with sealant.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.7 TOLERANCES

- A. Masonry work that does not conform to the following tolerances shall be repaired or replaced as directed by the engineer. (Tolerances are based on ACTUAL. Project shall not be limited to tolerances provided herein. Contractor must also apply traditional tolerances in accordance with all applicable standards):
 - 1. Variation from Plumb: For vertical lines and surfaces, do not exceed ¼ inch in 10 feet, 3/8 inch in 20 feet, or ½ inch in 40 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed ¼ inch in 20 feet or ½ inch in 40 feet or more.
 - 2. Variation from Level or Grade: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed ¼ inch in 20 feet or ½ inch in 40 feet or more or as indicated on drawings.
 - 3. For external corners, control joints, and other conspicuous lines: ¼ inch in 20 feet or ½ inch in 40 feet or more.
 - 4. For exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines: ¼ inch in 20 feet or ½ inch in 40 feet or more.
 - 5. Variation of the linear building lines from established position in plan and related to the proportion of columns, walls, and partitions.
 - 6. Variation in cross-sectional dimensions of columns and in the thickness of walls is ¼ inch plus or minus.
 - 7. All joints for rectified stone shall be 1/16 inch or less unless otherwise noted.

3.8 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

3.9 REPAIRING AND CLEANING

- A. Remove and replace stone curbs that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units.
- B. In-Progress Cleaning: Clean stone curb as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- C. Final Cleaning: After curbs are thoroughly set and cured, clean exposed stone as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Owner's Representative approval of sample cleaning before proceeding with cleaning of stone.
 - 3. Protect adjacent stone and non-stone surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 5. Clean stone by bucket-and-brush hand-cleaning method.
 - 6. Clean stone trim to comply with stone supplier's written instructions.

END OF SECTION 32 1440

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SECTION 32 1420

STONE UNIT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

A. Section Includes

1. Granite Set Paving
2. Onondaga Limestone Paving
3. Salvaged Concrete Unit Pavers
4. Pavement Setting Bed
5. Paver Edge Restraint
6. Epoxy Resin Jointing Materials
7. Concrete Pavement base

1.3 REFERENCES

A. American Society of Testing and Materials (ASTM):

1. C 24 Standard Test Method for Pyrometric Cone Equivalent (PCE) of Fireclay and High-Alumina Refractory Materials
2. C 33 Specification for Concrete Aggregates.
3. C 97 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
4. C 99 Standard Test Method for Modulus of Rupture of Dimension Stone
5. C 136 Method for Sieve Analysis for Fine and Coarse Aggregate.
6. C 144 Standard Specifications for Aggregate for Masonry Mortar.
7. C 170 Standard Test Method for Compressive Strength of Dimension Stone
8. C 241 Standard Test Method for Abrasion Resistance of Stone Subject to Foot Traffic
9. D 698 Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 5.5 lb (24.4 N) Rammer and 12 in. (305 mm) drop.
10. D 1557 Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 10 lb (44.5 N) Rammer and 18 in. (457 mm) drop.
11. D 2940 Graded Aggregate Material for Bases or Subbases for Highways or Airports.
12. C 29 Bulk Density and Voids in Aggregate Materials.

1.4 RELATED SECTIONS

- A. Section 03 3100 Cast-in-Place Concrete
- B. Section 32 0516 Aggregates for Exterior Improvements.

1.5 SUBMITTALS

- A. Shop or product drawings and product data shall be submitted.
- B. Product Data: For the following:

1. Pavers
 2. Mortar and grout materials
 3. Edge restraint
 4. Pavement cleaners
- C. Samples: Three each (3) full size samples of stone pavers shall be submitted to illustrate each color, finish, and shape indicated. Samples shall be representative of full range of finish, color, and texture variations expected.
- D. Analysis: Sieve analysis for grading of bedding and joint opening aggregates shall be submitted.
- E. The layout, pattern, and relationship of paving joints to fixtures and project formed details shall be indicated.
- 1.6 INFORMATIONAL SUBMITTALS
- A. Material Certificates: Signed by manufacturers:
 - B. Material test reports: For aggregates.
 - C. Field quality-control test reports.
- 1.7 MOCK-UPS
- A. Provide a mockup for each pavement type.
 - B. Mockups shall be a 3 ft. x 3 ft. minimum paver area.
 1. Mockups will be used to determine joint sizes, lines, laying pattern(s), color(s), and texture of the project.
 2. This area shall be the standard from which the work will be judged and shall not be removed until completion of the work.
- 1.8 QUALITY ASSURANCE
- A. Installation shall be by a contractor and crew with at least five years of experience in placing natural stone pavers of nominal sizing and thickness, cutting and fitting of stone in field, and laying out radial paving fields on projects of similar size.
 - B. The Contractor shall provide three (3) references, including contact information and images from completed work on projects of similar scope, size and complexity.
 - C. The Contractor shall conform to all local, state/provincial licensing and bonding requirements.
- 1.9 QUALIFICATIONS
- A. Stone Quarry / Fabricator: Quarry and Company specializing in the extraction and dressing of stone required for the work of this section and having with minimum of 15 years documented experience.
- 1.10 DELIVERY, STORAGE, AND HANDLING
- A. Stone pavers shall be delivered to the site in steel banded, plastic banded, or plastic wrapped cubes capable of transfer by forklift or clamp lift. The pavers shall be unloaded at the job site in such a manner that no damage occurs to the product.

- B. Blocking and Lateral Support During Transport and Storage: Clean, non-staining, without causing harm to exposed surfaces. Provide temporary lateral support to prevent breakage, scratching, bowing and warping.
- C. Protect units to prevent staining, chipping, or spalling of stone.
- D. Delivery and paving schedules shall be coordinated in order to minimize interference with normal use of buildings / activities adjacent to paving.
- E. Specialty cut pavers shall be numbered on hidden stone face. Numbers shall be keyed to shop drawings to facilitate installation.

1.11 ENVIRONMENTAL CONDITIONS

- A. Do not install bedding aggregates or pavers during heavy rain or snowfall.
- B. Do not install bedding aggregates and pavers over frozen base materials.
- C. Do not install frozen bedding aggregates.

1.12 NOTIFICATIONS

- A. Provide Construction Manager with a schedule indicating when paving operations will take place. Notify Construction Manager again, with not less than 72-hours' notice of times for inspection of; 1) prepared subgrade, 2) installed aggregate sub-base, 3) installed aggregate base, and 4) prepared setting bed.

PART 2 - PRODUCTS

2.1 GRANITE SETT PAVERS

Supplier & Fabricator: Coldspring Granite, 17482 Granite West Road, Cold Spring, MN 56320
 Telephone: Michael Butler (Upstate NY rep) 339-832-1656, mbutler@coldspring.com
 Website: www.coldspringusa.com, or approved equal.

- 1. Dimensions: 4" x 4" x 4"
- 2. Thermal top, split sides, sawn bottom
- 3. Color (field): Prairie Brown
- 4. Color (banding): Mountain Green.

2.2 ONONDAGA LIMESTONE UNIT PAVERS

Supplier & Fabricator: New York Quarries, 305 County Route 111, Alcove, NY 12007
 Telephone: (518) 756-3138
 Website: <http://www.newyorkquarries.com/>

- 1. Dimensions: 3" thick; dimensional stone as shown on drawings
- 2. Spacing: 1/4" min - 1/2" max

B. Finish

- 1. Top Finish: Burned and brushed to 36 grit finish, non-slip
- 2. Bottom and sides: saw cut.

C. Onondaga Limestone shall have the following physical properties:

- 1. ASTM C-97: Absorption and Bulk Specific Gravity – Average 168.35
- 2. ASTM C-170: Compressive strength, parallel to the grain 18,147 PSI, perpendicular to the grain 11,614 PSI.

3. ASTM C-99: Modulus of Rupture parallel to the grain 8,887 PSI and perpendicular to the grain 5,077 PSI
4. ASTM C-241: Abrasion Resistance, Polished Finish 38.77, Sawn Finish 38.52
5. ASTM C24: Pyrometric Cone Equivalent Report Deformation Temperature 2,615 deg Fahrenheit.
6. Atomic Absorption Analysis:
 - a. Calcium Oxide 55.22%
 - b. Magnesium Oxide 0.55%
 - c. Silica Dioxide 1.14%
 - d. Iron Oxide 0.19%
 - e. Aluminum Oxide 0.25%
 - f. Sodium Oxide 0.05%
 - g. Potassium Oxide 0.25%
 - h. Loss on Ignition 42.25%

2.3 SITE-SALVAGED CONCRETE UNIT PAVERS

- A. Concrete unit pavers shall be as salvaged from the site for reinstallation.
- B. All unit pavers shall be cleaned, stacked, and stored until ready for reinstallation.
- C. Contractor shall select best salvaged unit pavers for reinstallation.
- D. Broken pavers shall not be reused.
- E. Surplus pavers shall be removed from the site.

2.4 CONCRETE BASE

- A. Where indicated, concrete base shall be in accordance with Section 033100 Cast in Place Concrete.

2.5 SEPARATION GEOTEXTILE

- A. Separation geotextile shall be a woven geotextile fabric, manufactured for separation applications; made from polyolefins or polyesters, with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
 1. Survivability: Class 2, AASHTO M 288.
 2. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
 3. Permittivity: 0.02 per second, minimum; ASTM D 4491.
 4. UV Stability: 50 percent after 500 hours' exposure, ASTM D 4355.

2.6 EDGE RESTRAINT

- A. Aluminum Edge Restraint: Manufacturer's brick and paver restraint [1/16-inch-thick by 2-3/4-inch- extruded-aluminum edging notched to secure straight runs and form smooth curves such as BrickBlock aluminum brick and paver restraint as manufactured by Permaloc, or approved equal .
 1. Manufacturers: Subject to compliance with requirements available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Permaloc Corporation.
 - b. Brickstop Corporation.
 - c. Curv-Rite, Inc.

d. Sure-loc Edging Corporation.

2.7 CRUSHED STONE

- A. Crushed stone shall be in accordance with Section 32 0516 Aggregates for Exterior Improvements.

2.8 GRANULAR SUBBASE FOR NON-PERMEABLE PAVERS

- A. The granular subbase material shall be crushed stone conforming to ASTM C 33 No 3, as specified in Section 32 0516 Aggregates for Exterior Improvements. The subbase thickness and specific aggregate gradation shall be as shown on drawings.

2.9 GRANULAR BASE FOR NON-PERMEABLE PAVERS

- A. The granular base material shall be crushed stone conforming to ASTM C 33 No 57, as specified in Section 32 0516 Aggregates for Exterior Improvements. The base thickness and specific aggregate gradation shall be as shown on drawings.

2.10 SAND CEMENT SETTING BED

- A. Sand cement setting bed shall be a dry mix of one (1) part of premixed cement to three (3) parts of bagged 30-60 mesh silica in color as selected by the Landscape Architect to provide a firm, uniform setting bed.

2.11 BEDDING AND JOINT SAND FOR NON-PERMEABLE PAVERS

- A. Bedding sand shall be coarse, hard silica sand conform to the grading requirements of ASTM C 33.
- B. Joint sand shall conform to the grading requirements of ASTM C 144.
- C. Joint sand shall NOT be used for bedding sand.
- D. The bedding and joint sand shall be clean, non-plastic, and free from deleterious or foreign matter. It can be natural or manufactured from crushed rock.
- E. When pavers are subject to vehicular traffic, the sands shall be as hard as practically available.
- F. Note: The type of sand used for bedding is often called Concrete Sand. Sands vary regionally. Screenings and stone dust can be unevenly graded and have material passing the No. 200 (75µm) sieve. The presence of No. 200 material can contribute to pavement damage by frost heaving. Bedding sands with these characteristics shall not be used. Limestone screenings or stone dust are not acceptable.
- G. Joint sand shall be stabilized with an epoxy polymer stabilizer.

2.12 EPOXY RESIN JOINTING MATERIAL

- A. Provide ROMPOX-D2000, 2 component epoxy resin paving jointing mortar for concrete paving slab joints greater than 3/16" wide and greater than 1-3/16" deep. ROMPOX-D2000 as distributed by ROMEX Northeast, USA, 55 Greenwood Avenue, Bethel, CT 06801, www.romexusa.com, phone Henri Hillmann, 866-766-3963.:
 - 1. Color, Stone grey.
 - 2. Two part: filler and resin/hardener.
 - 3. Compressive strength: 3,510 psi
 - 4. Bending tensile strength: 1,305 psi

5. Static elasticity module: 346.640 psi
6. Water permeability value: 1.4 iph

2.13 MISCELLANEOUS

- A. Cleaner system for removal of grout film, haze or mortar stains shall be a standard product of a recognized manufacturer such as ProSoCo or EaCo Chem NMD 80 or approved equal. Test patches shall be prepared to determine application strength and time of cleaners.

PART 3 - EXECUTION

3.1 SITE PREPARATION

- A. The site must be stripped of all topsoil and other objectionable materials to the grades specified.
- B. All sub-drainage of underground services within the pavement area must be completed in conjunction with subgrade preparation and before the commencement of subbase construction.

3.2 72-HOURS NOTICE

- A. The Contractor shall notify the Construction Manager at least 72-hours in advance of specified operations to allow for timely inspection in-place sub-base preparation, placement of geotextile materials (if applicable), placement of subbase and base placement base materials, as well as confirmation of compaction densities, surface tolerances and elevations for conformance to specifications.
- B. The Construction Manager will schedule third-party testing.

3.3 SUBGRADE PREPARATION

- A. After trimming to meet the specified grades, the subgrade is to be proof rolled to 95 percentage of Standard Proctor Maximum Dry Density in accordance with ASTM D 698 or D 1557 with soft spots or localized pockets of objectionable material excavated and properly replaced with approved granular material.
- B. Areas not accessible to roller compaction equipment should be compacted to the specified density with mechanical tampers. Care shall be taken around the perimeters of excavations, buildings, curbs, etc. These areas are especially prone to consolidation and settlement. Wedges of backfill should not be placed in these areas. If possible, backfilling and compacting in these areas particularly should proceed in shallow lifts, parallel to the finished surface.
- C. Mechanical tampers (jumping jacks) are recommended for compaction of soil subgrade and aggregate base around lamp standards, utility structures, building edges, curbs, tree wells and other protrusions.
- D. The subgrade shall be trimmed to within 0 to 3/8 in. of the specified grades. The surface of the prepared subgrade shall not deviate by more than 3/8 in. from the bottom edge of a 39-inch-long straight edge laid in any direction.
- E. The Contractor shall ensure that the prepared subgrade is protected from damage from inundation by surface water. No traffic shall be allowed to cross the prepared subgrade. Repair of any damage resulting shall be the responsibility of the Contractor and shall be repaired.
- F. Under no circumstances shall further pavement construction proceed until the subgrade has been inspected and approved by the Construction Manager.

3.4 GRANULAR SUBBASE AND BASE INSTALLATION

- A. Verify that the concrete curb or other edge restraints for the stone unit pavement is accurately installed with respect to elevation and alignment.
- B. Verify that any geotextile (if applicable) is installed and accepted.
- C. Verify that the base is dry, uniform, even and ready to support bedding coarse aggregates, pavers and imposed loads.
- D. Aggregate sub-base and base shall be spread in uniform layers not exceeding 6-inch thickness and compacted to 95 percentage of Standard Proctor Maximum Dry Density in accordance with ASTM D 698 or D 1557.
- E. The granular base shall be trimmed to within 0 to 3/8 in. of the specified grade and as measured from the bottom edge of a ten-foot-long straight edge laid in any direction.
- F. Under no circumstances shall further pavement construction or placement of bedding aggregate or pavers proceed until the granular base has been inspected and approved by the Construction Manager.

3.5 CONCRETE SUBBASE

- A. Concrete subbase shall be placed in accordance with Section 033100 Cast-in-Place Concrete.

3.6 PAVER INSTALLATION

- A. Spread the bedding aggregate evenly over the base course and screed to a nominal 1 ½ in. to 2 in. thickness or as shown on the drawings.
 - 1. The bedding aggregate should not be disturbed.
 - 2. Place sufficient bedding aggregate to stay ahead of the laid pavers.
 - 3. Do not use the bedding aggregate to fill depressions in the base surface.
- B. Set pavers, level and true to elevations and grades indicated. Stone pavers may be set 1/8 to 1/4 in above the final elevation after compaction to compensate for possible minor settling.
- C. Pavers shall be free of foreign material before installation.
- D. Pavers shall be inspected for color distribution and all chipped, damaged or discolored pavers shall be replaced.
- E. The pavers shall be laid in pattern(s) as shown on the drawings.
- F. Joints between the pavers shall be maintained according to the spacer bars or other suitable device.
- G. Gaps at the edges of the paved area shall be filled with cut pavers. Select stones to avoid small pieces or slivers.
- H. Units cut no smaller than one-third of a whole paver are recommended along edges subject to vehicular traffic.
- I. Pavers to be placed along the edge shall be cut with a masonry saw.
- J. The use of infill concrete or discontinuities in patterns will not be permitted except along the outer pavement boundaries, adjacent to drains and manholes.
- K. Upon completion of cutting, the area must be swept clean of all debris to facilitate inspection and to ensure pavers are not damaged during compaction.

- L. The pavers shall be compacted, and the joint aggregates shall be swept into all joints and void openings until they are full. This will require at least two or three passes with the compactor. Do not compact within 3 ft. of the unrestrained edges of the paving units.
- M. All work to within 3 ft. of the laying face must be left fully compacted at the completion of each day.
- N. Excess surface bedding and void opening aggregates shall be swept off and removed when the job is complete.
- O. The final surface elevations shall not deviate more than ¼ inch. under a 10 ft. long straight edge.
- P. The surface elevation of pavers shall be 1/8 to 1/4 inch above adjacent drainage inlets, concrete collars or channels.

3.7 STABILIZED JOINT INSTALLATION

- A. The surface to be joint-fixed should be cleaned of all impurities before work commences. Adjoining surfaces that are not to be joint-fixed are taped off. Pre-wet the surface. Porous surfaces as well as higher surface temperatures, require more intense pre-wetting.
- B. Mix stabilized joint filler components complete into the mixer and start the mixing process in accordance with the manufacturer's instructions.
- C. Apply the mixed paving jointing mortar onto the well damp surface and work it carefully into the joints using a squeegee /rubber slider. To use the flow capability of the paving jointing mortar, it should be poured onto three or four areas of the jointing area.
- D. After approximately ten minutes (at 68-degrees F surface temperature) the excess mortar on the surface of the pavers shall be swept off carefully with a large, coarse broom. Then use a soft, hair broom to do a final cleaning until all residual mortar has been removed from the surface. The correct moment for sweeping is when white smear no longer forms on the paver surface during sweeping. Sweeping should be done diagonally to the joint. Do not re-use swept-off material.
- E. Thoroughly spray the paved surface with a fine water spray (approximately 9 to 12 inches) and then sweep again with a wet hair broom.

3.8 PROTECTION OF STABILIZED JOINTS

- A. Rain protection is not necessary with drizzle. In case of permanent or heavy rain, protect the freshly jointed surface for 6 hours against rain. Do not put the rain protection directly onto the surface to ensure air circulation.
- B. During the initial period, a very thin film of epoxy resin remains on the stone surface and intensifies the color of the paver and protects it from dirt.
- C. This film, however, disappears from the surface in open weather and through abrasion in six to twelve months.
- D. Surface shall be broom clean after removal of excess joint sand.

3.9 CLEANING AND PROTECTION

- A. Upon completion of joints, fog lightly with water. DO NOT PERMIT mortar to set up on finished surface. Sweep off with clean dry sand. Remove any remaining cement stains with a suitable solvent but in no case acid-bearing.

- B. Protect newly laid pavers with plywood panels; advance panels as work progresses. Maintain protection in good order in all areas subject to traffic.
- C. Clean off all surrounding surfaces and leave area in near, clean condition.

3.10 FIELD QUALITY CONTROL

- A. Final elevations shall be checked for conformance to the drawings after removal of excess jointing aggregate.

END OF SECTION 32 1420

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SECTION 32 1430

RESILIENT SAFETY SURFACE – POURED IN PLACE

WEARING COURSE ONLY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SECTION INCLUDES

- A. Resilient, poured-in-place, playground safety surfacing meeting all safety and accessibility requirements. It shall be the responsibility of the successful safety surfacing contractor to provide all labor, materials, equipment and tools necessary for the complete installation of poured-in-place safety surface system.
- B. Rubberized, poured-in-place, wearing course - only (to provide traction and surface coating at splash-pad play area).

1.3 RELATED SECTIONS

- A. All sections in Division 1 – General Requirements
- B. Section 03 3100 Cast-in-Place Concrete
- C. Section 22 5200 Water Play Elements

1.4 SYSTEM DESCRIPTION

- A. Poured-in-place playground safety surfacing consisting of ~~two~~ layers (wearing course only):
 - 1. ~~Base mat made of 100% recycled styrene butadiene rubber (SBR) mixed with high grade polyurethane.~~
 - 2. Top Surface made of ethylene propylene diene monomer (EPDM) or Thermoplastic Vulcanizate (TPV) mixed with polyurethane.

1.5 REFERENCES

- A. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension.
- B. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
- C. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
- D. ASTM D 2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
- E. ASTM F 1292 - Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.

- F. US Consumer Product Safety Commission (CPSC) Handbook for Playground Safety.

1.6 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions.
- B. Samples: Submit manufacturer's samples of poured-in-place playground safety surfacing showing texture, color, and thickness. Sample(s) shall be six inches by six inches (6"x6")
- C. Test Reports: Submit certified test reports from qualified independent testing agency indicating results of impact attenuation testing.
- D. Certificate of Compliance: Submit manufacturer's certificate of compliance indicating materials comply with specified requirements.
- E. Warranty: Submit manufacturer's standard warranty.
- F. Insurance: Product liability Insurance Certificate.
- G. Certification: IPEMA Certification.
- H. Manufacturer's Project References:
 - 1. Submit list of successfully completed projects.
 - 2. Include project name and location, name of architect, and type and quantity of poured-in-place playground safety surfacing furnished.
- I. Installer's Project References:
 - 1. Submit list of successfully completed projects.
 - 2. Include project name and location, name of architect, and type and quantity of poured-in-place playground safety surfacing installed.
- J. Maintenance Instructions: Submit manufacturer's maintenance and cleaning instructions.

1.7 QUALITY ASSURANCE

- A. Surface must be IPEMA certified and conform to the specified technical requirements and applicable standards indicated in Section 2.3 Technical Requirements.
- B. Manufacturer's Qualifications: Manufacturer shall meet a minimum of 1 of the following 2 requirements.
 - 1. Continuously engaged in manufacturing of poured-in-place playground safety surfacing of similar type to that specified, with a minimum of 5 years successful experience.
 - 2. Furnished a minimum of 1,000,000 square feet of poured-in-place playground safety surfacing of similar type to that specified.
- C. Installer's Qualifications:
 - 1. The Applicator/ Installer shall be trained and approved by manufacturer and must have installed a minimum of 10 applications completed within last 5 years.
 - 2. The Applicator / Installer shall employ persons trained for installation of poured-in-place playground safety surfacing.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage:

1. Store materials in accordance with manufacturer's instructions.
 2. Store materials in a dry area at a minimum temperature of 50 degrees F (10 degrees C) for a minimum of 72 hours before installation.
- C. Handling: Protect materials during handling and installation to prevent damage or contamination.
- 1.9 ENVIRONMENTAL REQUIREMENTS
- A. Material Temperature: Ensure material temperature is a minimum of 50 degrees F (10 degrees C) at time of installation.
 - B. Air Temperature: Ensure air temperature is a minimum of 45 degrees F (4 degrees C) for a minimum of 24 hours before, during, and a minimum of 72 hours after installation.
- 1.10 WARRANTY
- A. Materials and Workmanship: Poured-in-place playground safety surfacing installation shall be warranted for defects in materials and workmanship for at least 5 years from date of completed installation.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. GENERAL

1. BASIS OF DESIGN: Dura Play poured in place safety surface as manufactured by DuraPlay, 150 Brownson Lane, Driftwood, TX 78619, www.duraplay.com, or approved equal.
2. All material components of the poured-in-place safety surface system shall be obtained from the same manufacturer or its authorized distributors.

2.2 MATERIALS

- A. DuraPlay Primer: A single-component moisture cured polyurethane primer.
- B. DuraPlay Binder: An elastic polyurethane pre-polymer, MDI based, low odor, capable of excellent weathering and binding characteristics. Binder shall contain no TDI Monomers.
- ~~C. DuraPlay Black SBR:~~
 - ~~1. Shall be recycled SBR Rubber~~
 - ~~2. Shall be cryogenically processed~~
 - ~~3. Shall be 3/8" shredded mesh or 6/20 mesh and contains less than 4% dust.~~
 - ~~4. Shall be packed in suitable bags to protect SBR from moisture~~
 - ~~5. Base mat thickness: 1 to 4.75 inches, depending on critical fall height of playground equipment. Thickness shall be coordinated with play equipment fall height. Greatest thickness required for greatest fall height will be used throughout play area.~~
 - ~~6. See schedule on drawing for required thickness.~~
- D. Wearing course: DuraPlay Thermoplastic Vulcanizate (TPV) preferred, or EPDM Rubber if necessary due to supply shortage:
 1. A manufactured rubber having a density of 1 to 4mm.
 2. Colors and color mixes shall be as indicated on schedule on drawing.

3. Thickness is nominal ½" or 2.44 lb. per square foot.

2.3 TECHNICAL REQUIREMENTS

A. Applicable Standards for full thickness (Base Mat + Wearing Course)

1. ~~Shock attenuation under ASTM F-1292 – GMAX less than 200~~
2. ~~Head Injury Criteria less than 1000~~
3. Non-slip characteristics under ASTM-E-303
4. IPEMA Certified
5. Flammability under 8S -5696 and ASTM-D-2859
6. Tensile strength (ASTM D412) - 60 psi
7. Tear resistance (ASTM D624) – 140%

B. Chemical Properties

1. ~~Base mat: 85% SBR Rubber Buffings, 15% Polyurethane Binder~~
2. Top Surface / Wearing Course: 78% EPDM or TPV Rubber Granules, 22% Polyurethane Binder

PART 3 - EXECUTION

3.1 PRE-INSTALLATION SITE EXAMINATION

- A. Examine areas to receive poured-in-place playground safety surfacing. Surface applicator shall evaluate and approve of all substrates with respect to structural and drainage prior to applying the Surfacing System. Notify Landscape Architect if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.
- B. Confirm areas to receive full-depth resilient surfacing including resilient DuraPlay Black SBR cushion topped by a wearing course of DuraPlay Thermoplastic Vulcanizate (TPV) EPDM Rubber.
- C. Confirm areas **to receive only a wearing course** of DuraPlay Thermoplastic Vulcanizate (TPV) or EPDM Rubber.

3.2 PREPARATION

- A. Adjacent materials and the surface shall be protected during installation, while curing and unattended, from weather and other damage.
- B. Prepare subsurface in accordance with manufacturer's instructions to ensure proper support and drainage for poured-in-place playground safety surfacing.
 1. Concrete subsurface to receive wearing course only, **shall receive a HEAVY Broom finish** and allowed to cure for a minimum of 30 days prior to application of wearing course.
 2. ~~Concrete or asphalt to receive cushion and wearing courses shall have medium broom finish.~~
 3. ~~Where asphalt extends past the termination point, provide a sawcut keyway to secure to pecoat.~~
- C. Install drainage plate and overlap per manufacturer's recommendations.
- D. Variations in Elevation: Repair variations in elevation of completed subsurface greater than plus or minus 1/4 inch over 10 feet in any direction.

3.3 INSTALLATION

- A. Ensure prepared subsurface is dry and clean.
- B. Install edges in accordance with manufacturer's instructions and as indicated on the Drawings.
- C. Install poured-in-place playground safety surfacing in accordance with manufacturer's instructions at locations and pattern indicated on the Drawings.
- D. DuraPlay Primer: Apply primer with a short nap roller at the rate of 300 square feet per gallon. Do not over saturate substrate. Prime area 1.5 - 2 feet around perimeter and any adjacent vertical barriers such as playground equipment support legs, curbs or edging that will contact the surfacing system.
 - 1. NOTE: Do not use DuraPlay primer over compacted stone.
- ~~E. DuraPlay Resilient Base Mat: Apply mixed binder/SBR at desired thickness 1/8" higher than measuring bar. Using a steel pool trowel, even binder/SBR mixture. Be sure to continuously lubricate trowel with kerosene, diesel fuel or soapy water. Do not saturate surface with these lubricants.
 - 1. As the mixture is leveled apply a downward pressure onto the surface so that the mixture compacts tightly.
 - 2. Check surface to be level.
 - 3. Allow to dry for 10 to 12 hours or until no indentations can be made by foot traffic.~~
- F. DuraPlay Top Surface:
 - 1. Apply mixed binder/granule at a nominal 1/2" thickness.
 - 2. Using a steel pool trowel, spread even rubber/granule mixture. Be sure to continuously lubricate trowel with kerosene, diesel fuel or soapy water.
 - 3. As the mixture is leveled apply a downward pressure onto the surface so that the mixture compacts tightly.
 - 4. Check surface to be level.
 - 5. Cold joints must be cut and primed prior to installing a different color surface.
 - 6. Allow to cure for a minimum of 24 to 48 hours prior to usage. At the end of the minimum curing period, verify that the top surface is sufficiently dry and firm to allow foot traffic and use without damage to the surface. Do not allow foot traffic or use of the surface until it is sufficiently cured.
- G. Edge Details: Finish edges in accordance with manufacturer's instructions or as shown on the drawings.

3.4 CLEANING

- A. Clean poured-in-place playground safety surfacing in accordance with manufacturer's instructions.

3.5 PROTECTION

- A. Do not allow foot traffic on poured-in-place playground safety surfacing for a minimum of 48 hours during cure period or until a minimum of 80 percent cure is obtained.
- B. Protect completed playground safety surfacing from damage during construction.

END OF SECTION 32 1430

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SECTION 321540

STABILIZED DECOMPOSED GRANITE PAVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

- A. This section includes materials and execution information for stabilized decomposed granite path or pavement for foot traffic.

1.3 RELATED SECTIONS:

- A. Section 312000 Earthwork.

1.4 REFERENCES

- A. ASTM C136 / C136M – 14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates, ASTM International, West Conshohocken, PA, 2014, www.astm.org
- B. ASTM D2419 – 14, Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregates, ASTM International, West Conshohocken, PA, 2014, www.astm.org
- C. ASTM F1951 – 14, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment, ASTM International, West Conshohocken, PA, 2014, www.astm.org
- D. Organic-Lock Installation Guidelines Brochure, available from Kafka Granite, LLC, 800-852-7415; Jeremy Bores, Technical Assistance.

1.5 SUBMITTALS

- A. Submit in accordance with Section 013300 - Submittal Procedures:
 - 1. Manufacturer's product data sheet.
 - 2. One-quart sample of aggregate base course.
 - 3. Aggregate base course gradation indicating that the product meets specifications
 - 4. One-quart sample of stabilized crushed granite aggregate paving.
 - 5. Stabilized crushed granite aggregate gradation indicating that the product meets specifications.
 - 6. Manufacturer's Material Safety Data Sheet.

1.6 SITE CONDITIONS

- A. Ensure that the subgrade and base are properly graded and compacted to required specifications.

- B. Do not install the stabilized decomposed granite pavement during rain. Rain within 3-5 days after installation will increase curing time.
- C. Protect all nearby surfaces, plants, and structures from possible contamination from materials or damage by equipment.

1.7 MOCKUP

- A. Install 20 square feet minimum of stabilized decomposed granite pavement including base course, at location approved by Landscape Architect.
- B. Allow Landscape Architect to view mockup before proceeding with rest of stabilized decomposed granite pavement.
- C. Approved mock-up may remain as part of completed Work.

1.8 DELIVERY, HANDLING, AND STORAGE

- A. Delivery:
Delivery of pre-blended stabilized decomposed granite pavement with aggregate is available from manufacturer supported dealers.
- B. Handling:
Wear appropriate respirator when ventilation is inadequate. Avoid contact with skin and eyes.
- C. Storage:
Protect stabilized crushed aggregate mix from contamination. Store under cover.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Decomposed granite pavement provided by:
Kafka Granite, LLC, 550 E HWY 153, Mosinee, WI 54455
800-852-7415, kafka@kafkagranite.com, www.kafkagranite.com
- B. Aggregate stabilizer
Organic-Lock distributed by Kafka Granite,
Kafka Granite, LLC, 550 E HWY 153, Mosinee, WI 54455
800-852-7415, kafka@kafkagranite.com, www.kafkagranite.com

2.2 MATERIALS

- A. Crushed Aggregate Materials:
 - 1. Stabilized decomposed granite pavement shall consist of sound, angular, durable particles.
 - 2. Color shall be Kafka's "Imperial Gray." Color shall be confirmed and selected by the Landscape Architect from samples in the field.

- a. Alternative aggregate material such as “Hudson Blue Grey” as supplied by Geo. Schofield Stone, Bridgewater, NJ, 1-800-827-6257, www.schofieldstone.com may be supplied in lieu of Kafka granite, when processed to meet gradation requirements.
3. Aggregate Gradation, in accordance with ASTM C136:

| Optimal Gradation | | |
|-------------------|-----------------|-----------------|
| Sieve | Sieve Size (mm) | Percent Passing |
| 3/8" | 9.51 | 100% |
| 4 | 4.76 | 80-100% |
| 8 | 2.36 | 65-90% |
| 16 | 1.18 | 40-60% |
| 30 | 0.6 | 25-55% |
| 50 | 0.3 | 15-35% |
| 100 | 0.149 | 10-20% |
| 200 | 0.074 | 5-15% |

- B. Stabilizing binder shall be “Organic-Lock Binder” as manufactured by “Organic Lock” and provided by Kafka Granite, LLC, Mosinee, WI, 54455, 800-852-7415.
 1. Organic-Lock is a patented powdered organic binder designed to be blended with crushed aggregate
 2. Made from 100% naturally occurring materials

PART 3 - EXECUTION

3.1 PREPARATION

- A. Excavation: Excavate the area to the depth required so that finish grade can be established as noted on plans.
- B. Pathway shall be not greater than 1:20 in any direction and cross slope shall be up to 1:50 where possible.
- C. Edging: Edging shall be a natural edge at lawn, garden bed and pathways.
- D. Subgrade Compaction: Compact the subgrade to 95% Modified Proctor Density.
- E. Aggregate Base: Spread the base material to depth indicated in the drawings. Crushed, granular road base such as 3/4" minus is an optimal base material.
- F. Place material in lifts no greater than 4" depth.
- G. Compact the aggregate base to 95% Modified Proctor Density using a single or double drum static roller or vibratory compactor.

3.2 MIXING

- A. Decomposed granite aggregate shall be pre-mixed by supplier with Organic Lock stabilizing material prior to shipment.

- B. Proper hydration of the decomposed granite aggregate with Organic Lock stabilizer is crucial to the installation and longevity of the surface. Contact Kafka Granite for installation guidance, 800-852-7415.
- C. The instructions below refer to Organic-Lock that has been pre-blended with aggregate and contains optimal moisture content. For more information on pre-wetting, and pre-blending Organic-Lock refer to Organic-Lock Installation Guidelines Brochure.
- D. Achieve best results installing Organic-Lock blended aggregate in dry conditions and temperatures above 40° Fahrenheit (5° Celsius). Both wet and cold conditions slow down the curing/drying process.
- E. Provided the moisture content of the Stabilized decomposed granite pavement is adequate, additional hydration should not be necessary. On dry, sunny days, however, the surface layer may start to dry out while installing, in which case, a light misting would be appropriate to prevent surface cracks from appearing during compaction. Refer to the Organic-Lock Installation Guidelines Brochure for more information.

3.3 SPREADING

- A. Evenly spread Stabilized decomposed granite pavement at the specified depth.
- B. Spread the loose and uncompacted Stabilized decomposed granite pavement over the compacted base material.
- C. Typically, a lift of 4 inches of loose, pre-wet Stabilized decomposed granite pavement will compact to the required 3-inch depth for Foot-Traffic Pathways.

3.4 COMPACTION

- A. Make 4-6 passes using a 1-ton double or single static drum roller, or equivalent. A Foot-Traffic Pathway will typically require one lift, compacted to 3 inches.
- B. Compaction will vary with different aggregates due to particle shape and size. Compact to 95% Modified Proctor Density
- C. Vibratory compaction is acceptable for the base material but generally not suitable for Stabilized decomposed granite pavement as it risks disassociating the bonds of the stabilized aggregate or allowing the fines and moisture to migrate to the surface, causing the surface to take on a smooth, concrete-like appearance. Stabilized decomposed granite pavement should be compacted using a single or double drum static roller wherever possible. For tight spaces that are not accessible by drum rollers, a hand tamper is recommended, however, in certain circumstances, a vibratory or plate tamper can be used where the installer deems it to be more effective.
- D. Provided the moisture content of the Stabilized decomposed granite pavement is adequate, additional hydration should not be necessary. On dry, sunny days, however, the surface layer may start to dry out while installing, in which case, a light misting would be appropriate to prevent surface cracks from appearing during compaction. Refer to the Organic-Lock Installation Guidelines Brochure for more information.

3.5 COMPLETING INSTALLATION

- A. Apply a light spray to the surface of the material to give a clean appearance.
- B. Apply water until the water begins to run-off.

- C. Do not allow any traffic on the newly installed pathway until fully cured

3.6 REPAIRS AND PROTECTION

- A. Excavate the damaged area and scarify exposed Stabilized Decomposed Granite Aggregate.
- B. Pre-blend the replacement crushed stone aggregate material with Organic-Lock stabilizer at 28-34 lbs/imperial ton. Apply the material to the excavated area and compact. Thoroughly water the material to achieve 8-10% moisture content. Use the “snowball test” to determine moisture content - refer to Organic-Lock Installation Guidelines Brochure for details.
- C. Allow the newly installed Organic-Lock Pathway Aggregate to cure, but not completely dry out.
- D. Re-compact the material, ensuring that the final grade and crown are maintained.

3.7 EXTRA MATERIALS

- A. Deliver eight 5-gallon containers of air dried Stabilized Decomposed Granite Aggregate to the owner for storage in a temperature controlled and dry location. When dry, containers can be closed. Stored material to be thoroughly dried to prevent material from molding.

END OF SECTION 321540

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SECTION 32 1816

ENGINEERED WOOD FIBER PLAYGROUND SAFETY SURFACING

[ADD ALTERNATE]

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SECTION INCLUDES

- A. IPEMA-certified Engineered Wood Fiber, playground safety surfacing meeting all safety and accessibility requirements. It shall be the responsibility of the successful safety surfacing contractor to provide all labor, materials, equipment and tools necessary for the complete installation of IPEMA-certified Engineered Wood Fiber safety surface system.
- B. Provide Fibar® System Playground Safety Surface in areas indicated on plans including drainage materials.
- C. Provide safety surface immediately after installing playground equipment.

1.3 RELATED SECTIONS

- A. All sections in Division 1 – General Requirements
- B. Section 01 2300 Alternates
- C. Section 32 0516 Aggregates for Exterior Improvements

1.4 REFERENCES

- A. IPEMA (www.ipema.org)
- B. ASTM F 1292 - Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
- C. ASTM F1951 – Standard Specification for determination of accessibility of Surface Systems Under and Around Playground Equipment
- D. ASTM F2075 – Standard Specification for Engineered Wood Fiber for Use as Playground Safety Surface Under and Around Playground equipment.
- E. US Consumer Product Safety Commission (CPSC) Handbook for Playground Safety.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions.
- B. Certification: IPEMA Certification.
- C. Shop drawing: Drawing indicating required depth of material. Include, manufacturer's confirmation that wood fiber design thickness is compatible with field verified fall height of play equipment.

- D. Samples: Submit manufacturer's samples of poured-in-place playground safety surfacing showing texture, color, and thickness. Sample(s) shall be six inches by six inches (6"x6")
- E. Test Reports: Submit certified test reports from qualified independent testing agency indicating results of impact attenuation testing.
- F. Certificate of Compliance: Submit manufacturer's certificate of compliance indicating materials comply with specified requirements.
- G. Warranty: Submit manufacturer's standard warranty.
- H. Insurance: Product liability Insurance Certificate.
- I. Manufacturer's Project References:
 - 1. Submit list of successfully completed projects.
 - 2. Include project name and location, name of architect, and type and quantity of poured-in-place playground safety surfacing furnished.
- J. Installer's Project References:
 - 1. Submit list of successfully completed projects.
 - 2. Include project name and location, name of architect, and type and quantity of poured-in-place playground safety surfacing installed.
- K. Maintenance Instructions: Submit manufacturer's maintenance and cleaning instructions.

1.6 QUALITY ASSURANCE

- A. Surface must be IPEMA certified and conform to the specified technical requirements and applicable standards indicated.
- B. Supplier must provide test results for Fibar® Engineered Wood Fiber and FibarMats for impact attenuation in accordance with ASTM F 1292 Standard Specification for Impact Attenuation for Surface Systems Under and Around Playground Equipment. Results must be provided for new material and for 12-year-old Engineered Wood Fiber material.
- C. Testing of Engineered Wood Fiber in accordance with ASTM F 1292 must show G-max values of less than 155G for the 8" thick system, or 120G for the 12" system at 12' drop heights, and HIC values of less than 1,000 for both new and 12-year-old material.
- D. Testing of FibarMats in accordance with ASTM F 1292 must show G-max values of less than 200G, and HIC values of less than 1,000 for a 3' drop height.
- E. Supplier must provide test results for the Engineered Wood Fiber in accordance with ASTM F 2075 Specification for Engineered Wood Fiber for Use as Playground Safety Surface Under and Around Playground Equipment.
- F. Supplier must provide test results in accordance with ASTM F 1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.
- G. Supplier must certify that the surface meets the intent of the Americans with Disabilities Act (ADA).
- H. Supplier must provide written manufacturer's 20-year warranty against loss of resiliency, lifetime warranty on FibarFelt fabric material.
- I. Supplier must provide product liability insurance certificate with project owner named as certificate holder, prior to delivery.

- J. Manufacturer's Qualifications: Manufacturer shall meet a minimum of 1 of the following 2 requirements.
 - 1. Continuously engaged in manufacturing of poured-in-place playground safety surfacing of similar type to that specified, with a minimum of 5 years successful experience.
 - 2. Furnished a minimum of 1,000,000 square feet of poured-in-place playground safety surfacing of similar type to that specified.
 - K. Installer's Qualifications:
 - 1. The Applicator/ Installer shall be trained and approved by manufacturer and must have installed a minimum of 10 applications completed within last 5 years.
 - 2. The Applicator / Installer shall employ persons trained for installation of poured-in-place playground safety surfacing.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
 - B. Storage:
 - 1. Store materials in accordance with manufacturer's instructions.
 - 2. Store materials in a dry area at a minimum temperature of 50 degrees F (10 degrees C) for a minimum of 72 hours before installation.
 - C. Handling: Protect materials during handling and installation to prevent damage or contamination.
- 1.8 ENVIRONMENTAL REQUIREMENTS
- A. Material Temperature: Ensure material temperature is a minimum of 50 degrees F (10 degrees C) at time of installation.
 - B. Air Temperature: Ensure air temperature is a minimum of 45 degrees F (4 degrees C) for a minimum of 24 hours before, during, and a minimum of 72 hours after installation.
- 1.9 LICENCING
- A. FibarSystems are unique playground surface products, the creation and origination of which are covered by one or more patents owned by The Fibar Group LLC. Award contractors must obtain a license from The Fibar Group LLC prior to construction.
 - B. A license to construct a Fibar System according to these specifications must first be obtained from The Fibar Group LLC, as licensor of patent rights reflected in U.S. Patent numbers 4,679,963; 5,026,207 and 5,076,726 and other patents pending.
- 1.10 WARRANTY
- A. Provide manufacturer's standard warranty.
 - B. To preserve warranty, FibarMat wear mats must be installed under all swings, tire swings, and slide exits. They should also be installed at other excessive wear areas, including sliding poles.

PART 2 - MATERIALS

2.1 FIBAR® SYSTEM

- A. Surfacing shall be IPEMA-certified Engineered Wood Fiber such as FibarSystems, FibarMats and FibarDrain as manufactured by The Fibar Group LLC, Suite 300 , 80 Business Park Dr. , Armonk , NY 10504 1705. You can call 1-800-342-2721 or (914) 273-8770 or email fibar@fibar.com. Standard wood chips, bark mulch, or material manufactured from recycled pallets will not be acceptable.
- B. Provide FibarSystem No. 210, Fibar® Engineered Wood Fiber to a compacted depth of approximately (twelve) 10 inches over FibarFelt (100% polyester, non-woven geotextile fabric).

2.2 SYSTEM

- A. Installed FibarSystem shall consist of a designated thickness of engineered wood fiber over FibarFelt, over drainage stone, over FibarFelt, over FibarMat set on a properly graded and compacted subsurface.

2.3 REQUIRED THICKNESS

- A. FibarSystem shall be installed in play equipment use zone(s) to achieve an installed thickness as indicated in the table below by Critical Fall Heights. Where a play area has equipment with varying Critical Fall Heights, the entire area will be covered with a thickness consistent with the greatest height.

| SYSTEM # | FIBAR THICKNESS AND REQUIRED MATERIALS LAYERING | CRITICAL HEIGHT | USE |
|----------|--|-----------------|---------------|
| 212 | 12" Fibar®, FibarFelt®, 3" drainage stone*, FibarFelt®, FibarMat® | 12' | Playground |
| 210 | 10" Fibar , FibarFelt, 3" drainage stone*, FibarFelt, FibarMat | 12' | Playground |
| 208 | 8" Fibar , FibarFelt, 3" drainage stone*, FibarFelt, FibarMat | 10' | Playground |
| 206 | 6" Fibar , FibarFelt, 3" drainage stone*, FibarFelt | NA | Jogging Track |
| All | 36" x 36" x 1.5" FibarMat® | NA | Playground |
| | | | |
| | <i>* Drainage stone not supplied by Fibar Systems. Customer must obtain locally.</i> | | |

- B. Required materials for twelve-inch, ten-inch, and six-inch systems consists of, from top to bottom:

1. Thickness of compacted Fibar.
2. Layer of FibarFelt
3. Thickness of Drainage Stone (#67 blend angular drainage stone)
4. Layer of FibarFelt
5. Layer of FibarMat
6. Properly graded and compacted subgrade.

- C. The amount of Fibar® Engineered Wood Fiber necessary to provide the approximate depth after compaction is indicated in the table below:

| THICKNESS | CUBIC YARDS REQUIRED PER 1,000 sq. ft. |
|-----------|---|
| 12" | 50 cubic yards per 1,000 sq. ft. of playground area |
| 10" | 46 cubic yards per 1,000 sq. ft. of playground area |
| 8" | 38 cubic yards per 1,000 sq. ft. of playground area |

2.4 FIBARFELT

- A. FibarFelt shall be a needle-punched 100% non-woven geotextile fabric material allowing water to flow through it while ensuring that rocks and soil do not contaminate the Engineered Wood Fiber.

2.5 DRAINAGE STONE

- A. #67 blend angular drainage stone in accordance with Section 32 0516

2.6 FIBARMATT

- A. FibarMatts shall be 3' x 3' rubber mats with beveled (handicapped-friendly) edges that help prevent excessive wear and displacement of Engineered Wood Fiber under swings and at slide exits.
- B. One (1) FibarMat (minimum size: 36" x 36" x 1.5" with a 2" beveled edge on all sides) shall be provided under each swing seat, tire swing, slide exit, and sliding pole, etc. Double and triple slides may require multiple FibarMats.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine the site to identify the full extent of area to receive IPEMA-certified Engineered Wood Fiber.
- B. Layout boundaries of the area and confirm that area includes the full use zone(s) of play equipment. Use zones shall conform to the US Consumer Product Safety Commission (CPSC) Handbook for Playground Safety. Verify measurements from each item to confirm use zone.
- C. CPSC and ASTM Recommended Use Zones.
 - 1. A use zone of at least 6 feet must surround all equipment with the exception of:
 - a. Swings. A use zone equal to 2 times the height of the top rail is needed in front of and 2 times behind swings (2 times in front and 2 times behind).
 - b. Slides. A use zone equal to the height of the slide plus 4 feet, extending a minimum of 6 feet, is needed in front of slide exits.
- D. Notify the Owners Representative of any issue or not conformance with CPSC guidelines.

3.2 PREPARATION

- A. At locations where existing fall attenuating material has been placed, remove and dispose of all existing wear mats, wood fibers or other surfacing material from the site. Material in previous use may not be reused for the purpose of this Work.

3.3 EXCAVATION

- A. Excavate area 9" (for 8" System) or 13" deep (for 12" System) with a minimum 1% downward grade to ensure proper drainage. It is not recommended that a Fibar System be installed on a grade greater than 10%. All roots, stones, and vegetation must be removed.
- B. The area should be well compacted and accurately graded, especially in areas where additional fill has been brought in.

- C. Cut a trench 1' wide by 2' deep all along the inside edge perpendicular to the grade and install the FibarFelt and fill with stone. Connect low end to storm drain or similar device to take water collected from playground area away from site.

~~D. If applicable, install playground equipment.~~

3.4 INSTALLATION

- A. Install the drainage stone, FibarFelt, FibarMats, and the Fibar® Engineered Wood Fiber in accordance with manufacturer's instructions and specification drawings.
- B. Cover sub-grade and the drainage trench with FibarFelt material. Overlap all seams a minimum of 3". It will be necessary to slit the FibarFelt to fit around the footings of the equipment. Where possible, overlap all slits with next piece of FibarFelt.
- C. Install 3", #67 blend clean, angular drainage stone.
- D. Cover stone with FibarFelt material. Overlap all seams a minimum of 3". It will be necessary to slit the FibarFelt to fit around the equipment footings. Where possible, overlap all slits with the next piece of FibarFelt.
- E. Install FibarMat rubber wear mats on top or in the middle of Fibar wood fiber or under the Fibar (on top of FibarFelt material).
 - 1. To preserve the warranty, FibarMat rubber wear mats must be installed under all swings, tire swings, and slide exits.
 - 2. They should also be installed at other excessive wear areas, including sliding poles. FibarMat wear mats are available through your local Fibar Representative.

~~F. If applicable, install retaining border if required.~~

- G. IMPORTANT: With an indelible marker, mark off all the legs of the equipment with the compacted FibarSystem design depth, excluding the drainage stone.
- H. Spread Fibar wood fiber using a Bobcat or a small front end loader.
 - 1. Operator should be careful not to travel on the FibarFelt or turn sharply on the Fibar.
 - 2. It will also be necessary to use hand labor to spread.
 - 3. To allow for natural compaction, Fibar will supply additional material. Important: Install all the material delivered. The Fibar may be several inches above grade or border until it compacts.
 - 4. Feather the edges to make a smooth transition to existing grade or border.
- I. Hand rake for a perfectly smooth, finished surface.
- J. After two weeks of active use, surface should be raked again.

3.5 TRAINING, INSPECTION AND MAINTENANCE

- A. Provide Owner with manufacturer's inspection and maintenance information / manual.
- B. Owner shall make frequent visual inspections and remove debris, especially stones, broken glass or foreign objects. Avoid contamination of the Fibar® Engineered Wood Fiber with sand, gravel, mud, or native soil.
- C. Inspect for any weed growth in the Fibar. Remove by hand or use a safe weed killer recommended by your local Cooperative Extension.
- D. Areas of constant wear and impact should be raked level. Particular attention to areas under swings, sliding poles and at slide exits. When Fibar System installation is close to a sand pit,

the sand may get tracked into the Engineered Wood Fiber surface. This can change the impact attenuation of the fibar System surface. The surface should be raked clean of debris.

- E. Inspect and adjust FibarMat wear mats under swings, tire swings, slide exits and sliding poles to help ensure compliance with the Federal Accessibility Law. The preferred method is to place the mats on top of the Fibar Engineered Wood Fiber. FibarMat wear mats reduce maintenance.
 - 1. To order missing or replacement FibarMats, call The Fibar Group, LLC 800-342-2741, or 914-273-8770 or email info@Fibar.com; Fax: 917-273-8659.
- F. Top-off Fibar material as needed, generally after a period of three (3) years of use. Heavily used playgrounds may require more frequent top-offs. Restore depth of Fibar material as needed.
 - 1. Play equipment may be marked to indicate the depth of required material to facilitate quick visual inspection and material placement.
 - 2. Check depths at several points using a long-handled screwdriver marked in inches to determine the actual depth.

3.6 WARNINGS

- A. Incorrect installation or maintenance, failure to install all the material delivered, failure to maintain the depth of the FibarSystem at the System design depth, failure to use FibarMat wear mats at slide exits, under all swings and tire swings (except enclosed or tot swings), other wear areas (a wear area is any area in the playground where the surface depth falls below the System design depth for the playground surface), use of the FibarSystem and/or materials with others not provided by The Fibar Group LLC, abnormal use, lack of proper maintenance, or vandalism can result in serious injury or death. Be aware that no playground surface can prevent all accidents or injuries.
- B. Winter Conditions. Should there be moisture retention in the FibarSystem, it will freeze when the temperature drops below the freezing mark. Please check your surface frequently in winter weather. When the surface is frozen, the impact attenuation properties of Fibar are lost and for this reason, the play area should not be used.
- C. Reread the Installation and Maintenance Instructions periodically. If at any time you are concerned about the surface and its performance, please contact us at 1-800-342-2721 or (914) 273-8770.
- D. Winter inspections: Any retained moisture in Fibar System surface will freeze when the temperature drops below the freezing mark. Check the surface in winter weather. **When the surface is frozen, the play area should not be used.**
- E. **If at any time there is a concern about the surface and its performance, call toll free 800-342-2721, 914-273-8770, info@Fibar.com; or Fax 914-273-8659.**

END OF SECTION 32 1816

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SECTION 32 2335

DECOMPACT TREE ROOT ZONES

PART 1 - GENERAL

1.1 SUMMARY OF WORK

- A. Under this Item, the Contractor/Subcontractor's arborist shall DECOMPACT TREE ROOT ZONES for all trees above 6" DBH, in accordance with the plans, specifications, and as directed by the Landscape Architect or the Construction Manager.
- B. Note: DBH is defined as Diameter at Breast Height, which is 4' -6" above mean grade.
- C. Decompaction of tree root zone areas shall include by the cost of all labor, materials, and equipment necessary for decompacting trees by either vertical mulching, radial trenching , or air- tilling the critical root zone as directed and other incidentals necessary to complete the work including compost and watering, in accordance with the plans and specifications, to the satisfaction of the Construction Manager.

1.2 RELATED DOCUMENTS

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

1.3 RELATED SECTIONS

- 1. Section 32 9113 Planting Soils
- 2. Section 32 9119 Landscape Grading
- 3. Section 32 9200 Turf-Sod
- 4. Section 32 9300 Landscape Planting

1.4 NOTIFICATIONS

- A. Before any decompaction work can begin under this item, the Contractor shall notify the Landscape Architect a minimum of 48 hours in advance of any work on, or impacting, existing trees.

1.5 QUALITY CONTROL

- A. All work shall be performed under the supervision of a qualified arborist.
- B. Certification by the International Society of Arboriculture (I.S.A.), Champaign, IL shall be considered proof of the requisite experience and educational requirements.

1.6 SUBMITTALS

- A. The Contractor shall submit the following for review and approval prior to performing work.
 - 1. Arborist Qualification: The Contractor shall submit for approval, the name and qualifications of the proposed tree care sub/Contractor. The Contractor shall submit the following:

- a. ISA certification or Documentation of eight (8) hours of required education as well as documentation of three (3) years of full-time experience in arboriculture in urban areas.
2. Name, address, and phone numbers for three (3) professional references associated with similar work performed within the past three (3) years.
3. The arborist shall meet the qualifications listed on the first page of this item under the heading Qualification Required: Verification of certification, qualifications, and references must be submitted to the Landscape Architect for approval prior to performing any work.
- B. Compost sample: The Contractor shall submit one (1) pound sample of compost, labeled with company name and test results. for the approval of the Landscape Architect.
- C. The Contractor, at the direction and discretion of the Construction Manager, shall furnish a certified report of an approved analytical chemist showing the mechanical and chemical analysis of representative samples of the compost they propose to use.
- D. All samples are to be taken by the Construction Manager and delivered to the Laboratory. The price bid shall include laboratory and inspection charges.
- E. No compost shall be delivered until the approval of samples by the Construction Manager, but such approval does not constitute final acceptance. The Construction Manager reserves the right to reject, on or after delivery, any material which does not, in their opinion, meet these specifications. When compost is stored on the job, it shall be done as directed by the Construction Manager.

PART 2 - PRODUCTS

2.1 COMPOST

- A. Compost shall contain organic matter, or material of generally humus nature capable of sustaining the growth of vegetation, with no admixture of refuse or material toxic to plant growth. The Compost shall be free of pathogens and stones, lumps, or similar objects larger than two inches (2") in greatest diameter, as well as roots, brush, and weeds.
- B. Composts that have been derived from organic wastes such as food and agriculture residues, animal manures, and sewage sludge that meet the above requirements, and are approved by the New York State DEC, are acceptable compost sources.
 1. Compost shall have an approximate N-P- K analysis of at least 1-1-0 as delivered, with a pH between 5.5 and 8.0 and a solids content of at least fifty percent (50%).
 2. Compost shall have a minimum of twenty five (25%) to a maximum of fifty percent (50%) organic material.
 3. Compost shall be from Long Island Compost, Islip, NY or "Nature's Choice Compost" by Nature's Choice Corp., Union, NJ, or Agresoil compost by Agresource, Inc. Amesbury, MA or approved equal.
 4. Organic biosolids are not acceptable. Compost available from NYC Department of Sanitation may be acceptable for purposes of this specification. See www.nyc.gov/sanitation or www.nyccompost.org for pick-up sites.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Contractor shall conduct a site meeting with arborist, landscape architect, and site subcontractor to evaluate the extent of tree critical root zone area to be decompacted. Decompaction practices does not alleviate the Contractor from protection of root zone areas during construction.

3.2 DECOMPACTION

- A. Where specified, existing trees to remain shall be decompacted after completion of construction operations including excavation, paving, pruning and backfilling.
- B. All tree root protection shall be removed prior to starting decompaction and decompaction shall not be performed in frozen ground conditions.
- C. Decompaction shall be performed utilizing one of the three methods listed below as shown on the contract tree protection plan or as determined by the Landscape Construction Unit.

3.3 AIR-TILLING OF THE CRITICAL ROOT ZONE METHOD:

- A. Using a pneumatic device, the area within a 3 to 5 foot radius of the tree stem, and specified on the Tree Protection Plan, is to be tilled to a depth of 6 to 8-inches using a compressed air gun. Compost backfill shall be applied to the area at a depth of 1-inch and tilled into the soil using a compressed air gun. The area shall be top dressed with four-inches (4") of shredded bark mulch and thoroughly watered (paid under a separate item).

3.4 RADIAL TRENCHING METHOD:

- A. Using a pneumatic device, narrow trenches, 18 to 24-inches wide, shall be cut in a radial pattern throughout the root zone. These trenches appear similar to the spokes of a wagon wheel. The trenches shall begin two (2') feet from the trunk of the tree and between buttress roots to avoid cutting any major support roots. The trenches should extend at least as far as the dripline of the tree. The trenches shall be 8-12 inches in depth. Compost backfill shall be used to fill the trenches. Where required, fertilizer may be mixed with the compost and applied. The area shall be thoroughly watered after completion.

3.5 VERTICAL MULCHING METHOD:

- A. Three-inch (3") diameter holes shall be excavated 12" deep, spaced 30" on center in a grid pattern throughout the root zone of the tree. Proposed tools and methodology for this work must be submitted and approved by the Director of Landscape Construction or his or her designated representative. Compost backfill shall be used to fill the holes and the area shall be thoroughly watered after completion.

| Tree DBH | Number of 3" Dia. Holes |
|----------|-------------------------|
| 0-6" | 40 |
| 6-12" | 60 |
| 12-18" | 80 |
| 18-24" | 100 |
| 24-30" | 120 |
| 30-36" | 160 |
| 36-42" | 180 |
| 42-48" | 200 |
| over 48" | 220 |

- B. Where a pneumatic device is required, work shall be performed with a device such as an Air-Spade® CGP System, as manufactured by Concept Engineering Group, Inc. Verona, PA, or approved equal. The Contractor shall provide a compressor unit for operating the pneumatic excavator rated at one hundred fifty standard cubic feet per minute (150 scfm) at ninety pounds per square foot gauge (90 psfg). Different nozzles may be used on the air spade to expedite the work or minimize the amount of airborne material. Where a pneumatic device is used, care shall be taken to avoid rocks being scattered and inadvertently damaging private or public property. In addition, operators must be equipped with adequate protective clothing and gear, in accordance with manufacturer's recommendations.
- C. All tree roots exposed by the pneumatic or hand excavation operation must be kept constantly moist with burlap covered with white plastic and checked a minimum of two (2) times a day, once in the morning and once in the afternoon, for a maximum of forty-eight (48) hours, until backfill is complete as directed by the Construction Manager.

3.6 WATERING:

- A. Watering shall take place at one-week intervals for a period of three weeks following decompaction at a rate of 750 gallons of water per 1000 square feet of decompacted area.
- B. The Construction Manager may order less watering based on weather conditions, resulting soil water content or other factors. If drought conditions warrant, the Landscape Architect may order more frequent watering than scheduled or during non-scheduled periods. A watering schedule shall be submitted to the Construction Manager each week.
- C. Watering for trees shall be conducted by dispersing water to plants individually. Water shall be delivered to each plant under low pressure through the end of an appropriately sized hose or watering wand, or soaker hose anchored by pins where appropriate. The rate of watering should allow maximum penetration of water into the soil and at a rate that does not displace mulch or soil, cause uprooting or exposure of plant root to the air or break saucers around plants that were created to hold water.
- D. Water shall not be applied in a manner which damages plants, stakes, or adjacent areas. Watering shall not cause uprooting or exposure of plant's roots to the air. Damages resulting from these operations shall be immediately repaired at the Contractor's expense.
- E. Where water is supplied from City hydrants, the Contractor shall obtain a hydrant permit from the Department of Environmental Protection. The Contractor is responsible for keeping the permits current. The permits are available from each borough office.

The addresses of borough offices are:

Manhattan: 1250 Broadway (8th floor)
 Brooklyn: 250 Livingston St. (8th floor)
 Bronx: 1932 Arthur Avenue (6th floor)
 Queens: 96-05 Horace Harding Ex., Corona 60 Bay St (6th floor)
 Staten Island: Corona 60 Bay St (6th floor)

If water is not available from NYC sources, for any reason, the Contractor is responsible for supplying water from their own source.

3.7 MULCHING

- A. Where shown on the Tree protection plan, "Protect existing tree roots with woodchips-6" Depth", "Protect existing tree roots with plywood or mats", "Shredded Bark Mulch", "Preparatory Pruning" and "Preparatory Fertilizing", where required, shall be paid separately under their respective items.

3.8 CLEANUP

- A. As directed by the Construction Manager, the area of decompaction shall be cleaned of loose stones, soil, dirt, excess mulch or other materials. Debris shall be removed from the site of the contract within twenty-four (24) hours and disposed of as directed by the Construction Manager, and per the ALB Quarantine provisions.

END OF SECTION 32 2335

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SECTION 32 2900
SITE FURNISHINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

- A. Section includes:
 - 1. Bench
 - 2. Trash Receptacle
 - 3. Picnic table, ADA accessible (BY OWNER)

1.3 RELATED SECTIONS

- A. Section 03 1000 Cast-in-Place Concrete

1.4 REFERENCES

- A. ASTM Testing Standards:
 - 1. ASTM A 536 – Ductile Iron.
 - 2. ASTM A 1011 – Hot rolled pickled and oiled steel.
 - 3. ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
 - 4. ASTM D 522 – Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
 - 5. ASTM D 523 – Standard Test Method for Specular Gloss.
 - 6. ASTM D 2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
 - 7. ASTM D 2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
 - 8. ASTM D 3359 – Standard Test Methods for Measuring Adhesion by Tape Test.
 - 9. ASTM D 3363 – Standard Test Method for Film Hardness by Pencil Test.
 - 10. ASTM G 155 – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.
 - 11. ASTM A 312 - Seamless and Welded Austenitic Stainless-Steel Pipes
- B. ISO Testing Standards:
 - 1. ISO 1520 – Paints and Varnishes – Cupping Test.
 - 2. ISO 2815 – Paints and Varnishes – Buchholz Indentation Test.
- C. American Welding Society's (ASW) specification D-19.0, *Welding Zinc Coated Steel*.

1.5 SUBMITTALS FOR REVIEW

- A. Product Data: Submit manufacturer's product data, storage and handling requirements and recommendations, installation methods and available colors, styles, patterns and textures.

1. Bench
2. Trash Receptacle
3. Picnic Table, ADA accessible

B. Shop Drawings: Submit manufacturer's shop drawings, including plans and elevations, indicating overall dimensions.

1. Bench
2. Trash Receptacle
3. Picnic Table, ADA accessible

C. Samples: Submit manufacturers' samples of materials, finishes, and colors.

1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of furnishing types and sizes required, whose products have been in satisfactory use in similar service for not less than five years.
- B. Warranty: Manufacturer's standard warranty.
- C. Welding Qualifications: Qualify procedures and personnel according to the following:
- D. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- E. Product Support: Products are supported with complete engineering drawings and design patents.
- F. Production: Orders are filled within a 60-day schedule.
- G. Facility Operator: Welders and machine operators are certified.
- H. Installer's Qualifications: Firm with at least three years of successful installation experience on projects with furnishing work similar to that required for project.
- I. All elements of each product type shall be provided from a single Manufacturer for the entire project

1.7 DELIVERY/STORAGE/HANDLING

- A. Deliver, store, and handle materials in a manner which will ensure the preservation of their quality and fitness for the Work.
- B. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- C. Storage: Store materials in clean, dry area in accordance with manufacturer's instructions. Keep materials in manufacturer's original, unopened containers and packaging until installation.
- D. Handling: Protect materials and finish during handling and installation to prevent damage.

1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For site furnishings to include in maintenance manuals.

1.9 PRE-INSTALLATION MEETING:

- A. Prior to installation of any materials, conduct a pre-installation meeting to discuss the scope of work and review installation requirements. The pre-installation meeting shall be attended by all parties involved in the installation of the material.

1.10 WARRANTY

- A. Warranty Information: Products will be free from defects in material and/or workmanship for a period of three years from the date of invoice.
- B. The warranty does not apply to damage resulting from accident, alteration, misuse, tampering, negligence, or abuse.
- C. Warrantor shall, at its option, repair, replace, or refund the purchase price of any items found defective upon inspection by an authorized service representative.
- D. Scratches, nicks, and dents are to be considered normal wear and tear and are not the responsibility of the manufacturer.

PART 2 - PRODUCTS

2.1 BENCH (FOUR-FOOT, SIX-FOOT AND EIGHT-FOOT LENGTHS)

- A. Bench shall be a bench with backrest and shall be Central Park Settee, Model #6735, as manufactured by Kenneth Lynch and Sons, 114 Willensbrock Rd, Oxford, CT 06478, Phone: (203) 264-2831. Fax (203) 264-2833. Website www.klynchandsons.com.
- B. Materials
 - 1. Bench legs: Cast ductile iron. Powder coated. Standard Black.
 - a. Four-foot bench, two legs.
 - b. Six-foot bench, two legs.
 - c. Eight-foot bench, three legs.
 - 2. Seat and Backrest: "Green Painted" White Oak
 - a. Slats: 2.5 inches by 1.25 inches and 2.25 inches sloping to 1.66 inches by 6.30 inches
 - b. Slat Edges shall be eased.
 - 3. Tie Rod: 5/8" dia. hot rolled steel with 5/8 – 11 cut threads and galvanized steel hex nuts.
 - 4. Fasteners: stainless steel carriage bolts, nuts and washers, 2 fasteners per board at each leg.
- C. Dimensions
 - 1. Four-foot bench is 48 inches long. Six-foot bench is 72 inches long. Eight-foot bench is 96 inches long
 - 2. Seat height 18 inches
 - 3. Seat depth 24-15/16 inches, inclusive of backrest
 - 4. Height of backrest shall be 31-7/16 inches
- D. Anchoring
 - 1. Bench shall be surface mounted.
 - 2. Anchoring hardware shall be ½" wedge anchor bolt 4-1/2" minimum.

2.2 TRASH RECEPTACLE

- A. Trash receptacle shall be SDC-36 from the Steelsites™ collection as manufactured by Victor Stanley, Dunkirk, MD 20754, USA, 800-368-2573 x323 and as locally represented by Andrew Hosmer, andrewh@victorstanley.com, 301-875-6065, or approved equal.
- B. Receptacle shall be fabricated from steel shotblasted, etched, phosphatized, preheated, and electrostatically powder coated with T.G.I.C. polyester powder coatings. Products shall be fully cleaned and pretreated, preheated and coated while hot to fill crevices and build film coating. Coated parts shall be fully cured to coating manufacturer's specifications. The thickness of the resulting finish shall average 8 to 10 Mils (200-250 microns). Side opening door shall pivot on stainless steel pivot pins set in oil impregnated bronze bushings.
- C. Trash receptacle shall be model Steelsites™, SDC-36, with a side-opening container with steel cover, 3/8" x 1" vertical solid steel bars, 1/4" x 2" horizontal solid steel band; 16-gauge steel dome with optional raised band, leveling feet with a 3/8" diameter threaded steel shaft.
 - 1. Provide with solid convex lid.
 - a. Provide with pressure sensitive vinyl outdoor decals "CITY OF HUDSON"
 - 2. Provide with 36-gallon capacity high density plastic liner, ribbed and reinforced: Black.
 - 3. Provide with padlockable latch.
 - 4. Color shall be: Black.
 - 5. Provide with Standard (1) anchor bolt hole.
 - 6. Furnish and install anchoring bolt(s), not supplied by manufacturer.
- D. Trash receptacle must be permanently affixed to the ground, in accordance with manufacturer's instruction.

2.3 ADA HEAVY DUTY PICNIC TABLE [FURNISHED AND INSTALLED BY OWNER]

- A. Picnic table shall be ADA Accessible Heavy Duty Picnic Table as manufactured by Jamestown Advanced Products, Jamestown, NY; www.jamesdownadvanced.com; 1-800-452-0639 x 217, product representative Tim Comstock, tcomstock@jamestownadvanced.com.
 - 1. Table length shall be 8 feet inclusive of accessible tabletop extension to allow wheelchair access. Side bench lengths shall be 6 ft +/-.
 - 2. Framework shall be 2" I.D. Schedule 40 pipe.
 - 3. Framework shall be powder coated: BLACK.
 - 4. Tabletop and bench shall be untreated pine lumber.
 - a. Owner shall stain and seal pine lumber; all sides with Cabot Stain; color: DARK GREEN to match benches.

2.4 PICNIC TABLE - HEAVY DUTY [FURNISHED AND INSTALLED BY OWNER]

- A. Picnic table shall be Heavy Duty Picnic Table as manufactured by Jamestown Advanced Products, Jamestown, NY; www.jamesdownadvanced.com; 1-800-452-0639 x 217, product representative Tim Comstock, tcomstock@jamestownadvanced.com.
 - 1. Table length shall be 8 feet with side benches of equal length.
 - 2. Framework shall be 2" I.D. Schedule 40 pipe.
 - 3. Framework shall be powder coated: BLACK.
 - 4. Tabletop and bench shall be untreated pine lumber.
 - a. Owner shall stain and seal pine lumber; all sides with Cabot Stain; color: DARK GREEN to match benches.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.
- B. Notify Construction Manager of conditions that would adversely affect installation or subsequent use.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 CONCRETE

- A. Formwork, color and finishes for cast-in-place concrete to be approved by Construction Manager prior to pouring concrete.

3.3 INSTALLATION, GENERAL

- A. Install site furnishings located on decking after decking is completed and when it will not interfere with the completion of other work.
- B. Install site furnishings level, plumb, true, and positioned at locations indicated on Drawings.
- C. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- D. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- E. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
- F. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 3/4 inch (19 mm) larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-shrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
- G. Pipe Sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with non-shrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
- H. Bolting in place: Furnishings to be bolted in place shall be stainless steel threaded rod with chemical anchor set in cast in place concrete. If surface is paver, threaded rod shall extend through paver(s) to secure into concrete footing. It is not recommended to locate anchor bolts until receptacle is in place.

3.4 ADJUSTING

- A. Finish Damage: Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Construction Manager.
- B. Component Damage: Remove and replace damaged components that cannot be successfully repaired as determined by Construction Manager.

3.5 CLEANING

- A. Clean furnishings promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that could damage finish.

3.6 PROTECTION

- A. Cover or otherwise protect installed site furnishings until related construction is completed. Ensure that, except for normal weathering, site furnishings will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 32 2900

SECTION 32 4000

LANDSCAPE BOULDERS AND STONE SEATING

PART 1 - GENERAL

1.1 SUMMARY OF WORK

- A. Under this item, the Contractor shall furnish and install Boulders and Stone Block Seating as needed to achieve the plans, specifications, and directions of the Landscape Architect. Work shall include selection, transporting, cleaning, siting, setting and adjusting boulders and stone blocks, as directed by the Landscape Architect or Construction Manager.

1.2 RELATED DOCUMENTS

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

1.3 RELATED SECTIONS

- A. Section 32 0516 Aggregates for Exterior Improvements
- B. Section 32 9200 Turf - Sod
- C. Section 32 9300 Landscape Planting

1.4 SUBMITTALS

- A. Samples: The Contractor shall submit samples showing the color gradation and texture of the proposed stone. All samples shall be clearly labeled with Contract No. and source.
- B. Photos: The Contractor shall submit photos of the boulders and stone blocks taken at the quarry or pro-posed source showing the typical range in size and shape. A person or other object shall be included in the photos to provide scale.
- C. Contractor shall provide location for pre-delivery inspection of selected boulders and stone blocks for approval by the landscape architect. Pre-delivery inspection shall be within a fifty-mile radius of the project location. Travel by the Construction Manager / landscape architect beyond fifty miles will be at the Contractors expense.
- D. All stones used on the work shall conform to the approved samples. boulders and stone blocks delivered to the site and not confirming to the samples and photos shall be rejected and removed at the Contractor's expense.

1.5 INSPECTION / SELECTION

- A. Boulders and stone blocks shall be subject to inspection and approval by the Landscape Architect at the site for conformity to specification requirements as to quality, size and appearance. Such approval shall not impair the right of rejection due to damage suffered in handling and transportation.
- B. Rejected boulders and stone blocks shall be removed immediately from the site. Inspection outside the State of New York or beyond a 50-mile radius from the site shall be made at the expense of the Contractor. A Contractor's representative shall be present at all inspections.

- C. Written requests for inspection of boulders shall be submitted to the Landscape Architect at least 14 days prior to date of inspection. The Landscape Architect may refuse inspection if in his/her judgment an insufficient quantity of boulders and stone blocks are available for inspection. The Contractor shall, at his expense, supply the Landscape Architect with such labor and assistance as may be necessary in the handling of material for proper inspection.

PART 2 - PRODUCTS

2.1 BOULDERS

- A. Boulders shall be Mossy Hill Boulders as quarried by New York Quarries, 305 County Route 111, Alcove, NY 12007; 518-756-3138; www.newyorkquarries.com, or approved equal.
- B. Mossy Hill stone is a sedimentary sandstone that is predominantly brown and grey and having tops that are somewhat smooth.
- C. Boulders shall be hard, resistant to water infiltration and frost. Boulders shall be rough, irregularly shaped and bearing few signs of quarrying. No sawn sides shall be permitted. Changes in the cleft within each piece is expected. Boulders shall be free from scratches, scuffs, or mechanical damage. They shall be selected for their visual attractive-ness and they shall be washed and free of soil, dirt and cement for final acceptance.
- D. Size: Boulders as indicated on the plan shall be Small, Medium, and Large and correspond to New York Quarries' classification as follows:
 - 1. Two-man boulders: ranging from 200 to 500 pounds per piece.
 - 2. One-ton boulders: ranging from 500 to 2000 pounds per piece.
 - 3. Large-Boulders: ranging from 2000 to 16000 pounds per piece.
- E. Boulders shall have eased edges and corners.

2.2 STONE BLOCK BENCH AND STACKED STONE BLOCK BENCHES

A. DESCRIPTION

- 1. The Contractor shall furnish and install stone block benches and stacked stone benches as shown in the Contract Documents. The Contractor shall verify the type, quantity, location and installation method for each stone bench with the Construction Manager prior to ordering.

B. MATERIALS

- 1. Stone Block Benches and Stacked Stone Benches as indicated in the contract documents.
- 2. Provide regionally quarried stone as identified below:
 - a. Onondaga Limestone block as quarried by:
 - b. New York Quarries, 305 County Route 111, Alcove, NY 12007 Telephone: (518) 756-3138
 - c. Website: <http://www.newyorkquarries.com/>
- 3. Dimensions: Radial and square dimensional stone as shown on drawings. Eased edges as indicated and to eliminate sharp edges.
- 4. Finish: Sawn, Burned and Brushed, Split Face as shown on drawings.
- 5. Crushed Stone per Section 32 0516 Aggregates for Exterior Improvements.
- 6. Sand Cement setting bed.
- 7. PVC Pipe, Schedule 40, perforated, 4-inch diameter.

C. FINISH

1. Top: Sawn with burned and brushed finish.
2. Sides: Split face finish.
3. Bottom: Sawn

PART 3 - EXECUTION

3.1 BOULDER INSTALLATION

- A. The boulders shall be furnished and placed as shown on the drawings and as directed in the field by the Landscape Architect or Construction Manager.
- B. The boulders shall be placed one by one on well compacted soil or broken stone.
- C. Boulders shall be lifted and set by use of fabric slings to avoid damage to the surface of the boulders.
- D. Boulders shall be set with striations and bedding planes laid horizontal and presenting a flat top for seating.
- E. Boulders shall be placed in clustered arrangements as shown on the plans and designated by the Landscape Architect or Construction Manager. Contractor shall make adjustment to placement of stones at the direction of the Landscape Architect.
- F. Boulders shall be set in earth with one-third of boulder buried and two-thirds exposed unless otherwise directed. The Contractor shall perform any fine grading required to properly set the boulders, including placing and compacting backfill.

3.2 STONE BLOCK BENCHES AND STACKED STONE BENCHES

- A. Stone block (single and stacked) benches shall be furnished and placed as shown on the drawings and as directed in the field by the Landscape Architect or Construction Manager.
- B. Top seat surfaces shall be level. Edges shall be eased, and no sharp edges will be permitted.
- C. Set stacked stones as shown on the drawings. Mortar benches in place with a sand cement setting bed. Adjust as necessary to make seat surfaces level.

3.3 CLEANING

- A. Boulders and stone block seating shall be washed and delivered dust and dirt free at the conclusion of the Work.

END OF SECTION 32 4000

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SECTION 32 9100

PLANTING SOILS

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

- A. This Section includes:

- 1. Soil A – Horticultural Subsoil
- 2. Soil B – Planting Topsoil
- 3. ~~Soil C – Bioretention Soil~~
- 4. Soil D – Turf Soil
- 5. Soil E – Compost to Top-dress Lawn
- 6. ~~Soil F – Ericaceous Plant Soil Amendment~~

- B. Related Sections:

- 1. All Sections in Division 01 – General Requirements.
- 2. Section 312000 Site Earthwork – for subgrade preparation
- 3. Section 329201 Turf – for topdressing existing lawn
- 4. Section 329300 Landscape Planting

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM) Standards, Methods:

- 1. C 136-01: “Standard Test Method for Sieve Analysis of Fine and Course Aggregates” (Dry Sieving).
- 2. D 422-63 (2002): “Standard Test Method for Particle-Size Analysis of Soils” (Hydrometer).
- 3. D 698: “Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort” (Standard Proctor).
- 4. ASTM D3385 - 09 Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer.
- 5. D 1556-00: Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
- 6. D 2167-94: Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- 7. D 2922-01: Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- 8. D 4972-01: “Standard Test Method For pH of Soils” using distilled water.
- 9. F 1647-02a: “Standard Test Method for Organic Matter Content of Putting Green and Sports Turf Zone Mixes.

- B. Woods End Research Laboratory, Mt. Vernon, Maine:

- 1. Solvita Manual, Version 3.5.

- C. Recommended Soil Testing Procedures for the Northeastern United States, 2nd Edition, Northeastern Regional Publication No. 493, Agricultural Experiment Stations of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and West Virginia, Revised, December 15, 1995: Referenced Document may be obtained on the web at <http://ag.udel.edu/EXTENSION/agnr/soiltesting.htm>. Tests include the following:
- D. Test for soil Organic Matter by loss of weight on ignition, as described in Northeastern Regional Publication No. 493, p. 59.
- E. Test for soil CEC by exchangeable acidity method as described in Northeastern Regional Publication No. 493, p. 64.
- F. Test for soil Soluble Salts shall be by the 1:2 (v: v) Soil:Water Extract Method as described in Northeastern Regional Publication No. 493, p. 74.
- G. Test for Buffer pH by the SMP method as described in Northeastern Regional Publication No. 493, p. 20.
- H. Code of Federal Regulations Title 40, Chapter I-Environmental Protection Agency:
 - 1. 40 CFR Part 503 rule, Table 3, page 9392, Vol. 58 No. 32.
- I. American Society of Agronomy
- J. American Association of Nurserymen, American Standards for Nursery Stock, (ANSI Z60.1), latest edition, published by the American Association of Nurserymen, 1250 I Street, N.W., Suite 500 Washington, D.C. 20005.
- K. ANSI: American National Standards Institute.

1.4 DEFINITIONS

- A. Subgrade: Soil material and levels resulting from the approved rough grading work. Subgrade soil shall be existing soil or other materials as in Section 312000 – Earthwork, which are either undisturbed or have been placed resulting from the approved rough grading work. Loosening of all subgrade areas prior to placement of Planting Soils is included in this Section.
- B. Planting Soils: Planting Soils are composed of a blend of three base components: base loam, organic material and sand. The quality of the blend depends on the quality of the original components. Contractor is responsible for locating and obtaining approval of sources for base loam, organic material and sand that meet the Specification requirements. Contractor is then responsible for mixing the components. Approximate mixing ratios are provided, but may require adjustment, depending on the final materials and with the approval of the Landscape Architect or their representative, in order to meet Specification requirements for each blend. Avoid bucket or pad mixed soils.
- C. Bucket or Pad Mixed: Avoid mixing soils with an excavator bucket on a concrete pad. When mixing with a bucket, ratios of base components are not always equally measured and not equally blended when bucket mixed. Bucket mixed soils will not be accepted.

1.5 SUBMITTALS

- A. Submittals: in accordance with Submittal Procedures
- B. At least 30 days prior to ordering materials, submit to the Owner's Representative samples, certifications, manufacturer's product data and certified test results for materials as specified

below for approval in conformance with the requirements of this Specification. No materials shall be ordered or delivered until the required submittals have been reviewed and approved by the Owner's Representative.

1. Delivered materials shall closely match the approved samples. Approval shall not constitute final acceptance.
2. Owner's Representative reserves the right to reject, on or after delivery, material that does not meet these Specifications.
3. Contractor responsible for recognizing that these critical project materials warrant timely and serious attention, that testing process to achieve approved materials should be considered a lead time item, and under no circumstance shall failure to comply with specification requirements be an excuse for "staying on project construction schedule."
4. Product Data: submit most recent printed information from manufacturer. For Organic Materials, identify the material(s) of which is it composed and identify the location where material was composted.
 - a. Fertilizers
 - b. Ground Limestone
 - c. Superphosphate
 - d. Aeration piping, couplings, connections, and perforated end caps.

C. Samples: Submit 1-gallon planting soil samples in two phases.

1. Submit samples concurrent with horticultural soil test reports in both phases. Submit as phase one, planting soil base components for approval. Only after approval of phase one components, submit as phase two, soil blend mixes / mediums for approval.
2. Each sample shall be a composite of a minimum of ten (10) individual samples taken from representative portions of a pile or source combined, thoroughly mixed and bagged.
3. In addition to providing samples in quantities as required by testing agencies, submit one-gallon split-samples of Base Components and Planting Soils to the Landscape Architect and Owner's Representative for review.
4. Do not order materials until Landscape Architect's and Owner's approval has been obtained.
5. Delivered materials shall closely match the approved samples.

D. Phase One Submittals of Planting Soil Base Components:

1. Base Loam
2. Organic Material
3. Sand

E. Phase Two Submittals of Planting Mediums: mixing of test batches of mediums to be prepared in the same manner as bulk soils will be prepared prior to delivery to site.

1. Soil A – Horticultural Subsoil
2. Soil B – Planting Topsoil
3. ~~Soil C – Bioretention Soil~~
4. Soil D – Turf Soil
5. Soil E – Compost to Top-dress Lawn
6. ~~Soil F – Ericaceous Plant Soil Amendment~~

F. Phase Three Submittals of Planting Mediums: After Planting Soil test batches have been accepted, mix and amend as necessary in production, batches of up to 500 cubic yards for each

soil type listed in 1.2-A. Each batch must be sampled, tested for gradation and organic content, and approved prior to delivery to the job site.

1. Sources for Soil Components and Soil Mixes: Submit information identifying sources for all soil components and the firm responsible for mixing of soil mixes.
 2. Landscape Architect and Owner's Representative shall have the right to reject any soil supplier.
 3. Soil mix supplier shall have a minimum of five years of experience at supplying custom planting soil mixes. Soil shall not be bucket or pad mixed. Scoops are not always equally measured and not equally mixed.
 4. Submit supplier name, address, telephone, and fax numbers and contact name.
 5. Submit certification that accepted supplier can provide quantities of materials and mixes required for the entire project within the Contractor's required timeframe.
- G. Soil Test Reports: Submit reports in two phases. Submit reports concurrent with samples in both phases. Submit as phase one, reports for planting soil base components above for approval. Only after approval of phase one components, submit as phase two, reports for soil blend mixes /mediums for approval. Test results must be less than 60 days old and represent materials that are available for delivery to the site in the quantity required.
1. Submit reports for each of the above samples: Submit sample from each proposed source for testing and approval. Deliver samples to both the testing laboratory and the project soil scientist and pay costs. Send report directly to Owner's Representative.
 2. Testing for Base Loam, Soil A- Planting Soil, Soil B - Bioretention Soil, Soil C- Horticultural Subsoil, Soil D- Lawn Soil, Soil E – Top-dress Lawn Soil, and Soil F- Ericaceous Plant Soil Amendment.
 3. Inform testing agency soil test is for both tree and shrub planting and lawn applications.
 4. Mechanical and chemical analysis shall be conducted by a public extension service agency or a certified private testing laboratory in accordance with the current "standards" of the American Society of Agronomy.
 5. Gradation tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
 6. Test for agricultural suitability analysis including:
 - a. • particle size and characteristics
 - b. • soil pH by water pH and buffer (smp) pH tests.
 - c. • percentage organic content
 - d. • nitrate nitrogen
 - e. • ammonium nitrogen
 - f. • phosphorus
 - g. • potassium
 - h. • calcium
 - i. • aluminum
 - j. • magnesium
 - k. • manganese
 - l. • Micronutrients
 - m. • Toxins including but not limited to lead, cadmium, arsenic and mercury.
- H. Test results: test data and recommendations for soil amendments including but not limited to: nitrogen, phosphorus, potassium and limestone.
- I. Testing for Organic Amendment Materials

1. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
2. Test for agricultural suitability analysis as defined in Article 2.02 – Organic Amendment Materials (Compost).

J. Testing for Sand

1. Test for particle size gradation and Ph

1.6 QUALITY ASSURANCE

A. Qualifications for Horticultural Soil Installations:

1. Work of horticultural planting soil installation shall be performed with personnel familiar and experienced with horticultural soil preparation and related requirements associated with lawn and planting installations under the supervision of a foreman experienced in landscape work.
2. Foreman on the job shall speak English and be able to exhibit at least five (5) years of experience in the installation of horticultural soils and soil mixes.

B. Qualifications for Inspecting and Testing Horticultural Materials:

1. Qualifications of Contractor's Agricultural Chemist / Testing Laboratory / Agency shall be submitted to and approved by Architect prior to start of procurement of soil materials, placing or amending planting soil materials, and planting operations on Project.
2. Agricultural Chemist: Experienced person or persons employed by public or private soils testing laboratory, qualified and capable of performing tests, making soil recommendations, and issuing reports as specified herein.
3. Soils Testing Laboratory: An independent laboratory with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein.

C. Acceptable Planting Soil Materials Testing Laboratories:

1. Rutgers Cooperative Research and Extension Testing Laboratory
Rutgers, The State University of New Jersey
57 US Highway 1
New Brunswick, NJ 08901-8554
Telephone: 848-932-9295; Email: soiltest@njaes.rutgers.edu
2. Physical and Chemical Testing of Soils: Hummel & Company, Inc.
35 King Street, P.O. Box 606, Trumansburg, NY 14886
(607) 387 5694 – phone; (607) 837 9499.

D. Physical and Chemical Testing of Soils or Compost: University of Massachusetts West Experiment Station, Amherst Massachusetts, 01003, phone 413-545-2311, fax 413-545-1931.

1. Compost Testing: Woods End Research Laboratory, PO Box 297, Mt. Vernon, Maine 04352, (207) 293 2457 – phone; (207) 293 2488.
2. Or approved equal.

E. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions, to coordinate requirements for testing, and to coordinate this Work with related and adjacent work.

F. Inspections and Testing of Soil Materials: in addition to the requirements of Section 3.4 ‘Subgrade inspection and percolation testing’, the following conditions and requirements shall apply:

1. Material Testing, General: Contractor shall engage and pay for the services of a qualified Agricultural Chemist / Soils Testing Laboratory / Agency to perform all materials testing and inspections of Project-related Base Components and Planting Soils, as well as any other material testing and soil mix material testing required in this Section or additionally required by the Landscape Architect and/or Construction Manager.
2. On-site Quality Control Testing and Inspections: Owner will engage and pay for the services of a qualified Testing Laboratory / Inspection Agency to perform on-site observations, testing, and inspections. Soil placement, and other earthwork will be subject to quality control inspections and testing by Owner’s Testing Laboratory / Agency as specified or, if any questionable conditions, additionally as directed by the Landscape Architect.
3. Contractor shall cooperate in obtaining samples and performing tests of in-place materials and shall furnish incidental field labor in connection with any tests to be performed by Owner’s Testing Laboratory / Agency.

G. Construction Monitoring:

1. During landscape construction operations, in addition to Owner’s Testing Laboratory / Agency, Landscape Architect, Construction Manager or Owner may be present at the site to observe and monitor placing and amending soil material operations and shall be permitted free and unrestricted access to the site and work.
2. Landscape Architect, Construction Manager or Owner reserve the right to take and analyze at any time such additional samples of horticultural soil and soil amendment materials as deemed necessary for verification of conformance with the Contract Documents. The Contractor shall furnish samples for this purpose upon request and shall perform material testing as requested. The Landscape Architect or Construction Manager may, at their discretion, take additional tests or order additional tests made by either the Contractor’s or Owner’s Testing Laboratory/Agency respective to conditions.
3. Based on observations and evaluation of quality control tests, the Contractor’s or Owner’s Testing Laboratory/Agency shall make recommendations to the Landscape Architect and Construction Manager regarding conformance of the soil material and placing operations to Contract Documents and compatibility of actual subsurface conditions to required subsurface conditions.
4. Landscape Architect or designated representative will evaluate the recommendations of respective Testing Laboratory/Agency and, together with Construction Manager and Owner, will judge the compliance of the work with Contract Documents, issue any changes or revisions required to Contract Documents to accommodate subsurface conditions which differ from design assumptions, or advise the Construction Manager to direct remedial work where the completed work does not comply with Contract Documents.
5. Planting Soils and/or other components delivered to the site may be periodically sampled and tested for compliance. Materials not matching the approved previously submitted Samples shall be removed from site at no additional cost to Owner.
6. Materials in question shall not be used, pending test results of conformance to specified requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping: deliver materials in unopened containers bearing manufacturer's name and guaranteed statement of analysis. Transport materials without damage. Protect finishes from abrasion, dirt, oils, grease, and chemicals. Pack materials to protect from weather.
- B. Base Components and Planting Soils shall not be handled, hauled, or placed when wet, during or immediately after a heavy rainfall, or frozen. Soil should be handled only when the moisture content is less than or equal to the optimum water content as determined for the Standard Proctor test. The Landscape Architect, the Soil Scientist and the Owner shall be consulted to determine if the soil is too wet to handle.
- C. Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect all materials from weather, damage, injury and theft.
- D. Sequence deliveries to avoid delay. On-site storage space is permissible only with written notice from Construction Manager. Deliver materials only after preparations for placement of planting soil have been completed.
- E. Prohibit vehicular and pedestrian traffic on or around stockpiled planting soil.
- F. Soil that is to be stockpiled longer than two weeks, whether on- or off-site, shall not be placed in mounds greater than six feet high. Provide all means and methods required to prevent anaerobic conditions at no additional cost to the Owner.
- G. Vehicular access to the site is restricted. Before construction, the Contractor shall submit for approval a plan showing proposed routing for deliveries and site access.
- H. Work and Protection Plans:
 - 1. On-Site Soil Storage: Submit proposed locations and means and methods for storage/stockpiling of soil materials on-site.
 - 2. Soil Placement and Settlement Plans: Submit a plan of implementation with a schedule describing the proposed methods intended for placing horticultural planting soils and for allowing natural settling of installed soils.
- I. Data Submitted for Information and Reference:
 - 1. Copies of permits necessary to transport materials off site.
 - 2. Location of legal disposal sites for waste materials from this work of Project, if any.

1.8 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: do not deliver or handle soils when dry, wet, or frozen.
- B. No planting Soil shall be trucked, placed, compacted, or otherwise handled when its moisture content is greater than optimum as determined by ASTM 698. In addition, no soil shall be compacted if its moisture content is sufficiently high that its saturated hydraulic conductivity falls below its minimum rate as specified below. Normally, but not always, this requirement will be met when the moisture content is at or below optimum. The Contractor shall conduct moisture content tests using the Speedy Moisture Test or other approved Equipment as necessary to ensure conformation with maximum allowable moisture contents. The Contractor shall coordinate his procedures to allow for drying of planting soils that exceed maximum allowable moisture contents.
- C. Additional Field Tests:
 - 1. Form soil in palm of hand, if soil retains shape and crumbles upon touching, the soil may be worked.

2. If the soil will not retain shape it is too dry and should not be worked.
3. If the soil retains shape and will not crumble, it is too wet and should not be worked.
4. If the soil glistens or free water is present after lightly patting the sample, the soil is too wet and should not be worked

PART 2 - MATERIALS

2.1 SUPPLIERS

- A. Soil products shall be provided by Delea Sod Farms, East Northport, NY; DeLalio Sod Farms, LLC; Long Island Compost, Yaphank, NY; McEnroe Farm, Millerton, NY; WeCare Organics, Columbus, NJ or approved equal. Materials shall be tested, mixed, and tested for approval and as specified.

2.2 BASE LOAM

- A. Base Loam shall be imported and shall be free of subsoil, large stones, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Base Loam shall also be free of quack-grass rhizomes, *Agropyron repens*, and the nut-like tubers of nutgrass, *Cyperus esculentus*, and all other primary noxious weeds. Base Loam shall not be delivered or mixed while in a frozen or muddy condition.
 1. Base Loam for mixing shall conform to the following grain size distribution for material passing the #10 sieve:

| Percent Passing U.S. Sieve Size Number | Minimum | Maximum |
|---|---------|---------|
| 10 | -- | 100 |
| 18 | 85 | 100 |
| 35 | 70 | 95 |
| 60 | 50 | 85 |
| 140 | 36 | 57 |
| 270 | 32 | 60 |
| 0.002 mm | 3 | 15 |

- B. Base loam with more than 46% passing the 270 sieve or with more than 6 percent clay must have a well-developed and stable crumb (ped) structure as determined by an agricultural chemist.
- C. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
- D. The organic content shall be between 4.0 and 8.0 percent.
- E. The pH shall be 6.0 to 7.2 inclusive.

2.3 ORGANIC MATERIAL (COMPOST):

- A. Organic Material (Compost) as Amendment for Soil Mediums:
 1. Organic Material (Compost) for amending planting medium: stable, humus-like material produced from the aerobic decomposition of organic residues consisting of Leaf or Yard

Waste Compost which shall have been composted for a minimum of one year (12 months). Compost shall be free of debris such as plastics, metal, concrete or other debris and stones larger than 1/2", larger branches and roots and wood chips over 1/2" in length or diameter. Compost shall be a dark brown to black color and be capable of supporting plant growth with appropriate management applicable, with no visible free water or dust, with no unpleasant odor, and meeting the following criteria as reported by laboratory tests.

2. The ratio of carbon to nitrogen shall be in the range of 12:1 to 25:1.
3. Stability shall be assessed by the Solvita procedure. Protocols are specified by the Solvita manual (version 4.0). The compost must achieve a maturity index of 6 or more as measured by the Solvita scale. Stability tests shall be conducted by Woods End Research Laboratory, Mt. Vernon, Maine, Soil Control laboratory of California, or approved equal.
4. Pathogens/Metals/Vector Attraction reduction shall meet all State of New York requirements for applications to soils with human activity.
5. Organic Content: at least 20 percent (dry weight). One hundred percent of the material shall pass a 3/8-inch (or smaller) screen. Debris such as metal, glass, plastic, wood (other than residual chips), asphalt or masonry shall not be visible and shall not exceed one percent dry weight. Organic content shall be determined by weight loss on ignition or H2O2 for particles passing a Number 10 sieve according to procedures performed by the West Experiment Station at the University of Massachusetts, Amherst or equal. For loss by ignition, a 50-cc sub-sample of the screened and mixed compost is ground to pass the number 60 sieve. Two to three grams (+ 0.001g) of ground sample, dried to a constant weight at 105 degrees C is placed into a muffle furnace. The temperature is slowly raised (5C/minute) to 450C and maintained for three hours. The sample is removed to an oven to equilibrate at 105C and the weight is taken. Organic matter is calculated as loss on ignition.
6. pH: between 6.5 to 7.2 as determined from a 1:1 soil-distilled water suspension using a glass electrode pH meter American Society of Agronomy Methods of Soil Analysis, Part 2, 1986.
7. Salinity: Electrical conductivity of a one to five soil to water ratio extract shall not exceed 2.0 mmhos/cm (dS/m).
8. Compost: screened to 1/2-inch maximum particle size and shall contain not more than 3 percent material finer than 0.002mm as determined by hydrometer test on ashed material.
9. Nutrient content: determined by the University of Massachusetts Soil Testing Laboratory or equivalent laboratory and utilized to evaluate soil required amendments for the mixed soils. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Chromium, Iron, Manganese, Lead, Soluble Salts, Cation Exchange Capacity, soil reaction (pH), buffer pH, and micronutrients.

2.4 SAND

A. Sand as Amendment for Soil Mediums

1. Sand shall be uniformly graded medium to coarse sand consisting of clean, inert, rounded grains of quartz or other durable rock and free from loam or clay, surface coatings, mica, other deleterious materials with the following gradation:

| Percent Passing U.S. Sieve Size Number | Minimum | Maximum |
|---|---------|---------|
| 10 | 100 | -- |
| 18 | 65 | 90 |
| 35 | 35 | 60 |
| 60 | 15 | 30 |
| 140 | 0 | 8 |
| 270 | 0 | 3 |
| 0.002 mm | 0 | 0.5 |

2. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 15% by weight of the total sample.
3. The ratio of the particle size for 70% passing (D70) to the particle size for 20% passing (D20) shall be 3.0 or less. ($D70/D20 < 3.0$)
4. Saturated hydraulic conductivity of the sand shall be not less than 30 inches per hour, according to ASTM D5856-95 (2000), when compacted to a minimum of 90% Standard Proctor, ASTM 698.
5. The pH shall be less than 7.5

2.5 SOIL A - HORTICULTURAL SUBSOIL

- A. Base Loam, Sand and Compost, each as specified above, shall be combined in an approximate mix ratio of three parts by volume Sand to three parts by volume Base Loam to 1.0 part by volume Compost (3S:3L:1C) to create a uniform blend which meets the following requirements.

1. Gradation for Material Passing the Number 10 Sieve:

| Percent Passing U.S. Sieve Size Number | Minimum | Maximum |
|---|---------|---------|
| 10 | 100 | -- |
| 18 | 70 | 90 |
| 35 | 50 | 74 |
| 60 | 27 | 48 |
| 140 | 18 | 28 |
| 270 | 16 | 22 |
| 0.002 mm | 2 | 6 |

- B. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
- C. Ratio of the particle size for 80% passing (D80) to the particle size for 30% passing (D30) shall be 6.5 or less. ($D80/D30 < 6.5$)
- D. Saturated hydraulic conductivity of the mix: not less than 3 inches per hour according to ASTM D5856-95 (2000) when compacted to a minimum of 86% Standard Proctor, ASTM 698.

- E. Organic content: between 2.0 and 3.5 percent by weight.
- F. The pH shall be 5.5 – 6.5

2.6 SOIL B - PLANTING SOIL

- A. Base Loam, Sand and Compost, each as specified above, shall be combined in an approximate mix ratio of one part by volume Sand to one part by volume Base Loam to one part by volume Compost (1S:1L:1C) to create a uniform blend which meets the following requirements.
 - 1. Gradation for Material Passing the Number 10 Sieve:

| Percent Passing U.S. Sieve Size Number | Minimum | Maximum |
|---|---------|---------|
| 10 | 100 | -- |
| 18 | 73 | 90 |
| 35 | 54 | 74 |
| 60 | 33 | 53 |
| 140 | 22 | 34 |
| 270 | 18 | 24 |
| 0.002 mm | 2.5 | 6 |

- B. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
- C. Ratio of the particle size for 80% passing (D80) to the particle size for 30% passing (D30) shall be 8 or less. (D80/D30 <8)
- D. Saturated hydraulic conductivity of the mix: not less than 2 inches per hour according to ASTM D5856-95 (2000) when compacted to a minimum of 86% Standard Proctor, ASTM 698.
- E. Organic content: between 5.0 and 7.0 percent by weight.
- F. The pH shall be 5.5 – 6.5

2.7 ~~SOIL C - BIORETENTION SOIL~~

- A. ~~Base Loam, Sand and Compost, each as specified above, shall be combined in an approximate mix ratio of three parts by volume Sand to two parts by volume Base Loam to one part by volume Compost (3S:2L:1C) to create a uniform blend which meets the following requirements.~~
- 1. ~~Gradation for Material Passing the Number 10 Sieve:~~

| Percent Passing U.S. Sieve Size Number | Minimum | Maximum |
|---|--------------------|--------------------|
| 10 | 100 | — |
| 18 | 70 | 90 |
| 35 | 45 | 72 |
| 60 | 26 | 40 |
| 140 | 15 | 22 |
| 270 | 11 | 14 |
| 0.002 mm | 2 | 5 |

- ~~B. Maximum size shall be one inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.~~
- ~~C. Ratio of the particle size for 70% passing (D70) to the particle size for 30% passing (D20) shall be 5.0 or less. (D70/D20 <5.0)~~
- ~~D. Saturated hydraulic conductivity of the mix: not less than 4 inches per hour according to ASTM D5856-95 (2000) when compacted to a minimum of 88% Standard Proctor, ASTM 698.~~
- ~~E. Sand: 85-90% (fine sand 25% max)~~
- ~~F. Silt and Clay: 15% max (clay 2-5%)~~
- ~~G. Organic content: between 3.0 and 7.0 percent by weight.~~
- ~~H. The pH shall be 5.5-6.5~~

2.8 SOIL D- TURF SOIL

- A. Base Loam, Sand and Compost, each as specified above, shall be combined in an approximate mix ratio of two parts by volume Sand to one part by volume Base Loam to one part by volume Compost (2S:1L:1C) to create a uniform blend which meets the following requirements.

- 1. Gradation for Material Passing the Number 10 Sieve:

| Percent Passing U.S. Sieve Size Number | Minimum | Maximum |
|---|---------|---------|
| 10 | 100 | -- |
| 18 | 70 | 90 |
| 35 | 45 | 72 |
| 60 | 26 | 40 |
| 140 | 15 | 22 |
| 270 | 11 | 14 |
| 0.002 mm | 2 | 5 |

- B. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
- C. Ratio of the particle size for 70% passing (D70) to the particle size for 30% passing (D20) shall be 5.0 or less. (D70/D20 <5.0)
- D. Saturated hydraulic conductivity of the mix: not less than 4 inches per hour according to ASTM D5856-95 (2000) when compacted to a minimum of 88% Standard Proctor, ASTM 698.
- E. Organic content: between 4.0 and 5.0 percent by weight.
- F. The pH shall be 5.5 – 6.5

2.9 SOIL E- TOP-DRESS LAWN SOIL

- A. Top-dress lawn soil shall be compost described in paragraph 2.3 ORGANIC MATERIAL (COMPOST).

~~2.10 SOIL F- ERICACEOUS PLANT SOIL AMENDMENT~~

~~A. Ericaceous plant soil amendment shall be 'Sweet Peet' as manufactured by Sweet Peet / Salem Organic Soils, PO Box 55, Litchfield, CT 06759, www.sweetpeet.com, 888 622 1325, Lou Cavallo, regional contact.~~

~~B. Sweet Peet compost for amending soil around ericaceous plantings soil shall be a weed-free organic composted material consisting of biochar carbon, worm castings, sphagnum peat, soil pro-biotic, mycorrhizae, seafood compost, cow manure, dolomitic limestone, blood meal, aged bark, and kelp.~~

~~2.11 LIGHTWEIGHT ENGINEERED PLANTING MEDIA~~

~~A. Refer to Section 32-95-00 Vegetated Roof Assembly~~

2.12 PRE-PLANTING FERTILIZER

A. Complete, fertilizer made from all-natural ingredients complying with State and Federal fertilizer laws.

1. Fertilizer shall contain the following available plant food by weight, unless soils test indicates a need for different composition:

| | Nitrogen | Phosphorus | Potash |
|----------------------------|----------|------------|--------|
| Deciduous Trees and Shrubs | 2% | 3% | 3% |
| Evergreen Trees and Shrubs | 2% | 3% | 3% |

B. Fertilizer: Pro Start 2-3-3 manufactured by North Country Organics, Bradford, Vermont 05033, phone number 802-222-4277 or equal.

C. Fertilizer to be delivered in original unopened standard size bags showing weigh, analysis ingredients and manufacturer's name.

2.13 SOIL AMENDMENTS

A. Superphosphate: finely ground phosphate rock, commonly used for agricultural purposes and shall contain not less than 20 percent available phosphoric acid.

B. Ground Limestone: dolomitic limestone and contain not less than 50 percent of total carbonates and 25 percent total magnesium with a neutralizing value of at least 100 percent. Material shall be ground to such fineness that 40 percent will pass 100 mesh U.S. standard sieve and 98 percent will pass through 20 mesh U.S. standard sieve.

2.14 EQUIPMENT

A. Chisel Plow or disk harrow or bucket of backhoe: for subsoil cultivation.

B. Rotovator or disk harrow: for planting mixture/soil cultivation.

2.15 WATER

A. Water: furnished by Contractor, unless otherwise specified, and suitable for irrigation and free from ingredients harmful to plant life. Hose and other watering equipment furnished by Contractor.

2.16 EROSION CONTROL MAT

- A. GEOCOIR®/DeKoWe® 400 manufactured by Belton Industries or equivalent

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: in the event field conditions are not as shown on Drawings and outlined in the Specifications, notify Owner's Representative in writing.
- B. Spot and Invert Elevations: verify field elevations of site improvements such as drainage and utility fixtures, pavements, existing plantings, and subsurface piping conform to drawings.
- C. Rough grade: verify specified elevations and prior earthwork operations have shaped, trimmed, and finished rough grade.

3.2 PREPARATION

- A. Protection:
 - 1. Contractor to clear working areas with New York One Call prior to doing excavation on site. If work is to be done around underground utilities, appropriate authority of utility must be notified of impending work. Hand excavate areas adjacent to utilities. Contractor shall be responsible for damages done by himself or his personnel to existing utilities, which shall be repaired or paid for by Contractor.
 - 2. Prior to installation field locate and protect from damage site improvements such as drainage and utility fixtures, pavements, and existing plantings.
- B. Dust Control: upon acceptance of finish grade provide dust control.
- C. Erosion Control: upon acceptance of finish grade provide erosion control.
- D. Agricultural Chemicals: protect site improvements from contact with agricultural chemicals, soil amendments, and fertilizers.

3.3 PREPARATION OF PLANTING MEDIUM FOR PLANTING BEDS

- A. Correct deficiencies in soil as directed by soil test results. Thoroughly incorporate amendments into planting mixture to ensure even distribution.
- B. Incorporate pre-plant fertilizer at a rate of 30 pounds per cubic yard of planting bed medium. Amendment rate will be 6 times square foot application rate per cubic yard of planting mixture.

3.4 SUBGRADE INSPECTION AND PERCOLATION TESTING

- A. For off-structure areas, after subgrade levels have been reached, the Landscape Architect shall inspect soil conditions to evaluate subsurface drainage conditions. The Contractor shall carry out up to 20 standard septic percolation tests in locations identified by the Landscape Architect. Locations where percolation rates are less than 0.5 inches per hour shall be evaluated for possible installation of subsurface drainage or deep decompaction.

3.5 DECOMPACTION OF PLANTING AREAS

- A. After subgrade levels have been inspected and tested, and immediately prior to placing Planting Soils, loosen the entire subgrade area to a minimum depth of four inches utilizing the bucket of a backhoe or equivalent equipment.

- B. Using a wide-track bulldozer size D-5 or smaller, compact the scarified existing subgrade to approximately 84% - 86% compaction ASTM 698 Standard Proctor. Contractor shall provide shovel dug test pits to the full depth of the decompaction, where located per the direction of Landscape Architect, in order for Landscape Architect to review whether the work has been completed. Backfill the pits after the review(s).
- C. After the soils have been loosened, inspected and written approval has been provided, Planting Soils may be spread by using a wide-track bulldozer size D-5 or smaller or may be dumped and spread with the bucket of a backhoe from the edge of the loosened area. No rubber-tired equipment or heavy equipment except for a small bulldozer shall pass over the subsoils (subgrade) after they have been loosened. If Contractor plans to utilize such areas for use of heavy equipment, this work should be carried out prior to beginning the process of loosening soils or filling in that area, or it will have to be rescarified and meet this specification requirement.

~~3.6 PREPARATION OF TREE PITS WITH CELLULAR TREE PLANTING SYSTEM~~

- ~~A. Preparation of tree pits with cellular tree planting system shall be in accordance with Specification Section 329450 – Cellular Tree Planting System~~

3.7 PREPARATION OF TREE PITS

- A. After tree planting pits have been excavated to the dimensions shown on the plans, the entire bottom area of the pit shall be loosened to a minimum depth of four inches utilizing the bucket of a backhoe or equivalent equipment. The entire loosened area shall then be compressed lightly with the bucket of the backhoe. The central portion of the pit, beneath the rootball, shall be compressed adequately to support the rootball and prevent settlement.

3.8 PLACEMENT OF HORTICULTURAL SUBSOIL – SOIL A

- A. In lawn areas and trees pits place and spread Horticultural Subsoil as indicated in drawings in lifts not greater than twelve inches and compact to a density between 84 and 87 percent Standard Proctor Maximum Dry Density. In plant bed areas place and spread Horticultural Subsoil in lifts not greater than twelve inches and compact to a density between 82 and 85 percent Standard Proctor Maximum Dry Density. The surface area of each lift, including the subgrade after it has been compacted, shall be scarified by raking prior to placing the next lift.
- B. Place and spread horticultural subsoil to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.
- C. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter and dispose of legally off site.

3.9 PLACEMENT OF SOIL B - PLANTING SOIL

- A. Over subsurface material, place and spread Standard Planting as indicated in drawings in lifts not greater than twelve inches and compact to a density between 80 and 83 percent Standard Proctor Maximum Dry Density. The surface area of each lift, including the subgrade after it has been compacted, shall be scarified by raking prior to placing the next lift.
- B. Place and spread planting medium to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.

- C. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter and dispose of legally off site.

~~3.10 PLACEMENT OF SOIL C - BIORETENTION SOIL, AT BIOSWALES~~

- ~~A. Place gravel and sub-drainage, sand as specified.~~
- ~~B. Place and spread Bioretention soil in lifts not greater than twelve inches and compact to a density between 80 and 83 percent Standard Proctor Maximum Dry Density. The surface area of each lift shall be scarified by raking prior to placing the next lift.~~
- ~~C. Place and spread planting medium to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.~~
- ~~D. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter and dispose of legally off site.~~

3.11 PLACEMENT OF SOIL D - TURF SOIL

- A. Place and spread Horticultural Subsoil before preparing Turf Soil. Place 8 inches of Horticultural Soil as indicated in drawings. Place Turf Soil in lifts not greater than six inches and compact to a density between 85 and 88 percent Standard Proctor Maximum Dry Density. The surface area of each lift, including the subgrade after it has been compacted, shall be scarified by raking prior to placing the next lift.
- B. Place and spread planting medium to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.
- C. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter and dispose of legally off site.

3.12 PLACEMENT OF SOIL E – TOP-DRESS LAWN SOIL

- A. Cut grass or other existing vegetation to a three-quarter inch height and rake clean.
- B. Apply Top-dress lawn soil to depressed areas to provide a uniform lawn gradient.
- C. Aerate lawn area with three-quarter inch hollow tines three to four inches long and passed over the area two times in different directions. If the full depth of penetration cannot be achieved, the contractor shall increase the soil moisture content by watering the area to a sufficient depth. Within tree Critical Root Zones, Contractor will utilize a scarifying machine in place of an aerator in order to limit surface penetration to the top one or two inches of soil.
- D. Rake areas smooth after aerating to break up soil cores generated by soil aerating operation.
- E. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter and dispose of legally off site.
- F. Seed areas in accordance with Section 329200 Turf – Aerate-topdress & Seed Existing and Construct New Lawn

~~3.13 PLACEMENT OF SOIL F - ERICACEOUS PLANT SOIL AMENDMENT~~

- ~~A. Place Soil A - Standard Planting Soil as indicated above including compaction.~~

- ~~B. Place and spread Soil F—Ericaceous Plant Soil Amendment in areas to be planted with Ericaceous and other acid-loving plants or as shown on the drawings. Area of soil placement to extend a minimum of three feet radius around target plants.~~
- ~~C. Place a (1) one-inch depth of Ericaceous Plant Soil to surface and cultivate into the top (3) three inches of Standard Planting Soil. The surface area of each lift shall be scarified by raking prior to placing the next lift.~~
- ~~D. Place and spread planting medium to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.~~
- ~~E. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter and dispose of legally off site.~~

~~3.14 PLACEMENT OF LIGHTWEIGHT ENGINEERED PLANTING MEDIA~~

- ~~A. Refer to Specification Section 075620—Vegetated Roof Assembly~~

3.15 FIELD QUALITY CONTROL

- A. Tests: after soil preparation operations are complete and prior to planting, take soil sample for testing.
- B. Confirm that the subgrade is at the proper elevation and that no further earthwork is required to bring the subgrade to proper elevations. Subgrade layer elevations shall slope parallel to the finished grade as shown on the Contract Documents. Provide a written report to the Owner's Representative and the Owner's Representative that the subgrade has been adjusted to the required elevations to provide a uniform thickness of planting media across the area. Perform no work of placing and spreading soil until elevations have been confirmed and written report has been accepted by the Owner's Representative.
- C. No Base Materials or Soil Medium shall be handled, planted, or seeded in any way if it is in a wet or frozen condition. A moist Soil Medium is desirable for planting.
- D. Observation: Owner's Representative to review in the field soil preparation operations:
 - 1. Preparation of Planting Mixtures

3.16 CLEANING

- A. Clean up debris generated under work of this section.
- B. Site Improvements
 - 1. Wash and sweep clean site improvements such as drainage and utility fixtures, pavements, existing plantings, and site furnishings.
 - 2. Clean site furnishings of grout, adhesives, concrete, and other debris.

3.17 PROTECTION

- A. Protect work of this section until Final Acceptance.
- B. Select equipment and otherwise phase the installation of the Soil Medium to ensure that wheeled equipment does not travel over prepared subsoil, placed fills or ordinary borrow or already installed soil. Movement of tracked equipment over said soils will be reviewed and considered for approval by the Owner's Representative. If it is determined by the Owner's

Representative that wheeled equipment must travel over already installed soil, provide a written description of sequencing of work that ensures that compacted soil is loosened and uncompacted as the work progresses or place one-inch (25 mm) thick steel plate ballast (or equivalent ballast approved by the Owner's Representative) over the length and width of any travel way to cover Soil Medium to protect it from compaction.

- C. Disturbed areas outside the limit of work shall be protected and as required, graded smooth and spread with Soil Medium to meet finished grades.
- D. Soil Mediums delivered to the site shall be protected from erosion. Materials shall be spread immediately. Otherwise, materials that set on site for more than 24 hours shall be covered with tarpaulin or other soil erosion system acceptable to Owner's Representative and surrounded by silt fence

3.18 ACCEPTANCE

- A. Confirm that the final grade of the Soil Mediums is at the proper finish grade elevations. Adjust grade as required to meet the contours and spot elevations noted on the Plans. Request the presence of the Owner's Representative to inspect final grade. Do not proceed with the remaining work of this Contract until the Owner's Representative has given his/her written approval of the final grade.

END OF SECTION 32 9100

SECTION 32 9119

LANDSCAPE GRADING

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY OF WORK

- A. Section includes Topsoil placement and establishment of finish grade for final landscape planting and seeding.

1.3 RELATED SECTIONS

Refer to the Contract Documents for related Specifications Sections which interface with, and are affected by the Work of this Section, provide all required coordination to ensure completion of the Work of this Section and the Work of other Sections affected by this Work.

- A. Section 32 4000 Landscape Boulders and Stone Block Seats
- B. Section 32 9100 Planting Soils

PART 2 - PRODUCTS

2.1 MATERIAL

- A. Planting Soils: As specified in Section 32 9100

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify earthwork and site grading has been completed and inspected.
- B. Verify sub-grade has been contoured and compacted.

3.2 SUBGRADE PREPARATION

- A. Eliminate uneven areas and low spots.
- B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove subsoil contaminated with petroleum products.
- C. Scarify surface to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.3 PLACING TOPSOIL

- A. Place topsoil in areas where seeding and landscaping is required.

- B. Minimize disturbance in tree protection zones. Coordinate with project arborist or landscape architect.
- C. Scarify the surface the topsoil is to be placed to a minimum depth of 3" with a disc or rototiller. Mix new topsoil with existing sub-soil prior to adding the full depth of soil.
- D. Place topsoil during dry weather.
- E. Place topsoil to a level such that the top of soil will meet the required proposed grades on drawings after compaction, therefore taking into account a percentage loss of depth due to settling.
- F. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of sub-grades.
- G. Remove roots, weeds, rocks, and foreign material while spreading.
- H. Manually spread topsoil close to existing vegetation to prevent plant damage.
- I. Leave stockpile area and site clean and raked, ready to receive seeding.

3.4 TOLERANCES

- A. Top of Topsoil: Plus or minus ½ inch.

3.5 PROTECTION

- A. Protect landscaping and other features remaining as final work.
- B. Protect existing structures, fences, sidewalks and other site features.

3.6 CLEAN-UP

- A. Remove all excess materials and debris from Owner's property.

END OF SECTION 32 9119

SECTION 32 9200

TURF - SOD

PART 1 - GENERAL

1.1 RELATED DOCUMENT:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 GENERAL REQUIREMENTS

- A. The Work of this Section, as shown or specified, shall be performed in accordance with the requirements of the Contract Documents, including but not limited to the Contract Drawings, Schedules, Bidding Requirements, General and Supplemental Conditions and General Requirements of the Contract.

1.3 SECTION INCLUDES

- A. Provide all materials and equipment, and do all work required to complete the seeding and sodding including furnishing and placing topsoil, as indicated on the Drawings and as specified.

1.4 RELATED SECTIONS

- A. Section 32 4000 Landscape Boulders and Stone Block Seats
- B. Section 32 9100 Planting Soils
- C. Section 32 9300 Landscape Planting

1.5 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
 - 1. American Society for Testing and Materials (ASTM):
 - 2. C 136 Sieve Analysis of Fine and Coarse Aggregates
 - 3. D 422 Particle-Size Analysis of Soils
 - 4. E 11 Wire-Cloth Sieves for Testing Purposes

1.6 SUBMITTALS

A. CERTIFICATES:

- 1. Name and location of sod grower
- 2. Certification of sod seed mix

- B. Photographs of sod at its source.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Digging Sod:

- 1. Sod shall not be dug at the nursery or approved source until ready to transport sod to the site of the work or acceptable storage location.

2. Before stripping, sod shall be mowed at a uniform height of 2 in.
3. Cut sod to specified thickness and to standard width and length desired.

B. Transportation of Sod:

1. Sod transported to the Project in open vehicles shall be covered with tarpaulins or other suitable covers securely fastened to the body of the vehicle to prevent injury. Closed vehicles shall be adequately ventilated to prevent overheating of the sod.
2. Evidence of inadequate protection following the digging, carelessness while in transit, or improper handling shall be cause for Landscape Architect's rejection.
3. Sod shall be kept moist, fresh, and protected at all times. Such protection shall encompass the entire period during which the sod is in transit, being handled, or are in temporary storage.
4. Upon arrival at the temporary storage location or the site of the work, sod material shall be inspected for proper shipping procedures. Should the sod be dried out, the Landscape Architect will reject the sod. When sod has been rejected, the Contractor shall at once remove it from the area of the work and replace it with acceptable material.
5. Unless otherwise authorized by the Landscape Architect, the Contractor shall notify the Landscape Architect at least two working days in advance of the anticipated delivery date of sod material. Certificate of Inspection when required shall accompany each shipment.

C. Handling and Storage of Sod:

1. Sod material shall be handled with extreme care to avoid breaking or tearing strips.
2. Sod shall not be stored for longer than 30 hours prior to installation. Sod shall be stored in a compact group and shall be kept moist. Sod shall be prevented from freezing.
3. Sod that has been damaged by poor handling or improper storage will be rejected by the Landscape Architect.

D. Deliver fertilizer in sealed waterproof bags, printed with manufacturer's name, weight, and guaranteed analysis.

1.8 PLANTING SEASON

A. Planting season for sod shall be as follows:

| | Spring | Fall |
|-----|-------------|---------------|
| Sod | 4/15 to 7/1 | 8/20 to 10/15 |

- B. Planting shall only be performed when weather and soil conditions are suitable for planting the material specified in accordance with locally accepted practice.
- C. Planting season may be extended with the written permission of the Landscape Architect.

PART 2 - PRODUCTS

2.1 PROHIBITED PRODUCTS

- A. All Monsanto and Monsanto affiliated companies' products are prohibited and shall not be used including but not limited to topsoil, planting mixtures, amendments, fertilizers, herbicides, pesticides, and accessory materials.

2.2 SOD

- A. Certified Turfgrass Sod: Superior sod grown from certified, high quality seed of known origin or from plantings of certified grass seedlings or stolons. It shall be inspected by the certification agency of the state in which it is grown to assure satisfactory genetic identity and purity, overall high quality and freedom from noxious weeds as well as excessive quantities of other crop and weedy plants at time of harvest. All seed or original plant material in mixture must be certified. Turfgrass sod shall meet the published state standards for certification.
 - 1. Sod shall be a turf type tall fescue, deep rooted, drought and shade tolerant for active use, as produced by Saratoga Sod Farm, Stillwater, NY 518-664-5038, www.saratogasod.com, or approved equal.
- B. Time Limitations: Sod shall be harvested, delivered, and transplanted within a 36 hour period unless a suitable preservation method is approved prior to delivery. Sod not transplanted within this period shall be inspected and approved by the Landscape Architect prior to its installation.
- C. Thatch: Sod shall be relatively free of thatch. A maximum of 1/2 in. (uncompressed) thatch will be permitted.
- D. Diseases, Nematodes, and Insects: Sod shall be free of diseases, nematodes, and soil-borne insects. State Nursery and Plant Materials Laws require that all sod be inspected and approved for sale. The inspection and approval must be made by the State Agricultural Department, Office of the State Entomologist.
- E. Weeds: Sod shall be free of objectionable grassy and broad leaf weeds. Turfgrass sod shall be considered free of such weeds if less than five such plants are found per 100 sq. ft. of area.
 - 1. Turfgrass sod shall not be acceptable if it contains any of the following weeds: common bermudagrass (wiregrass), quackgrass, johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel and bromegrass.

2.3 TOPSOIL FOR GRASS LAWN AREAS

- A. Section 329100 – Planting Soils

2.4 PRE-PLANT FERTILIZER

- A. Section 329100 – Planting Soils

2.5 SOIL AMENDMENTS

- A. Section 329100 – Planting Soils

2.6 WATER

- A. Water shall be suitable for irrigation and free from ingredients harmful to seeded or sodded areas. Section 32 9100 – Planting Soils.

PART 3 - EXECUTION

3.1 SPREADING OF TOPSOIL

- A. Topsoil shall not be spread until it is possible to follow immediately or within 24 hours with seeding or sodding operations. If topsoil is spread prior to this time it shall be cultivated to loosen soil prior to seeding or sodding.

- B. Topsoil shall not be placed when subgrade or topsoil material are frozen, excessively wet, or excessively dry.
- C. Topsoil shall be spread in a uniform layer, to a thickness which will compact to the depth required to bring final lawn and grass surfaces to required elevation. Unless otherwise indicated minimum depth of topsoil shall be 6 in.
- D. Surfaces shall be graded and smoothed, eliminating all sharp breaks by rounding, scraping off bumps and ridges, and filling in holes and cuts.

3.2 APPLICATION OF FERTILIZER AND CONDITIONERS

- A. Section 32 9100 – Planting Soils

3.3 FINISH GRADING

- A. Final surface of topsoil immediately before seeding shall be within + 1/2 in. of required elevation, with no ruts, mounds, ridges, or other faults, and no pockets or low spots in which water can collect. Stones, roots, and other debris greater than 1 in. in any dimension, which are visible at the surface, shall be removed and the resulting holes filled with topsoil, leaving a uniform planar surface.
- B. Finish grade surface with a drag or rake. Round out all breaks in grade, smooth down all lumps and ridges, fill in all holes and crevices. Rolling with a light roller is acceptable, if the surface is scarified afterward.
- C. In the event of settlement, the Contractor shall readjust the work to required finished grade.

3.4 SODDING

- A. Edges of the sodded areas shall be smooth, and all sodded areas shall conform to the design cross sections and grade. At edges adjacent to curbs, paved areas, etc., top surface of earth in sod shall be 1/2 in. below adjacent hard surface.
- B. On slopes steeper than 3 to 1, sod shall be fastened in place with suitable wood pins or other approved methods, spaced at not less than 1 pin per square foot.
- C. Surface of completed sodded area shall be smooth. Sod shall be laid edge-to-edge, with tight-butted, staggered joints. Sod shall be carefully placed to ensure that it is neither stretched or overlapped. Immediately after laying sod shall be pressed firmly into contact with sod bed by tamping or rolling, to eliminate air pockets. Following compaction, topsoil shall be used to fill all cracks, and excess soil shall be worked into grass with rakes or other suitable equipment. Sod shall not be smothered with excess fill soil.
- D. Immediately after sodding operations have been completed, entire surface shall be compacted with a cultipacker roller or other approved equipment weighing 100 to 160 lb./ft. of roller.
- E. Completed sod shall immediately be watered sufficiently to uniformly wet the soil to at least 1 in. below the bottom of sod bed.

3.5 MAINTENANCE

- A. Except as otherwise specified below, maintenance shall include all operations required to produce an established lawn, including but not limited to:
 - 1. Fertilizing
 - 2. Mowing
 - 3. Replanting

4. Resodding
 5. Watering
 6. Weeding
- B. Provide & maintain plastic fencing and/or rope barricades at perimeters of sodded areas immediately after sodding of lawns.
- C. Maintenance of sodded areas shall begin upon completion of sodding and shall continue for 45 days thereafter, unless sodding is not completed until after September 15, in which case maintenance shall continue until the June 15 following.
1. Watering
 - a. Week No. 1: Provide all watering necessary for rooting of sod. Soil on sod pads shall be kept moist at all times. Perform watering daily or as necessary to maintain moist soil to a depth of 4 in. Watering shall be done during the heat of the day to prevent wilting.
 - b. Week No. 2 and Subsequent Weeks: Water as necessary to maintain adequate moisture in the upper 4 in. of soil to promote deep root growth.
 2. Mowing of Grass Lawn Areas
 - a. Mowing shall not be attempted until the sod is firmly rooted and securely in place. Not more than 40% of the grass leaf shall be removed during the first or subsequent mowing.
 - b. Bluegrass and other cool season grasses shall be maintained between 1-1/2 in. and 2-1/2 in.
 - c. All clippings shall be removed.
 - d. After 2 mowing, the Contractor shall top dress the sod with an application of fertilizer at the rate of 1 pound of actual nitrogen per 1000 square feet.
 - e. Subsequent mowing shall be made at not over two-week intervals, with the height of cut set at 1-1/2 in. With prior permission of the Owner, mowing during periods of slow growth or dormancy may be spaced at greater intervals.
 3. Scattered bare spots, shall not exceed 12 sq. in. each.
- D. If lawn or grass is established in the fall and maintenance is required to continue into spring months, lawn and grass shall receive an application of lime and fertilizer in the spring. Lime and fertilizer shall be spread in a uniform layer over the entire lawn surface, at the following rates.

| <u>Material</u> | <u>Application Rate</u> |
|-----------------|-------------------------|
| Lime | 100 lb./1000 sq. ft. |
| Fertilizer | 20 lb./1000 sq. ft. |

- E. Remove any temporary fencing and rope barricades only after second cutting of lawns.

END OF SECTION 32 9200

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SECTION 32 9201

TURF - AERATE TOPDRESS AND OVER SEED EXISTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract.

1.2 SUMMARY

- A. Section includes:
 - 1. Provide all materials and equipment, and do all work required to construct and hydro-seed new lawns including furnishing and placing topsoil, as indicated on the Drawings and as specified for new lawn areas.
 - 2. Provide all materials and equipment, and do all work required to reconstruct existing lawn areas including aerating, topdressing and seeding.
 - 3. Protection of seeded lawns
- B. Related Sections:
 - 1. Section 32 9100 – Planting Soils
 - 2. Section 32 9119 – Landscape Grading
 - 3. Section 32 9300 – Landscape Planting

1.3 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern American Society for Testing and Materials (ASTM):
 - a. 136 Sieve Analysis of Fine and Coarse Aggregates
 - b. 422 Particle-Size Analysis of Soils
 - c. 11 Wire-Cloth Sieves for Testing Purposes

1.4 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use

as a plant regulator, defoliant, or desiccant.

- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329100 – Planting Soils and drawing designations for planting soils.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.5 SUBMITTALS

- A. Qualification Data: For landscape Installer.
- B. Letter specifying ratio of the following in hydroseed mixture:
- C. Grass seed mixture (as specified in 1.5C)
- D. Fertilizer
- E. Mulch/cellulose fiber
- F. Binder/tackifier
- G. Compost
- H. 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.
- I. Product Certificates: For fertilizers, from manufacturer.
- J. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.
- K. Mulch or cellulose fiber
- L. Binders/tackifier

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.
- B. Retain applicable subparagraphs below; revise to suit Project.
- C. Experience: Three years' experience in turf installation in addition to requirements in Section 014000 - Quality Requirements.
- D. Pesticide Applicator: State licensed, commercial.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.
- B. 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 materials with appropriate certificates.

1.8 PLANTING SEASON

- A. Planting season for sod shall be strictly adhered to as follows:
- B.

| Item | Planting Period | |
|-------------|-----------------|-------------|
| | Spring | Fall |
| Seeded Lawn | 3/1 to 6/1 | 8/1 to 10/1 |

- C. Planting shall only be performed when soil conditions and existing and forecasted weather 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.
- D. Planting season may be extended with the written permission of the Landscape Architect.

1.9 WARRANTY

A. Upon completion of specified work, the owner shall accept each area. The contractor shall not provide warranty beyond those granted by any of the material manufacturers. It shall be the right of the owner to inspect work for compliance to the specifications and advise the contractor, in writing, of any work that is found to deviate from specifications. After 60 days the contractor may apply to the landscape architect to have the turf grass accepted for maintenance. The warranty period shall be 60 days after the acceptance date, and the lawn shall be acceptable when:

- 1. A healthy active turf provides at least 95% coverage with no bare area greater than 10 in diameter.
- 2. The turf has been mowed at least three times.
- 3. The grass cover is essentially free of weeds

PART 2 - PRODUCTS

2.1 HYDROSEED MIX

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Quality: State-certified seed of grass species as listed below.

- a. Quality: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed.
- b. Note the cultivars followed by "(SH)" exhibit better shade tolerance than other varieties, under moderate shade. Contractor shall utilize seed cultivar mixes to obtain

2. Seed species:

a. LOW-MOW (SHADE TOLERANT)

- 1) 65%-85% Tall Fescue, one or more of the following varieties: Apache II, Arid 3, Cochise III, Coronado Gold, Falcon IV, Jaguar III, Lancer (SH), Masterpiece, Rebel IV, Rebel Jr. (SH), Rebel Sentry, Rembrandt, Tomahawk E+, RTF or approved equal.
- 2) 15%-25% Bluegrass, one or more of the following varieties: Able I (SH), Blacksburg, Glade (SH), Moonlight, Midnight, America (SH), Brilliant, Ram (SH), Touchdown (SH), Warren's A-34 (SH), Bristol (SH), Lofts 1757 (SH), or approved equal.
- 3) 0-10% Perennial ryegrass, one or more of the following varieties: Brightstar II, Manhattan 4, Citation Fore, Elfkin, or approved equal.

b. Rate of Application – 8-10 lbs. per 1000 square feet

C. Mulch

- 1. Mulch shall be composed of cellulose or wood fiber products with no growth or germination inhibiting substances and shall be manufactured in such a manner that when thoroughly mixed with seed, fertilizer, organic stabilizer, and water, in the proportions specified, will form homogeneous slurry which is capable of being sprayed to form a porous mat. The fibrous mulch in its air-dry state shall contain no more than 15% by weight of water. The fiber shall have a temporary green dye and shall be accompanied by a certificate of compliance stating that the fiber conforms to these specifications.

D. Organic Stabilizer/Tackifier

- 1. Shall be an organic substance in powder form and shall be psilium-

based and packed in clearly marked bags stating the contents of each package

E. Equipment

1. Equipment used for application of slurry shall be a commercial-type Hydro-Seeder and have a built-in agitation system with an operation capacity sufficient to agitate, suspend and homogeneously mix slurry. Tank capacity shall be a minimum of 1,500 gallons and shall be mounted on a truck to allow access to the site. Distribution Lines: Large enough to prevent stoppage and allow for even distribution of slurry over the site. Pump: Shall be able to generate 150 psi at the nozzle.

F. Fertilizer

1. Fertilizer shall be commercial 21-14-7 complete plant food, part of elements of which are derived from organic sources.

G. Water

1. Shall be furnished by Owner and shall be made readily available at the sites as indicated on drawing set.

2.2 TOPSOIL FOR GRASS LAWN AREAS

- A. Supplementary Specification Section 329100 – Planting Soils

2.3 SOIL AMENDMENTS

- A. Compost:
Immediately following aerating, topdress existing turf areas with well decomposed compost. Compost shall be stable, weed-free organic matter source meeting US EPA definition of a product manufactured by a “Process to further reduce pathogen” (PRFP).
- B. Compost shall be derived from Agricultural, food or organic residuals, biosolids, (treated sewage sludge), yard trimmings and or source-separated or mixed solid waste. The product shall contain no substance toxic to plants and shall be reasonably free (<1%) by dry weight of man-made foreign matter.
- C. Compost shall Organic Matter (Compost) as described in Section 32 9100 Planting Soils.

2.4 WATER

- A. Water shall be suitable for irrigation and free from ingredients harmful to seeded or sodded areas. Supplementary Specification Section 329100 – Planting Soils

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
 - 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. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 - 3. Uniformly moisten excessively dry soil that is not workable or which is 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 Architect and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
- B. Protect adjacent and adjoining areas from hydroseeding and hydro-mulching overspray.
- C. Protect grade stakes set by others until directed to remove them.
- D. 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. General: Prepare planting area for soil placement and mix planting soil according to Section 32 9100 – Planting Soils.
- B. Placing Planting Soil: Place manufactured planting soil over exposed subgrade.
- C. Verify that all areas of turf seeding treatments are free of vegetation and other objectionable material.
- D. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- E. All turf areas will be uniformly compacted.

3.4 PREPARATION FOR HYDROSEEDED TURFGRASS AREAS

- A. Hydroseed preparation: Do all slurry preparation at the job site:
 - 1. Water, mulch, fertilizer, binder and other ingredients shall be added to the tank simultaneously so that the finished load is a homogenous mix of the specified

ingredients.

2. Seed shall be added last and shall be discharged within 2 hours. Loads held over 2 hours will be recharged with $\frac{1}{2}$ the seed rate before application.
3. Once fully loaded, the complete slurry shall be agitated for 3-5 minutes to allow for uniform mixing.

3.5 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Turf Area Preparation" Article.
- B. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
- C. Fill cells of erosion-control mat with planting soil and compact before planting.
- D. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.6 SPREADING OF TOPSOIL

- A. Topsoil shall not be spread until it is possible to follow immediately or within 24 hours with seeding or sodding operations. If topsoil is spread prior to this time it shall be cultivated to loosen soil prior to seeding or sodding.
- B. Topsoil shall not be placed when subgrade or topsoil material are frozen, excessively wet, or excessively dry.
- C. Topsoil shall be spread in a uniform layer to a thickness which will compact to the depth required to bring final lawn and grass surfaces to required elevation. Unless otherwise indicated minimum depth of topsoil shall be 6 in.
- D. Surfaces shall be graded and smoothed, eliminating all sharp breaks by rounding, scraping off bumps and ridges, and filling in holes and cuts.

3.7 APPLICATION OF FERTILIZER AND CONDITIONERS

- A. Section 329100 – Planting Soils and Section 329300 Landscape Planting.

3.8 FINISH GRADING

- A. Final surface of topsoil immediately before seeding shall be within + $\frac{1}{2}$ in. of required elevation, with no ruts, mounds, ridges, or other faults, and no pockets or low spots in which water can collect. Stones, roots, and other debris greater than 1 in. in any dimension, which are visible at the surface, shall be removed and the resulting holes filled with topsoil, leaving a uniform planar surface.

- B. Finish grade surface with a drag or rake. Round out all breaks in grade, smooth down all lumps and ridges, fill in all holes and crevices. Rolling with a light roller is acceptable, if the surface is scarified afterward.
- C. In the event of settlement, the Contractor shall readjust the work to required finished grade.

3.9 SEEDING

- A. Clean-up
 - 1. All turf areas and staging areas shall be maintained in a neat and orderly condition. Keep paved area free of soil.
 - 2. Hydro-Seeding Overspray: Installing contractor is responsible for washing or otherwise cleaning excess material off all area not intended to receive treatment.
 - 3. Debris: Clean up and remove associated materials and debris from project site before Final Acceptance.

3.10 MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and re-mulch 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. Provide & maintain plastic fencing and/or rope barricades at perimeters of seeded areas immediately after seeding of lawns.
- C. Maintenance of seeded areas shall begin upon completion of seeding and shall continue for 45 days thereafter, unless seeding is not completed until after September 15, in which case maintenance shall continue until the June 15 following.
- D. 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.
- E. Mowing of Grass Lawn Areas
1. Mow turf with a sharp blade as soon as turf is firmly rooted and secure in place.
Repeat mowing to maintain 2 to 3-inch height without cutting more than one-third of grass height. Remove no more than one-third 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.
- F. Postfertilization: Apply slow-release fertilizer after initial mowing and when grass is dry.
1. Use fertilizer that provides actual nitrogen of at least 11lb/1000 sq. ft. to turf area.
- G. Scattered bare spots shall not exceed 12 sq. in. each.
- H. If lawn or grass is established in the fall and maintenance is required to continue into spring months, lawn and grass shall receive an application of lime and fertilizer in the spring. Lime and fertilizer shall be spread in a uniform layer over the entire lawn surface, at the following rates.

| <u>Material</u> | <u>Application Rate</u> |
|-----------------|-------------------------|
| Lime | 100 lb./1000 sq. ft. |
| Fertilizer | 20 lb./1000 sq. ft. |

- I. Remove any fencing and rope barricades only after second cutting of lawns.

END OF SECTION 32 9201

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SECTION 32 9300
LANDSCAPE PLANTING

PART 1 - GENERAL

1.1 SUMMARY OF WORK

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Furnishing and installation of landscape plant materials
 - 2. Soil Amendments
 - 3. Tree Stabilization
 - 4. Mulch
 - 5. Miscellaneous Products
 - 6. Pruning
 - 7. Pest and disease control
 - 8. Maintenance under Contract
 - 9. Guarantee

1.2 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.

1.3 RELATED REQUIREMENTS:

- A. Section 01 3300 Submittal Procedures
- B. Section 01 5639 Tree Protection and Tree Pruning
- C. Section 32 9100 Planting Soils
- D. Section 32 9119 Landscape Grading

1.4 REFERENCES

- A. Tree and shrub transplanting manual, latest edition, International Society of Arboriculture (I.S.A.).
- B. American Standard for Nursery Stock, ANSI Z60.1, latest edition, American Association of Nurserymen, Inc

1.5 ABBREVIATIONS

- Cal. Indicates the caliper of the trunk of the tree.
- B & B Indicates tree or shrub to be balled and burlapped.
- B.R. Indicates a tree or shrub to be delivered "bare root".
- Cont. Indicates tree or shrub to be container grown.
- O.C. Indicates "on center" or spacing between plants in all directions.
- HT. Indicates overall height of tree.

1.6 DEFINITIONS

- A. Backfill: Soils used to replace or the act of replacing earth in an excavation.
- B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.
- C. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required.
- D. Bare-Root Stock: Plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1 for type and size of plant required.
- E. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.
- F. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
- G. Fabric Bag-Grown Stock: Healthy, vigorous, well-rooted plants established and grown in-ground in a porous fabric bag with well-established root system reaching sides of fabric bag. Fabric bag size is not less than diameter, depth, and volume required by ANSI Z60.1 for type and size of plant.
- H. Finish Grade: Elevation of finished surface of planting soil.
- I. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- J. 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.
- K. 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.
- L. Planting Area: Areas to be planted.
- M. Planting Soils: 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. See Section 32 91 13 Planting Soils.
- N. Plant, Plants, or Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, perennials, bulbs, corms, tubers, or herbaceous vegetation.
- O. Root Flare: Also called "trunk flare." The area at the base of the plant's stem (trunk) where the stem broadens to form roots; the area of transition between the root system and the stem or trunk.

- P. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees at or below the soil surface or within the root ball or container, which will, over time, constrain healthy plant growth and the long-term viability of the tree.
- Q. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- R. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- S. 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.

1.7 SUBMITTALS

- A. Notice of intent to perform work shall be submitted to the Owner's Representative at least 14 calendar days prior to planting.
 - 1. Within fifteen (15) calendar days after Notice to Proceed, submit to Owner's Representative invoices or certificates of deposit from nursery(ies) guaranteeing timely delivery of all specified and tagged plant materials. Indicate the following:
 - a. Confirmed plant species (and cultivar), size and grade of materials to be planted.
 - b. Source of origin and health of plant materials for each type.
 - 2. If any plant materials are unavailable at the time of submittal, Contractor shall contact Owner's Representative to determine acceptable alternatives.
 - 3. Submit a schedule itemizing the landscape planting work to be performed to the Owner's Representative. This schedule shall be submitted within fifteen (15) calendar days after Contract Notice to Proceed.
 - a. Include in this schedule, anticipated dates for commencement and sequencing of landscape planting work, including, but not limited to, selections and tagging, layouts and layout approval, placement of trees, and commencement of the maintenance period.
- B. Product Data:
 - 1. Submit to Owner's Representative technical descriptive data for each manufactured or packaged product of this Section. Include manufacturer's product testing and analysis and installation instructions for manufactured or processed items and materials.
- C. Plant Material:
 - 1. Plant Sources: Submit to Owner's Representative a list of sources clearly stating plant material species, cultivar, size, form, and quantities available at each nursery.
 - 2. Photographic Documentation: The contractor shall provide digital photographs for each required species, cultivar showing size and condition for review by the Landscape Architect to determine that the plant material meets the requirements of the specifications and drawings.
 - a. Take photographs from an angle depicting true size and condition of the typical plant to be furnished.
 - b. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished.

- c. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.

D. Certificates:

1. Furnish to Owner's Representative certification that each tree is true to name and in conformance with these Specifications. All nurseries supplying material shall be required to have a registration certificate from the Department of Agriculture and Markets, Division of Plant Industry, New York, or any other state where plant material is obtained, certifying that plant material is apparently free of injurious insects and diseases.
2. Furnish to Owner's Representative certificates/cultivars by supplying nursery.
3. Prior to the use on site of any chemical insect or disease control materials, submit to Owner's Representative a list of the control materials and quantities intended for use in controlling insects and disease prevalent and expected on the site. Submittal shall include data demonstrating the compatibility of the control materials and methods of installation or application with the specified planting types and varieties. The use of any chemical insect or disease control materials shall not be allowed except by written approval and consent of Owner's Representative.
4. If any chemical insect or disease control materials are to be used, they must be applied prior to the tree's delivery to the site. No chemical insect or disease control materials are to be applied on-site.

E. Samples for Verification: For each of the following:

1. Shredded Bark Mulch: 1 Quart volume of each organic mulch required; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.
2. Mineral Mulch: 1 lb. each mineral mulch required, in sealed plastic bags labeled with source of mulch. Sample shall be typical of the lot of material to be delivered and installed on the site; provide an accurate indication of color, texture, and makeup of the material.

- F. Soil Tests: Where planting is to occur in existing soils provide soil test for each identifiable soil type on the project site, as designated on the plans. Test results should identify soil characteristics and include recommendations for amendments suitable for proposed plantings.

1.8 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.
- B. Maintenance Plan: Schedule of routine maintenance activities to be carried out by Contractor during the guarantee period. Submit before start of required maintenance periods.
- C. Letter of Guarantee.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape contractor whose work has resulted in successful establishment of plants in projects similar in size, scope and character.
 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 landscape installation in addition to requirements in Division 01 Section "Quality Requirements."

3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 4. Personnel Certifications: Installer's field supervisor assigned to the Work shall have certification in one of the following categories from the Professional Landcare Network:
 - a. Certified Landscape Technician - Exterior, with installation, maintenance & irrigation specialty area(s), designated CLT-Exterior.
 - b. Certified Landscape Technician - Interior, designated CLT-Interior.
 - c. Certified Ornamental Landscape Professional, designated COLP.
 5. Pesticide Applicator: State licensed, commercial.
- B. Soil-Testing Laboratory Qualifications: An independent 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 each unamended soil type, 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. The soil-testing laboratory shall oversee soil sampling; with depth, location, and number of samples to be taken per instructions from Architect. A minimum of three representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
 3. Report suitability of tested soil for plant growth.
 - a. Based upon 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.

1.10 REGULATORY REQUIREMENTS

- A. Comply with all rules, regulations, laws and ordinance of local, state and federal authorities having jurisdiction. Provide labor, materials, equipment and services necessary to make Work comply with such requirements without additional cost to the Owner.
- B. Procure and pay for permits and licenses required for work of this section.

1.11 PROJECT/SITE CONDITIONS

- A. Work shall be scheduled and conducted in a cooperative manner in order to give the least possible interference or annoyance to others.
- B. Construction Sequencing: Planting shall take place only after the installation of edging and pavement materials.

- C. The Contractor shall be responsible for pedestrian and vehicular safety and control within the work site. He/she shall provide the necessary warning devices and ground personnel needed to give safety, warning and protection to persons and vehicular traffic within the area.
- D. During site preparation, planting and after care, the Contractor shall be responsible for all damage to existing features above and below ground (benches, utility lines, irrigation pipes, lampposts, path surfaces) incurred as a result of work operations. Repairs and/or replacements shall be made to the satisfaction of the Owner's Representative.
- E. Environmental Requirements and Planting Schedule:
 - 1. Do not plant when the ground is frozen, excessively wet, or the soil is otherwise in an unsatisfactory condition for planting.
 - 2. Plant only within the following dates, weather permitting:
 - a. The Spring Season for all planting materials shall be that period from March 1 through May 15.
 - b. The Fall Season is divided into two parts, made necessary by the handling characteristics of two plant types.
 - 3. September 1 through October 15 shall be the fall planting season for deciduous and evergreen materials.
 - 4. October 15 through December 1 shall be the fall planting season for deciduous materials only.
- F. Environmental Requirements for Soils:
 - 1. Soil mixes shall not be handled, hauled or placed during rain or wet weather or when near or above field capacity.

1.12 PLANT MATERIAL INSPECTION

- A. Plants shall be subject to inspection and approval by Owner's Representative at the place of growth and again upon delivery and prior to planting for conformity to specification requirements as to quality, size and variety. Such approval shall not impair the right of rejection due to damage suffered in handling, transportation and/or planting. Rejected plants shall be removed immediately from the site. Inspection outside the State of New York or beyond a 90-mile radius from the site, shall be made at the expense of the Contractor. A Contractor's representative shall be present at all inspections.
- B. Written requests for inspection of plant material at their place of growth shall be submitted to the Owner's Representative at least 14 days prior to digging. The Owner's Representative may refuse inspection if in his/her judgment an insufficient quantity of plants is available for inspection. The Contractor shall, at his expense, supply the Owner's Representative with such labor and assistance as may be necessary in the handling of material for proper inspection.
- C. Inspection of plant materials for spring planting shall occur during the previous fall season, or at a time prior to planting when sufficient plant growth has occurred to assess and evaluate plant species, size, and condition.
- D. Tagging of trees shall be as follows: if such quantities exist, for every 20 trees planted, 22 trees will be tagged assuring appropriate replacement for (a) trees damaged prior to transplanting and (b) trees requiring replacement under terms of the one-year guarantee.

1.13 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials: Deliver packaged materials in unopened bags or containers, each clearly bearing the name, guarantee, and trademark of the producer, material composition, manufacturers' certified analysis, and the weight of the material.
- B. Plant Material, Conditions of Moving and Delivery:
 - 1. The use of an anti-desiccant shall not be allowed except by written approval and consent by Owner's Representative.
 - a. If approved, spray deciduous plants with an anti-desiccant, immediately before moving plant material from its source, applying an adequate film over trunks, branches, twigs, and foliage.
 - b. Approval shall be required for any subsequent instance of use.
 - 2. Dig and handle plants with care to prevent injury to trunks, branches and roots.
 - 3. All plants shall be dug immediately before moving unless otherwise specified. All plants shall be dug to retain as many fibrous roots as possible.
 - 4. Balled and burlapped and balled and platformed plants shall have a solid ball of earth of minimum specified size, securely held in place by burlap and stout rope or twine. Loose, broken, or manufactured balls will be rejected.
 - 5. Bare root plants shall be puddled immediately after digging by immersing the roots in a hydrogel slurry, so as to completely coat the roots.
 - 6. Do not prune prior to delivery. Do not bend or bind-tie trees in such manner as to damage bark, break branches or destroy natural shape. Pack and ship in order to ensure arrival at the site in good condition. Provide protective covering during delivery. No plants will be accepted if the rootball is cracked or broken, or trunks scarred, or branches broken.
 - 7. Plant Materials:
 - a. Plants shall be packed, transported, and handled with utmost care to insure adequate protection against injury. When transported in closed vehicles, plants shall receive adequate ventilation to prevent sweating. When transported in open vehicles, plants shall be protected by tarpaulins or other suitable cover material.
 - b. Deliver after preparations of planting areas have been completed and approved and place plants immediately.
 - c. If planting is delayed more than 24 hours after delivery, set balled and burlapped plants on the ground in a "shade house", erected by Contractor, with rootballs well protected with soil, wet peat, or other acceptable material. Protect balls and roots from freezing, sun, drying winds, and/or mechanical damage. Water as necessary until planted.
 - d. Bare root plants, when specified, shall be adequately protected from drying out by covering the roots with a moist burlap and plastic tarps and must be planted within 2 weeks of being dug.

1.14 GUARANTEE PERIOD AND REPLACEMENTS

- A. The guarantee period for all new Landscape Plantings shall begin on the date of final acceptance.
- B. All plant material shall be guaranteed by the Contractor to be in good, healthy and flourishing condition, for a period of one year from the date of final acceptance.
- C. When work is accepted in parts, the guarantee periods extend from each of the partial acceptance to the terminal date of the last guarantee period. Thus, all guarantee periods terminate at one time.

- D. The Contractor shall replace, without cost, as soon as weather conditions permit, and within a specified planting period, all plants determined dead and/or dying by the Owner's Representative during and at the end of the guarantee period.
 - 1. Plants shall be free of dead or dying branches and shall bear foliage of normal density, size and color.
 - 2. Trees having lost their central leader or exhibit crown dieback at the end of the one-year guarantee shall be replaced.
 - 3. Replacements shall match the adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification. Labor and all materials needed for the installation of replacements shall be included in the guarantee.
- E. The guarantee of all replacement plants shall extend for an additional period of two (2) years from the date of their acceptance following replacement.
- F. The Contractor shall make periodic inspections, at no extra cost, during the guarantee period to determine what changes, if any, should be made in the maintenance program. Any recommended changes shall be submitted in writing to the Owner's Representative.

PART 2 - PRODUCTS

2.1 PREINSTALLATION CONFERENCE

- A. Conduct conference at Project site.

2.2 PLANT MATERIAL

A. GENERAL REQUIREMENTS

- 1. The Contractor shall furnish and plant all plants as specified and in the quantities listed.
- 2. All plants shall be nursery grown.
- 3. Plants shall be true to species and cultivar specified. Certification of cultivars by supplying nursery must be supplied in writing to Owner's Representative.
- 4. Plants shall be in accordance with the American Nurserymen Association Standards in all ways, unless otherwise specified in writing by Owner's Representative.
- 5. All plants shall be of specimen quality, symmetrical, so trained or favored in development and appearance as to be unquestionably and outstandingly superior in forms and compactness. They shall indicate vigorous growth, be well branched and densely foliated when in leaf, free of disease, insects, eggs, larvae and shall have well developed root systems.
- 6. Trees with multiple leaders will not be accepted unless specifically indicated as 'Multistem' in the Plant Schedule.
- 7. Trees with a damaged or crooked leader, bark or abrasions, sun-scald, disfiguring knots, insect damage will not be accepted.
- 8. Planting Depth: The depth of planting must be checked for all trees, at the nursery, either in the field, or, if already dug, as B&B or Container grown plants. If the root/trunk flare (the intersection of the trunk and the buttress roots), is not visible, it must be located. Remove any soil above the root/trunk flare. Any tree with significant adventitious root growth or evidence of girdling roots shall be rejected. Following the removal of any excess soil above the root/trunk flare and determination that the trunk bark condition is acceptable, the tree shall be dug and the root ball secured.
- 9. Rootball size shall be determined from the elevation of the root/trunk flare in accordance with the American standard for nursery stock for the caliper size of the tree.

B. PLANT SIZES AND DIMENSIONS

1. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.
2. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
3. Height and spread dimensions refer to the main body of the plant and not from branch tip to tip. If a range of size is given, no plant shall be less than the minimum size and not less than 50% of the plants shall be as large as the maximum size specified. Plants that meet measurements but do not possess a normal balance between height and spread shall be rejected.
4. Plants larger than specified may be used only if approved by Owner's Representative. Use of such plants shall not increase the unit price. If larger plants are approved, the root ball shall be increased in proportion to the size of the plant, in accordance with the American standard for nursery stock.
5. Stock furnished shall be a fair average of the minimum and maximum sizes specified. Larger plants cut back to sizes specified will not be accepted.
6. Container grown herbaceous plants, groundcover, and vines shall be well rooted in the container size indicated on the Plant Schedule, grown in the container at least one year prior to planting. Bulbs, corms, tubers and rhizomes shall be Top Size, or as indicated on the Plant Schedule. Annual flowering plants shall be vigorous, well rooted, with no indications of disease or stress.
7. Substitutions shall not be permitted.

C. QUALITY

1. All plants shall be typical of their species or variety. They shall have normal, well-developed branches and vigorous fibrous root systems. They shall be sound, healthy, vigorous plants free from defects, disfiguring knots, sun scald injuries, dead or broken branches, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation.
 - a. Trees: All trees shall be B&B, major trees branched 6-7' from the ground, minor trees as specified. Sizes shall be as indicated. Rootball size shall correspond to American Association of Nurserymen Standards for the corresponding caliper size. Well-branched top and fibrous root system essential.
 - b. Shrubs: Sizes shall be as indicated. Rootball or container sizes shall correspond to A.A.N. Standards for the corresponding shrub height. Heavy root system, all shrubs shall be well branched to the ground. Sizes shall be as indicated.
 - c. Vines, Groundcover, And Herbaceous Plants: Container size shall be as indicated on the plans. All plants shall have vigorous root systems and have grown in the container for at least one year prior to planting.
 - d. Plugs: Plugs shall have vigorous root systems.
 - e. Annuals: Annual flowering plants shall be vigorous, well rooted, with no indications of disease or stress.
 - f. Bulbs, Corms, Tubers and Rhizomes: All bulbs, corms, tubers and rhizomes shall be top size, firm, and non-desiccated.

D. SOURCES

1. All plants shall be sourced from reputable nurseries and be either field or container grown. All trees and shrubs shall have been growing under similar climatic conditions as the project site two (2) years prior to the date of the contract. Plants held in storage will be rejected if they show signs of growth during storage. Collected material shall not be accepted.
2. Plant material subject to availability and adherence to the requirements of this specification, may be purchased, or, time permitting, contract grown, from:
 - a. Barton Nursery, Edison, NJ
 - b. Foxborough Nursery, Street, MD
 - c. Halka Nurseries, Millstone Twp, NJ
 - d. Hardscrabble Farms, North Salem, NY
 - e. Hicks Nurseries, Westbury, NY
 - f. Island Park, LLC, Menands, NY
 - g. LP Statile Inc., Springfield Twp, NJ
 - h. Maple Lane Nursery, Kinderhook, NY
 - i. Rosedale, Nursery, Hawthorne, NY
 - j. Shade Trees Nursery, Jamesport, NY
 - k. Shagbark Farm, Hillsdale, NY
 - l. Talmage Farm, Riverhead, NY
 - m. Twin Brook, Hillsdale, NY
 - n. Warner Nursery, Calverton, NY
 - o. Weston Nurseries, Chelmsford, MA
 - p. or approved equal nurseries.
3. NATIVE PLANTS, where indicated
 - a. Native plant material must be derived from the local genotypes of the native Plants specified. For purposes of this native plant material paragraph, "local" shall mean within 150 miles from the planting site. However, a reasonable effort shall be made to obtain sources of plant material as close to the planting site as possible.
 - b. All plants must have been grown in a hardiness zone no warmer than Zone 7 or colder than Zone 6 as determined by the USDA Agricultural Research Service, Plant Hardiness Zone Map. Plant quality shall be typical of their species. Plant material should exhibit the range of variation typical of local genotypes of the species. They shall have normal branching and vigorous fibrous root systems. They shall be sound, healthy plants, free from sunscald injuries, or other mechanical injury, plant diseases, insect eggs, borers and all forms of infestations. Except as may otherwise be specified in this native plant material paragraph, all other sections of this Landscape Planting Specification shall also apply to the Native Plants.
4. All plants shall be nursery grown unless otherwise stated. Collected material will not be accepted.

E. PLANT MATERIAL ORDERING

1. The Contractor shall notify the Landscape Architect of the unavailability of any tree, shrub, herbaceous plant, or bulb species designated in the contract documents.
2. Substitution: Any request for species substitution due to unavailability must be submitted in writing to the Landscape Architect. The Contractor must include the names and addresses of at least ten (10) nurseries they have contacted in an effort to locate these species, and the list shall be submitted to the Landscape Architect.

3. Schedule permitting, and with the Owner's approval, plant materials may be contract grown or pre-purchased provided the species, cultivar, size, quantities and other characteristics outlined in the Plant Schedule are satisfied at the time of planting.
4. Owner Purchased, Contractor Installed Plant Material: In the event the Owner pre-purchases specimen plant material for inclusion in the project, the price bid for the work shall include delivery to the project site and installation per the plans and specifications of Owner Purchased materials. Owner Purchased plant material shall be separately indicated on the Plant Schedule. Contractor shall maintain Owner purchased materials per the terms and conditions of the Landscape Planting specification.

2.3 PLANTING SOILS - SEE SECTION 32 91 00

2.4 SOIL AMENDMENTS

A. MYCORRHIZAL FUNGI INNOCULANT

1. Three ounce (3 oz.) premeasured dry formulation packet, such as Mycor Tree Saver Transplant®, as manufactured by Plant Health Care, Inc., Pittsburgh, PA. Rhizanova Tree Transplant, as manufactured by Becker Underwood, Inc., Ames, IA, or approved equal.
2. Packets shall contain, as a minimum: one thousand (1000) live spores of Vesicular-Arbuscular fungi, including: *Entrophospora columbiana*, *Glomus clarum*, *Glomus etunicatum*, and *Glomus* sp.; seventeen million five hundred thousand (17,500,000) live spores of Ectomycorrhizal fungi (*Pisolithus tinctorius*); Biostimulant ingredients including *Yucca schidigera* extract; soluble sea kelp extract derived from *Ascophyllum nodosum*; humic acids; and acrylamide copolymer gel as a water absorbent medium.

B. WATER RETENTION ADDITIVE

1. Water Retention Additives shall be a granular polyacrylamide polymer of a potassium base and not a sodium base that slowly releases moisture into the root zone such as Terra Sorb, as manufactured by Plant Health Care, Inc., Pittsburgh, Pa., or approved equal.

C. INORGANIC SOIL AMENDMENTS

1. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:
 - a. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.
 - b. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.
 - c. Provide lime in form of ground dolomitic limestone or mollusk shells
2. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent sulfur, with a minimum of 99 percent passing through No. 6 sieve and a maximum of 10 percent passing through No. 40 sieve.
3. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
4. Aluminum Sulfate: Commercial grade, unadulterated.
5. Perlite: Horticultural perlite, soil amendment grade.
6. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 sieve.
7. Sand: Clean, washed, natural or manufactured, and free of toxic materials.
8. Diatomaceous Earth: Calcined, 90 percent silica, with approximately 140 percent water absorption capacity by weight.

9. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight.

D. ORGANIC SOIL AMENDMENTS

1. 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:
 - a. Organic Matter Content: 50 to 60 percent of dry weight.
 - b. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
2. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or granular texture, with a pH range of 3.4 to 4.8.
3. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture, with a pH range of 6 to 7.5, and having a water-absorbing capacity of 1100 to 2000 percent.
4. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
5. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.

E. FERTILIZERS

1. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 20 percent phosphoric acid.
2. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
3. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - a. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
 - b. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.
4. Planting Tablets: Tightly compressed chip type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
 - a. Size: 21-gram tablets.
 - b. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.
5. Chelated Iron: Commercial-grade FeEDDHA for dicots and woody plants, and commercial-grade FeDTPA for ornamental grasses and monocots.

2.5 TREE STABILIZATION MATERIALS

A. Staking

1. Rough-sawn, sound, new cedar stakes, by diameter and length indicated, pointed at one end.

2. Flexible Ties or Straps: Flat, Polypropylene guylines 3/4" x 12' = 800 lb test, black or olive drab, UV resistant, "Arbortie" as supplied by Deep Root or approved equal. Flexible hose and wire are not acceptable substitutes.

B. Proprietary Rootball Anchoring System

1. 1. Platipus Rootball Fixing Systems as conditions warrant, or approved equal.
 - a. a) Direct Anchor System. Galvanized steel cable, tensioning ratchet, plati-mats, and hardware to anchor rootball cables to adjacent structures.
 - b. b) Dead Man Anchoring System. Precast concrete deadmen, galvanized steel cable, tensioning ratchet, plati-mats, and hardware to anchor rootball cables to deadmen.
 - c. c) D-Man System. PVC trays, galvanized steel cable, ratchet, plati-mats, and hardware to anchor rootball cables to D-Man trays.

C. Proprietary Tree Guying

1. ArborBrace Tree Guying System, or approved equal.
 - a. Up to 4" Caliper Trees: ATG-R/ATG-HD: Three (3) lines per tree
 - i. Polypropylene guylines 3/4" x 12' = 800 lb test, olive drab, UV resistant.
 - ii. Nickel plated non-rusting spring cam-lock tension clips
 - iii. Arrowhead Nylon Anchors (or metal anchors for hard soil).
 - b. Up to 7" Caliper Trees: ATG-J: Three (3) lines per tree
 - i. Polypropylene guylines 1" x 12' = 1,000 lb test, olive drab, UV resistant.
 - ii. 1 1/4" Nickel plated non-rusting spring cam-lock tension clips, 1,500 lb break strength.
 - iii. Arrowhead Aluminum Anchors.

D. Flags: Standard surveyor's plastic flagging, white, 1" wide, to mark guying cables or straps.

E. For loose soil or greenroof planting conditions, use three (3) foot length 4"x4" lumber to supplement soil anchor.

2.6 TREE IRRIGATION BAGS – WHERE NO IRRIGATION IS PROVIDED.

- A. Irrigation bags shall be one hundred percent (100%) reinforced UV stable polyethylene, at least ten (10) mils. thick with a polyester scrim lining, such as TreeGator, as manufactured by Spectrum Products, Raleigh, NC, or approved equal. The irrigation bags shall have a minimum twenty-gallon (20 gal.) capacity.

2.7 MULCH

- A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
 1. Shredded Bark Mulch: Mulch shall consist of shredded bark not exceeding three inches (3") in length and one inch (1") in width. Mulch shall be a natural brown color, not dyed, and shall be of a uniform grade with no additives or any other treatment.
 - a. Mulch contaminated with leaves, twigs, and/or debris shall not be acceptable. Only mulch derived from tree material, not from wood waste products like sawdust, shredded palettes, or other debris, shall be acceptable.
 2. Shredded hardwood, Bark Chips, Wood Chips, Pine Needles, Salt Hay, Peanut/Pecan/Coca Bean Shells.

- a. Size range varies by material
 - b. Color: dark brown
 - 3. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH of 5.5 to 8, an N-P-K analysis of at least 1-1-0 as delivered; moisture content 35 to 55 percent by weight; 100 percent passing through a 1-inch sieve; soluble-salt content of 2 to 5 > dS/m; solids content of at least fifty percent, and a minimum of 25% to a maximum of 505% organic materials, not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.
 - B. Mineral Mulch: Hard durable stone, washed free of loam, sand, clay, and other foreign substances:
 - 1. Material: Crushed Blue Stone
 - 2. Size: 3/8" stone
 - 3. Color: Grey/Blue
- 2.8 MISCELLANEOUS PRODUCTS
- A. Erosion Control Blanket
 - 1. Biodegradable jute blanket and staples. Install as per manufacturer's requirements.
 - B. Weed-Control Barriers – Not Used.
 - C. Pesticides – Where Called For or Required. Owner's permission for use required. Notify within 7 days of proposed use.
 - 1. 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.
 - 2. 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.
 - 3. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.
 - D. Landscape Edging – Horticultural edging between turf and planting beds as per contract drawings.
 - E. Tree Grates – Not Used.
 - F. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
 - G. Burlap: Non-synthetic, biodegradable.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to work at planting and areas, ascertain the location of all electric cables, conduits, under drainage systems and utility lines. Take proper precautions so as not to disturb or damage sub-

surface elements. Contractor failing to take these precautions shall be responsible for making requisite repairs to damaged utilities at Contractor's own expense.

- B. Verify that required underground utilities are available, in proper location, and ready for use. Coordinate with other trades as necessary.
- C. Examine areas to receive plants for compliance with requirements and conditions affecting installation and 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. 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 Architect and replace with new planting soil.
 - 3. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
 - 4. 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.
 - 5. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- D. Verify that all work requiring access through or adjacent to areas where plants are to be placed has been completed and no further access will be required. In the event that access will be required, this must be coordinated with the Owner's Representative.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. The owner reserves the right to have a representative on site to direct the installation of all plantings. No plants shall be installed until their location has sited them to his/her satisfaction. The Owner's representative will make every effort to expedite the work in a timely manner.
- B. For the purpose of inspection, the Owner's Representative shall have free access to all parts of work involved in planting operation. No work shall be covered or concealed prior to inspection.
- C. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- D. 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.
- E. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.
- F. Lay out plants at locations directed by Architect. Stake locations of individual trees and shrubs and outline areas for multiple plantings.
- G. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
 - 1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

- H. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.
- I. Plants shall be protected at all times from sun or drying winds. Plants that cannot be planted immediately upon delivery shall be kept in the shade and well watered by the Contractor. Plants shall not remain unplanted for longer than one day after delivery.

3.3 PLANT AREA ESTABLISHMENT

- A. Planting Soil and Landscape Grading sections.
- B. Confirm Finish Grading has been accepted. Restore areas if eroded or settled beyond designated Finish Grades.
- C. Erosion Control Fabric: Place after tree planting, but prior to shrub, perennial, groundcover and vines.

3.4 EXCAVATION FOR TREE PLANTING

- A. No plant pits shall be dug until the proposed locations have been staked on the ground by the Contractor and approved by the Landscape Architect.
- B. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are not acceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
 - 1. Excavate approximately three times as wide as ball diameter for stock.
 - 2. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
 - 3. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
 - 4. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
 - 5. Maintain required angles of repose of adjacent materials as shown on the Drawings. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
 - 6. Structural Soil When the depth of the rootball exceeds the depth to the filter fabric underlying the Structural Soil installation, the Contractor shall score the filter fabric in an 'X' and excavate sufficiently to permit the top of the ball to rest at finished grade.
 - 7. Maintain supervision of excavations during working hours.
 - 8. Keep excavations covered or otherwise protected when unattended by Installer's personnel.
 - 9. If drain tile is shown on Drawings or required under planting areas, excavate to top of porous backfill over tile.
- C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
- D. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.
- E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.
- F. Planting beds for Shrubs, Vines, Herbaceous, and Groundcover plants shall be excavated to the dimensions and depths indicated on the plans and backfilled with approved topsoil. Bulbs,

Corms, Tubers, Rhizomes and Annuals shall be planted in the existing unamended soil or prepared planting beds with improved soil and/or a water absorbent medium, as designated on the drawings.

3.5 TREE, SHRUB, AND VINE PLANTING

- A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- B. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.
- C. **ORIENTATION:** Where possible, orient trees in the same cardinal direction as grown in the field in order to minimize damage to the bark of the trunk.
- D. Set balled and burlapped stock plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
- E. Set the tree or shrub straight and in the center of the pit, with the most desirable side facing toward the predominant view. Care shall be exercised in setting the plants plumb.
 - 1. Topsoil removed from excavations may be used as planting soil if so directed by the Landscape Architect. Soil amendments should be added based on soil test recommendations. Subsoil excavated from the planting pit should be removed from the project site.
 - 2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops and sides of root balls. Do not remove burlap, rope and wire baskets from below root balls. Remove pallets, if any, before setting. All plastic or synthetic fabric must be removed from the ball at the time of planting. Wire must not be galvanized or aluminum wire.
 - 3. All ropes, stones, etc. shall be removed from the pit before backfilling.
 - 4. Do not use planting stock if root ball is cracked or broken before or during planting operation.
 - 5. Soil for backfill shall be loose and friable and not frozen or compacted.
 - 6. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
 - 7. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
 - 8. Continue backfilling process. Water again after placing and tamping final layer of soil.
- F. Set container-grown stock plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
- G. Set the tree or shrub straight and in the center of the pit, with the most desirable side facing toward the predominant view. Care shall be exercised in setting the plants plumb.
 - 1. Topsoil removed from excavations may be used as planting soil if so directed by the Landscape Architect. Soil amendments should be added based on soil test recommendations. Subsoil excavated from the planting pit should be removed from the project site.
 - 2. Carefully remove root ball from container without damaging root ball or plant.

3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
 4. Soil for backfill shall be loose and friable and not frozen or compacted.
 5. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
 6. Continue backfilling process. Water again after placing and tamping final layer of soil.
- H. Set and support bare-root stock in center of planting pit or trench with root flare 1 inch above adjacent finish grade.
- I. Set the tree or shrub straight and in the center of the pit, with the most desirable side facing toward the predominant view. Care shall be exercised in setting the plants plumb.
1. Topsoil removed from excavations may be used as planting soil if so directed by the Landscape Architect. Soil amendments should be added based on soil test recommendations. Subsoil excavated from the planting pit should be removed from the project site.
 2. Spread roots without tangling or turning toward surface, and carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling, and maintain plumb while working backfill around roots and placing layers above roots.
 3. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside soil-covered roots about 1 inch from root tips; do not place tablets in bottom of the hole or touching the roots.
 4. Continue backfilling process. Water again after placing and tamping final layer of soil.
- J. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.
- K. Vine, Perennial, and Groundcover plants shall be carefully removed from containers or flats immediately prior to planting and set to the same depths as they were grown in the nursery bed or container, to the correct spacing indicated on the plans.
1. Roots shall be arranged in their natural position and topsoil worked in among them, taking care to avoid bruising or damaging the roots, and fertilizer tablets added to the top four inches (4") of backfill soil in the correct proportion for the respective pot size.
 2. No later than one hour after planting, all plants shall be thoroughly settled in with water.
 3. Climbing Vines shall be unfurled and tied to and/or woven through adjacent supporting wires, fences, trellis, etc.
- L. Annual flowering plants shall be carefully removed from the flats or cell-packs to avoid damaging roots or stems and planted in prepared planting beds at the same depth they were growing in the containers. Soil shall be thoroughly firmed around each crown, and plants thoroughly watered in no longer than one hour after planting.
- M. Bulbs shall be planted in the locations indicated on the plans and to the depths and spacing indicated on the Plant Schedule. Spring Flowering Bulbs, Corms, Tubers, and Rhizomes shall be planted in late September or October, no more than six (6) weeks before frost. Summer and Fall Flowering Bulbs, Corms, Tubers, Rhizomes and Plugs shall be planted in spring, after the last killing frost, or as directed by the Engineer. All of the above shall be planted according to

best horticultural practice. Prior to planting, bulbs shall be stored in a cool, dry, well-ventilated location for no longer than two (2) weeks before planting.

3.6 SOIL AMENDMENTS

- A. Mycorrhizal fungi inoculants shall be added to the top six to eight inches (6-8") of backfill soil in each planting pit and thoroughly mixed to distribute the inoculants. The material shall be applied according to the following chart:

| Size of rootball or container | Ounces per plant |
|-------------------------------|------------------|
| 1 gallon | 1 |
| 2 gal. | 2 |
| 3 gal. | 3 |
| 5 gal. | 3 |
| 7 gal. | 3 |
| 10 gal. | 3 |
| 15 gal. | 3 |
| 20" B&B | 6 |
| 24" B&B | 9 |
| 30" B&B | 9 |
| 36" B&B | 12 |
| 12" B&B | 12 |

After mixing, the plants shall then be thoroughly settled in with water. Care shall be taken to avoid bruising or breaking the roots when tamping the soil. All large and fleshy roots that are bruised or broken shall be pruned, making a clean cut before planting.

- B. Water Retention Additive: Water Retention Additives shall be applied at the time of planting during a dry planting. When planting trees, each tree shall receive three (3) ounces or amount specified by product instructions. Half should be added at a depth of 8-10 inches and the other half just below the finished surface. When planting shrubs, perennials or annuals, the product should be applied as per product instructions.
- C. Inorganic and Organic Soil Amendments and Fertilizers may be added to backfill topsoil at the time of planting, or as a surface application after planting, as indicated by soil testing and directed by the Landscape Architect.

3.7 TREE STABILIZATION

- A. Staking:
1. Tree caliper 3" to 6". (Stake trees of less than 3-inch caliper only as required to prevent wind tip out.) Use two stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend to the dimension shown on Drawings above grade. Set vertical stakes and space to avoid penetrating root balls or root masses.
 2. Flexible straps shall be tied to the stake and shall secure the main leader or leaders of the tree with a half hitch, so that the strap does not complete encircle the trunk. Tension shall be snug but not tight, allowing the tree to move with light breezes.
- B. Staking and Guying: Stake and guy trees more than 14 feet in height and more than 3 inches in caliper unless otherwise indicated. Securely attach no fewer than three guys to stakes or deadmen.

1. Install staking and guying system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.
 2. Provide flags for guy wires.
- C. Root-Ball Stabilization: Install at- or below-grade stabilization system to secure each new planting by the root ball unless otherwise indicated.
1. Install root-ball stabilization system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.
- D. Stakes, wires and hoses, and straps shall be removed at the end of the guarantee period, and shall become the property of the Contractor. At the time the stakes are removed any holes left by the stake shall be filled with topsoil. Tree irrigation bags shall be removed by the Contractor at the end of the guarantee period.

3.8 TREE IRRIGATION BAGS

- A. When planting trees in areas without automatic irrigation, the Contractor shall provide irrigation bags and fill them so as to provide a minimum one inch (1") rainfall equivalent per week after the initial planting saturation. The Contractor shall fill the bags to capacity at least once per week during the contract period. The bags shall be installed with two (2) holes open to provide a drip time of six to ten hours (6-10 hrs.). Damaged Tree Irrigation Bags shall be replaced at no cost to the Owner, during the contract period and guarantee period. Bags shall be removed in winter and replaced in spring. Bags shall be removed from the site at the end of the guarantee period.
- B. Shrub Irrigation Bags: When planting specimen shrubs and where directed by the Landscape Architect, the Contractor shall provide irrigation bags with a maximum fourteen-gallon (14gal.) capacity. All provisions listed above under Tree Irrigation Bags are applicable.

3.9 MULCH

- A. The Contractor shall cultivate and rake over finished planting areas and shall leave the site in an orderly condition. On level ground or slight slopes, a shallow basin a little larger than the diameter of the plant pit shall be left around each plant, as shown on the plans, or as directed by the Engineer. On steep slopes, the soil on the lower side of the plant shall be graded in such a manner that it will catch and hold water, as shown on the plans. Upon completion of planting, all debris and waste material resulting from the planting operation shall be removed from the project area, and the affected area raked and cleaned as necessary.
- B. After the shallow tree basins and plant saucers and shrub beds have been prepared, they shall be mulched.
1. Shredded Bark Mulch: three to four inches (3-4") in depth, inside and along the outside edge of the basins/saucers. Perennial beds shall be mulched to a two-inch (2") depth. After placing mulch on tree pits, the tree irrigation bags shall be installed and filled as per manufacturer's recommendations.
 2. Mineral Mulch: Spread mineral mulch where shown on the drawings.

3.10 MISCELLANEOUS PRODUCTS

- A. Not specified.

3.11 PRUNING

- A. All on-site pruning shall be supervised by the Landscape Architect and/or the Owner's Representative.
- B. Pruning at the time of planting shall be avoided other than to remove dead, dying, or broken branches. Trees shall not be pruned to compensate for the loss of root mass due to digging.
- C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Do not cut tree leaders.
- D. Evergreen plants shall not be pruned except to remove dead or broken branches.
- E. Remove only deadwood, suckers, broken, or damaged or injured branches, or branches that impinge on occupied pedestrian, vehicular or architectural space, from trees and shrubs. All pruning activities shall retain the natural character of the tree or shrub, unless otherwise indicated.
 1. Pruning shall be done with clean, sharp tools. No leaders shall be cut.
 2. Each cut should be made carefully, at the correct location, leaving a smooth surface with no jagged edges or torn bark. The correct anatomical location is just beyond the branch collar. (See figures 1.2 and 1.3, taken from the I.S.A. certification study manual).
 3. Large or heavy limbs should be removed using three cuts. The first cut undercuts the limb one or two feet from the parent brand or trunk. The second cut is the top cut which is made slightly further out on the limb than the undercut. The third cut is to remove the stub.
 4. Do not apply pruning paint to wounds.

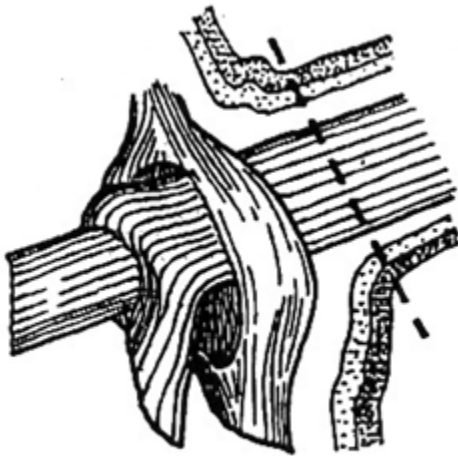


Figure 1.2

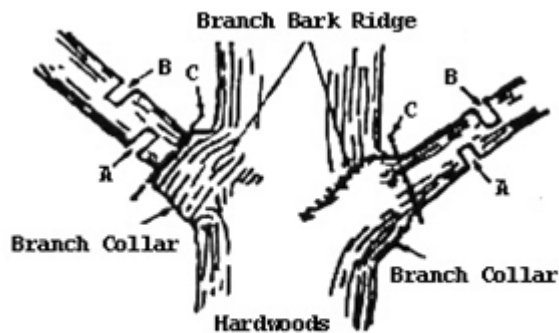


Figure 1.3

3.12 MAINTENANCE

- A. Maintenance shall begin immediately after each plant is planted, and shall continue for 2 years from acceptance.
- B. Maintain plantings by pruning, cultivating, watering and filling irrigation bags, weeding, cultivating, edging, fertilizing, control of insect infestation and fungal and disease infections by means of spraying with an approved insecticide or fungicide, pruning, adjustment and repair of stakes, anchors, and wires, adjusting and repair of planting saucers, repair of minor washouts

and gullies up to twelve inches (12") in depth, resetting to proper grades or vertical position and all other horticultural operations as required to establish healthy, viable plantings until final acceptance.

- C. At the time of planting, the soil around each plant shall be thoroughly saturated with water, and as many times later as seasonable conditions require, until final acceptance of the plant materials.
- D. Fill in as necessary soil subsidence that may occur because of settling, erosion or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- E. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
- F. Contractor must notify Owner's Representative when pest control is to take place.
- G. All planting areas shall be watered, cultivated, and weeded with hoes or other approved tools within the growing season extending from May 1st to October 1st, and such cultivating and weeding shall be repeated periodically as required. Under no condition shall weeds be allowed to attain more than six inches (6") of growth. The cost of such maintenance shall be included in the bid price.

3.13 REPLACEMENT

- A. See paragraph 1.13. GUARANTEE PERIOD AND REPLACEMENTS

3.14 ACCEPTANCE

- A. The Owner's Representative shall inspect all work for acceptance upon written request of the Contractor. The request shall be received at least fourteen (14) calendar days before the anticipated date of inspection.
- B. Upon completion and re-inspection of all repairs, replacements or renewals necessary, the Owner's Representative shall certify in writing as to the acceptance of the work. At such date the guarantee period shall commence.

3.15 FINAL INSPECTION AND FINAL ACCEPTANCE

- A. At the end of the guarantee period, the Owner's Representative will inspect all guaranteed work at the written request of the Contractor. The request shall be received fourteen (14) calendar days before the anticipated date for final inspection. Upon completion and re-inspection of all repairs or renewals necessary, the Owner's Representative shall certify in writing as to the final acceptance of the project.

END OF SECTION 32 9300

SECTION 33 1100

WATER DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section as shown or specified shall be in accordance with the requirements of the Contract Documents.
- B. All Sections in Division 01 – General Requirements.

1.2 RELATED SECTIONS

- A. Section 31 2000 - Earthwork
- B. Section 22 4723 - Drinking Fountain & Bottle Filler
- C. Section 22 5200 - Water Play Element

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract.
 - 1. Product Data: Catalog sheets for pipe, valves, hydrants, identification devices, and other miscellaneous items.

1.4 QUALITY ASSURANCE

- A. Installation must comply with standards established by Recommended Standards for Water Facilities (Ten States) and the American Water Works Association as well as the New York State Health Department.

1.5 FIELD QUALITY CONTROL

- A. Piping Tests: Conduct piping tests before joints are covered and after thrust blocks have sufficiently hardened. Fill pipeline 24 hours prior to testing and apply test pressure to stabilize system. Use only potable water.
- B. Hydrostatic Tests: Test at not less than 1.25 times above normal working pressure for 2 hours. Test pressure shall not vary by more than ± 5 psi for the duration of the test. Test procedure shall be in accordance with AWWA C600-17. Leakage tests shall be conducted concurrently with the pressure test in accordance with AWWA C600-17. Testing shall be witnessed and approved by the Owner's Representative.
- C. Testing for Acceptance:
- D. After the pipe has been laid and backfilled, all force mains shall be subjected to a hydrostatic pressure of at least 150 percent of the working pressure, but not to exceed the pressure rating of the pipe. The duration of each pressure test shall be for a period of at least two (2) hours.
- E. Each section of pipe shall be slowly filled with water and the test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. The pump, pipe connection and all necessary apparatus including plugs, gauges and meters shall be provided by the

CONTRACTOR. Before applying the test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevation and afterwards tightly plugged. Any cracked or defective pipes discovered during the pressure test shall be removed and replaced by the CONTRACTOR with sound material and the test shall be repeated until satisfactory to the OWNER'S REPRESENTATIVE.

- F. After completion of the pressure test, a leakage test shall be conducted to determine the quantity of water lost by leakage under the specified test pressure. Test pressure is defined as the maximum operating pressure of the section under test. Duration of each leakage test shall be a minimum of one (1) hour in addition to the pressure test period.
- G. Allowable leakage in gallons per hour for pipeline shall not be greater than that determined by the formula:

$$L = \frac{(S) (D) (\text{SQUARE ROOT OF } P)}{133,200}$$

133,200

WHERE:

L = ALLOWABLE LEAKAGE IN GALLONS PER HOUR.

S = LENGTH OF PIPE TESTED IN FEET.

D = NOMINAL DIAMETER OF THE PIPE IN INCHES.

P = AVERAGE TEST PRESSURE DURING LEAKAGE TEST IN POUNDS PER SQUARE INCH GAUGE.

1.6 CLEANING

- A. Clean and disinfect water distribution piping as follows:
 - 1. Purge all new water distribution piping systems that have been installed prior to use. Notify and coordinate cleaning and disinfection with the Owner's Representative. Use the purging and disinfecting procedure prescribed in AWWA C651-14. Per the sampling procedure prescribed in AWWA C651-14, samples shall be collected upon completion of the final flushing and prior to the system connection to the distribution system. Location of sampling shall be determined by the Owner's Representative. All laboratory reports shall be submitted to the Owner's Representative for review and approval. The Contractor shall include the costs for sampling and testing in his contract bid.
- B. Prepare reports for all purging and disinfecting activities.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Preparation for Transport: Prepare valves for shipping as follows:
 - 1. Ensure valves are dry and internally protected against rust and corrosion.
 - 2. Protect valves against damage to threaded ends, flange faces, and weld ends.

3. Set valves in best position for handling. Set gate valves closed to prevent rattling.
4. Storage: Use the following precautions for valves during storage:
5. Do not remove end protectors unless necessary for inspection; Then reinstall for storage.
6. Protect valves from weather. Store valves indoors. Maintain valve temperature higher than the ambient dew point temperature.
7. Handling: Use a sling to handle valves whose size requires handling by crane or lift. Rig valves to avoid damage to exposed valve parts. Do not use hand wheels or stems as lifting or rigging points.

1.8 PROJECT CONDITIONS

- A. Site Information: Perform a site survey, and verify existing utility locations. Verify that water line piping may be installed in compliance with the original design and referenced standards.

1.9 SEQUENCING AND SCHEDULING

- A. Provide project schedule to owner per Contract requirements.
- B. Coordinate with other utility companies working in the project area.

PART 2 - PRODUCTS

2.1 UTILITY MANHOLES

- A. Precast Concrete Utility Manholes: ASTM C478 or ASTM C858, precast reinforced concrete, of depth indicated. Sections shall have provision for rubber gasket joints. Riser sections shall have minimum thickness of 6 inches, and top sections shall match frame and grate specified, unless otherwise indicated.

2.2 PIPE AND PIPE FITTINGS, GENERAL

- A. All pipe and pipe fitting materials shall be compatible with each other.
- B. Lateral Piping: All service lateral piping shall be:

1/2" - 1" TYPE "K" COPPER CONFORMING TO ASTM B88.
- C. Service Connection Hardware: All service connection hardware shall be of the appropriate size and type, as indicated on the Contract Drawings. All hardware shall conform to ASME B16.
- D. Backflow Preventer: Watts Series LF007M1-QT-S or equal. All backflow preventers shall conform to ASSE Std. 1015 and AWWA Std. C510.
- E. Ground Hydrant: Zurn Type Z-1360 or equal. All ground hydrants shall be installed according to manufacturer installation instructions.

2.3 IDENTIFICATION

- A. Plastic Underground Warning Tapes: Polyethylene plastic tape, 6 inches wide by 4 mils thick, solid blue in color with continuously printed caption in black letters "CAUTION - WATER LINE BURIED BELOW."

PART 3 - EXECUTION

3.1 TRENCH EXCAVATION

- A. See Section 312000 - Earthwork.

3.2 INSTALLATION OF PIPE AND PIPE FITTINGS

- A. Pipe: Piping shall be free of any sags, bends, or kinks. Fittings are to be used for any change in direction. All ends shall be cleaned free of debris and burrs inside and out before fitting installation.
- B. Fittings: Fittings shall be cleaned of any debris and burrs before installation. All joints shall be made in accordance with manufacturer installation instructions.

3.3 BACKFILL

- A. Trenches shall be backfilled in accordance with the plans and drawings and in accordance with Section 312000 - Earthwork.

3.4 INSTALLATION OF ANCHORAGES

- A. Anchorages: Provide anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Anchorages shall be installed per the Details of the Contract Drawings and shall be formed prior to installing concrete.

3.5 INSTALLATION OF IDENTIFICATION

- A. Install continuous plastic underground warning tape during backfilling of trench for underground water service piping. Locate 6 to 8 inches below finished grade, directly over piping.

END of SECTION 33 11 00

SECTION 33 4000
STORMWATER UTILITIES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section as shown or specified shall be in accordance with the requirements of the Contract Documents.
- B. All Sections in Division 01 – General Requirements.

1.2 RELATED SECTIONS

- A. Section 312000 – Earthwork.

1.3 SUBMITTALS

- A. Submit the following in accordance with Conditions of Contract and Division 1 Specifications Section 01300, including dimensioning, methods and locations of supports, and technical specifications for all piping and appurtenances to be provided.
 - 1. Product data for drainage piping and fittings.
 - 2. Shop drawings and manufacturer's data for precast concrete storm drainage manholes and catch basins (base, risers and tops), including frames, grates, and covers.
 - 3. Shop drawings for precast headwalls and wingwalls.

1.4 QUALITY ASSURANCE

- A. Environmental Compliance: Comply with any applicable portions of environmental agency regulations pertaining to storm sewerage systems.
- B. Utility compliance: Comply with any local utility regulations and standards pertaining to storm sewerage systems.
- C. All materials shall be delivered to the job site intact and in good condition. In the event of damage, either in delivery or installation, all repairs and replacements shall be approved by the Owner's Representative.
- D. All pipe shall be provided by a single manufacturer who is fully experienced, reputable and qualified in the manufacture of the items to be provided. The materials shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these specifications.

PART 2 - PRODUCTS

2.1 PIPE AND PIPE FITTINGS

- A. General: Provide pipe and pipe fitting materials compatible with each other.
- B. PVC (Polyvinyl Chloride) Storm Pipe and Fittings: ASTM D3034, SDR 35, elastomeric gasket joints.
 - 1. Gaskets: ASTM F477, elastomeric seal.
 - 2. Lateral Drain Connections: J-M PVC Wye Type Saddle Connector.
- C. Perforated PVC (Polyvinyl Chloride) Storm Pipe and Fittings: ASTM D3034, SDR 35, elastomeric gasket joints. Perforation pattern to be standard 1/2" holes @ 5 inch spacing, 2 rows at 120-degree separation.

2.2 CATCH BASINS

- A. Precast Concrete Catch Basins: ASTM C 478 or ASTM C858, precast reinforced concrete, of depth indicated. Sections shall have provision for rubber gasket joints. Base section slab shall have minimum thickness of 4 inches, riser sections shall have minimum thickness of 3 inches, and top section and grade rings shall match frame and grate specified, unless otherwise indicated.
 - 1. Base Section: Base riser section and separate slab, or base riser section with integral floor.
 - 2. Riser Sections: Sections shall be of lengths to provide depth indicated.
 - 3. Flat slab tops shall have a minimum thickness of six (6) inches for basins up to 48" and eight (8) inches for large basins with additional steel around openings as per ASTM C-478.
 - 4. Gaskets: ASTM C 443, rubber.
 - 5. Permissible variations are as follows:
 - a. Internal diameter: not more than one percent.
 - b. Wall thickness: not more than 5% or +/- 3/16 inch, whichever is greater.
 - c. Length of two opposites: not more than 5/8 inch.
 - d. Length of section: not more than 1/2 inch in any one section.
- B. Catch Basin Frames and Grates: ASTM A 536 Grade 65-45-12, heavy duty, ductile iron, as specified on the Contract Drawings. They shall be true to pattern in form and dimensions, free from pouring faults, sponginess, cracks, blow holes and other defects. Casting shall have boldly filleted angles and the arris shall be sharp and perfect.
- C. Frames and covers must conform to these specifications as to quality, strength, thickness of metal and finish. Cover shall be furnished with lettering on face as required by Owner. Castings shall be designed to sustain AASHTO H20-44 wheel loadings (with 30% impact). The minimum thickness of metal at any point shall be 3/4".

2.3 STORMWATER MANHOLES

- A. Precast Concrete Manholes shall be constructed the same as catch basins, except that the frame and cover shall have a square flange frame with a circular cover as shown on the plans. The flat slab top shall be prepared as necessary to properly seat the frame.

- B. Manhole Frames and Grates: ASTM A 536, Grade 65-45-12, heavy-duty, ductile iron, diameter as specified on the Contract Drawings. They shall be true to pattern in form and dimensions, free from pouring faults, sponginess, cracks, blow holes and other defects. Casting shall have boldly filleted angles and the arris shall be sharp and perfect.
- C. Frames and covers must conform to these specifications as to quality, strength, thickness of metal and finish. Cover shall be furnished with lettering on face as required by Owner. Castings shall be designed to sustain AASHTO H20-44 wheel loadings (with 30% impact). The minimum thickness of metal at any point shall be $\frac{3}{4}$ ".

PART 3 - EXECUTION

3.1 PREPARATION

- A. Receiving, Handling and Storing Pipe
 - 1. When the truck load of pipe is initially received, it should be inspected for damage and quantities should be verified with shipping papers. Any damage or discrepancies should be noted on the delivery receipt and the supplier notified.
 - 2. To avoid damage, the pipe should not be dropped. When using equipment to unload or move the pipe, a fork extension can be used. When unloading by hand, gloves should be worn.
 - 3. Do not use chains or wire rope to lift the pipe. Use nylon slings and do not pick up 20 foot lengths from only one place on pipe.
- B. Inspecting Pipe
 - 1. All pipe, specials and fitting shall be carefully inspected for defects immediately prior to the laying. No cracked, broken or defective materials shall be used in the work.
 - 2. If any defective piece shall be discovered after having been laid, it shall be removed and replaced with a new piece acceptable to the Owner's Representative at no additional cost to the Owner.
- C. Trench Preparation
 - 1. Trench shall be excavated in accordance with Section 312000 included as part of these specifications. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation, throughout the length of the pipe.
 - a. Remove unstable, soft, and unsuitable materials at the surface upon which pipes are to be laid, and backfill in accordance with the TRENCHING DETAILS shown in the Contract Drawings.

3.2 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of the underground storm sewerage system piping. Install the piping as indicated, to the extent practical.

- B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.
- C. Use manholes or catch basins for changes in direction, except where a fitting is indicated. Use fittings for branch connections, except where direct tap into existing storm sewer is indicated.
 - 1. Install piping pitched down in direction of flow, at slopes indicated on the Contract Drawings.
- D. The installation of pipe shall be strictly in accordance with the manufacturer's technical data and printed instructions and in accordance with the following.
 - 1. After the trench has been excavated, all pipe, hydrants, valves, fittings, accessories and appurtenances shall be installed in such manner as to conform to the following procedures and as shown on the detail drawings of typical pipe and accessory installation on the plans and drawings relating to this Contract.
 - a. All pipe shall be laid to, and maintained at, the lines and grades shown on the plans and drawings unless specifically directed otherwise by the Owner's Representative.
 - b. All pipe and accessories shall be inspected for defects before lowering into the trench and any defective, damaged or unsound material repaired or replaced as directed by the Owner's Representative. Any material declared unfit for use by the Owner's Representative shall be immediately removed from the project site by the Contractor at his own expense.
 - c. All dirt or other foreign material shall be removed from the interior of the pipe before it is lowered into the trench and shall be maintained in that condition during all phases of the pipe installation procedure.
 - d. All pipe and accessories shall be carefully lowered into the trench, using such means as may be dictated by existing conditions but under no circumstances shall any pipe or accessory be dropped or dumped into the trench.
 - e. All pipe, fittings and appurtenances shown on the plans and drawings shall be provided and installed as shown on the drawings or as specified in supplementary documentation.
 - f. Pipe shall not be laid when trench conditions or the weather is unsuited for proper installation as determined by the Owner's Representative.
 - g. Wherever the Owner's Representative has determined that the trench bottom is not in a condition to adequately support the pipe being laid, the Contractor shall bring the affected area or areas to an acceptable condition in accordance with Section 312000.
 - h. Pipe shall be embedded in material as specified in the contract drawings with particular emphasis being paid to the haunch areas of the installation. Embedment material shall be placed in small enough lifts, depending on pipe diameter, to permit shovel-slicing of the material into the haunch on both sides of the pipe up to the springline with each lift being alternately compacted to a density equal to not less than ninety (90) percent of the density present in the undistributed trench wall. Above the pipe springline, the same material shall be placed in lifts as indicated until the top of the pipe is covered to a depth equal to that upon which the pipe rests, with the material being hand leveled and carefully compacted to at least 90% of Standard Proctor density in such manner as will not damage or cause misalignment of the pipeline. All pipe embedment and subbase, where required, shall extend to the

undisturbed trench wall on both sides of the trench and shall be completely free of voids.

- i. Bell holes shall be provided when elastomeric or flanged joints are called for but they shall be no larger than necessary to accomplish proper joint assembly. When the joint has been made, the void under the joint shall be filled with embedment material to provide adequate support to the pipe throughout its entire length.
- j. Pipe joints shall conform to the recommendations and specifications of the pipe manufacturer.
- k. When pipe laying is not in progress, the open ends of installed pipe and accessories shall be capped or plugged to prevent entrance of trench water or foreign objects into the pipeline.
- l. Whenever water is excluded from the interior of the pipe, enough backfill shall be placed on the pipe to prevent floatation. **HOWEVER, NO PIPE, PIPE FITTINGS OR APPURTENANCES SHALL BE COVERED BEFORE THEY HAVE BEEN INSPECTED AND REFERENCED BY THE OWNER'S REPRESENTATIVE.** Any pipe which has floated shall be removed from the trench and relaid to specification.
- m. Connections between pipe and manholes shall be made secure against infiltration and exfiltration.

3.3 CONSTRUCTION LOADS

- A. Pipe is designed to carry H-20 live loads (32,000lb axle - legal load) with 12 inches of cover. This assumes well-compacted embedment.
- B. During construction, avoid heavy equipment wheel loads over the pipe or place additional cover at vehicle crossings. If a hydro-hammer is to be used to compact the trench at least 48 inches of cover must be provided.
- C. When connections to structures, laterals, deep laterals, risers, or drop manholes are required, the installation must be designed to ensure that the pipe and fittings are not damaged by loads generated due to soil settlement, dragdown, and/or poor installation practices. Generally, as depths increase and/or embedment quality declines, additional attention must be given to these loads to ensure a satisfactory installation.
- D. When removing sheeting or other trench protection, don't disturb the embedment material. If sheeting or trench protection must be used below the top of the pipe, consider leaving it in place so as not to jeopardize side support for the pipe.

3.4 REPAIRS

- A. If the damage is a hole or crack in the corrugated wall only, and is less than one-quarter the pipe diameter in area and the pipe is not under pavement, clean the pipe and center a split coupling over the damaged area and secure snugly with nylon ties.
- B. If the damage exceeds the above criteria or if the pipe is under pavement, cut out the damaged pipe, cut a replacement piece to fit, lay a split coupling under each exposed end, place the new pipe section in the trench and secure the couplings.

3.5 CATCH BASINS AND MANHOLES

- A. Placement: Before placing the precast catch basin or manhole, granular material shall be placed in the trench, leveled, and compacted to a minimum depth as shown on the Drawings.
- B. Place precast catch basin or manhole in trench and level to proper elevation to achieve designed inverts.
- C. Construct catch basins and manholes to sizes and shapes indicated.
- D. Set frames and grates or covers to elevations indicated.
- E. Connections to Existing Manholes and Structures:
 - 1. Where noted on the Drawings or as directed by the Engineer, the Contractor shall make connections to existing manholes or structures. The use of excessive force or blunt instruments is prohibited in installing the pipe into the existing wall. Neatly core drill hole through the existing wall, taking care to achieve the minimum diameter hole required to install the pipe true to line and grade as shown on the Drawings or as directed by the Engineer. The structure shall be maintained in good repair. Provide an approved flexible and watertight connection at the wall.
 - 2. In making the connection to an existing manhole or structure, it shall be the Contractor's responsibility to dewater each structure in order to make the connection.
 - 3. Where drop inlets are required for connections to existing manholes, they shall be installed in accordance with the details and configurations shown or indicated in the Contract Documents.

3.6 FRENCH DRAIN SYSTEM

- A. Coordinate installation of french drain system with building contractor.
- B. Construct french drain system in accordance with the plans and details indicated on the Contract Drawings.

PART 4 - QUALITY ASSURANCE/QUALITY CONTROL

4.1 FIELD QUALITY CONTROL

- A. Cleaning: Clear interior of piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.
 - 1. In large, accessible piping, brushes and brooms may be used for cleaning.
 - 2. Place plugs in ends of uncompleted pipe at end of day or whenever work stops.
 - 3. Flush piping between manholes, if required by Owner, to remove collected debris.
- B. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.
 - 1. Owner's Field Representative to make inspections after pipe between manholes and manhole locations has been installed and approximately 2 feet of backfill is in place, and again at completion of project.
 - 2. If inspection indicates poor alignment, debris, displaced pipe, infiltration, or other defects, correct such defects and reinspect.

4.2 REJECTION AND REPAIR

- A. Catch basin or manhole sections shall be subject to rejection on account of failure to conform to any of the specification requirements. In addition, individual sections of catch basin sections may be rejected because of any of the following:
 - 1. Fractures or cracks passing through the wall, except for a single end crack that does not exceed the depth of the joint.
 - 2. Defects that indicate imperfect proportioning, mixing and molding.
 - 3. Surface defects indicating honeycombed or open texture.
 - 4. Damaged or cracked ends, where such damage would prevent making a satisfactory joint.
 - 5. Any continuous crack having a surface width of 0.01 inch or more extending for a length of 12 inches or more.
- B. Catch Basin or Manhole units that contain minor defects caused by manufacturer or mishandling may be repaired. Minor defects shall be considered as those that are small, less than 6" diameter, holes or spalls that do not penetrate deeper than steel reinforcement. Repairs shall be made using a concrete repair material conforming to NYSDOT Standard Specifications, Construction and Materials. The repair shall be finished to the proper shape and cured. It shall withstand a moderate blow with a 16 ounce hammer.

4.3 MARKING AND PAINTING

- A. Name and trademark of the manufacturer shall be clearly marked on each catch basin or manhole section.
- B. Marking shall be indented into the catch basin or manhole bases, risers, and top sections or shall be painted thereon with waterproof paint.

END of SECTION 33 4000

Back Cover



**City of Hudson
Columbia County, New York**

**Funding for this project partially provided by a New York State Department of
State Downtown Revitalization Initiative
Promenade Hill Park Improvements
City of Hudson**
