

BATTERY PARK CITY AUTHORITY

REQUEST FOR PROPOSALS

FOR

2015 Irish Hunger Memorial Waterproofing Contractor

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I. SUMMARY

Battery Park City Authority d/b/a Hugh L. Carey Battery Park City Authority (“BPCA”) requests proposals (each individually, a “Proposal” or collectively, the “Proposals”) from contractors (each individually, a “Proposer” or collectively, the “Proposers”) to (1) dismantle and remove all structural, landscaping and overburden materials to expose the concrete deck, (2) install a waterproofing system and (3) reinstall both existing material and new landscaping material at the Irish Hunger Memorial, located at the western terminus of Vesey Street, in Battery Park City (the “Project”), all as specifically delineated in the Scope of Work attached hereto as Exhibit A.

Minority-Owned Business Enterprises (“MBE”) and Women-Owned Business Enterprises (“WBE”) are encouraged to submit Proposals.

This request for proposals, the attachments and any additional information submitted herewith, (collectively, the “RFP”) does not obligate BPCA to complete the selection and contract award process. BPCA reserves the right to: 1) accept or reject any and all Proposals; 2) request additional information from any or all Proposers to assist BPCA in its evaluation process; 3) amend or withdraw this RFP prior to the announcement of the selected Proposer; and 4) award the proposed services, in whole or in part, to one or more Proposer(s). In case of an amendment to the RFP, all Proposers will be provided with a copy of any such amendment(s) and will be afforded the opportunity to revise their Proposals in response to the RFP amendment.

II. DESCRIPTION OF BPCA

BPCA is a public benefit corporation created in 1968 under the laws of the State of New York for the purpose of financing, developing, constructing, maintaining, and operating a planned community development of the Battery Park City site as a mixed commercial and residential community.

Under the Battery Park City Authority Act (the “Act”), BPCA has the following powers, among others: to borrow money and to issue negotiable bonds, notes or other obligations and to provide for the rights of the holders thereof; to acquire, lease, hold, mortgage and dispose of real property and personal property or any interest therein for its corporate purposes; to construct, improve, enlarge, operate and maintain Battery Park City; to make bylaws for the management and regulation of its affairs, and, subject to agreements with bondholders, for the regulation of Battery Park City; to make contracts and to execute all necessary or convenient instruments, including leases and subleases; to accept grants, loans and contributions from the United States, or the State of New York or the City of New York (the “City”), or any agency or instrumentality of any of them, or from any other source and to expend the proceeds for any corporate purpose; to fix, establish and collect rates, rentals, fees and other charges; and to do all things necessary or convenient to carry out the powers expressly granted by the Act. BPCA has no taxing power.

Since its inception, BPCA has caused the staged development of Battery Park City, in individual parcels, creating a richly diversified mixed use community providing residential and commercial space, with related amenities such as parks, plazas, recreational areas and a waterfront esplanade. Most individual parcels of land in Battery Park City were developed into residential and commercial buildings by tenants (“Ground Lease Tenants”) under long-term ground leases with BPCA. The Ground Lease Tenants are responsible for the maintenance, insurance and defense and indemnification of BPCA with regard to those leased parcels.

One of BPCA’s key responsibilities under the Act is to operate, maintain and repair the parks and open spaces in and around Battery Park City’s residential and commercial areas. This function has been delegated by BPCA to the Battery Park City Parks Conservancy Corporation (“BPCPC”) through a written Management Agreement. BPCPC carries out its mission by maintaining 36 acres of parks, playgrounds and open spaces, including the waterfront

esplanade. BPCPC also develops programs and manages public events for the Battery Park City community. BPCA owns and has built out a commercial condominium unit in a residential building in Battery Park City, which serves as the BPCPC headquarters.

To obtain a copy of BPCA's most recently completed audited financial statements, please visit BPCA's official website at www.bpca.ny.gov. The audited financial statements and related reports found on BPCA's website will provide you with an overview of the operations for which BPCA is responsible and the areas of expertise in which the selected Proposer must be proficient. For an overview of BPCPC's operations, please visit its website at www.bpcparks.org.

III. SERVICES REQUIRED

A. The selected Proposer will be responsible for the services delineated in Exhibit A (the "Services Required"), attached hereto.

B. All work to be performed by the selected Proposer shall be performed under the supervision of a Project Manager in charge of this engagement (the "Lead PM") who must ensure that the work completed for BPCA is performed competently and in a timely manner.

IV. KEY DATES, CONTRACT TERM AND MINIMUM QUALIFICATIONS

A. Key Dates

The following is a list of key dates, up to and including the date Proposals are due to be submitted, which is subject to change at BPCA's discretion:

- Request for Proposals issued: September 22, 2015
- Pre-proposal meeting: September 30, 2015 at 1:00 p.m. at BPCA offices: 200 Liberty Street, 24th Floor, New York, NY 10281 (attendance is highly recommended).
- Deadline to submit questions to BPCA: October 7, 2015 by 5:00 p.m. (by email only).

All questions regarding this RFP should be submitted in writing via email to the "Designated Contact": Michael LaMancusa, Battery Park City Authority, at michael.lamancusa@bpca.ny.gov.

- Deadline for BPCA's response to substantive questions: October 13, 2015 (via BPCA Website).
- **DUE DATE FOR RESPONSES TO RFP: October 20, 2015 by 5:00 p.m. (the "Due Date").**
- **Pre-award interviews will be held with selected proposers. The tentative dates for these interviews are October 23, and 26.**
- Anticipated contract start date: November 2015

B. Anticipated Contract Term

It is anticipated that the term of the contract awarded pursuant to this RFP (the "Contract") will be for a period of twelve (12) months (the "Term"); however, it is expected that the duration of construction services will be approximately six to eight months. BPCA reserves the right to terminate the Contract at any time, with or without cause, in accordance with the terms of the Contract. BPCA's standard form of contract is attached hereto as Exhibit C.

C. Minimum Qualification Requirements

The following are the Minimum Qualification Requirements for this RFP. Proposals that fail to comply with these requirements will be rejected.

- 1) The firm must have an office in New York State (a New York City office is preferred);
- 2) The firm must be a licensed contractor in the State of New York;
- 3) The firm and the designated Project Manager must each have a minimum of five (5) years' experience with waterproofing and masonry work and a minimum of five (5) years' experience working on projects involving public parks, public art and/or public monument/memorial structures; and
- 4) The firm must be or must include as a member of its team or as a subcontractor, a certified installer of the waterproofing product as specified in the Drawings and Specifications attached hereto as Exhibit H.

V. GENERAL REQUIREMENTS

A. Questions regarding MBE/WBE participation, joint ventures and sub-contracting goals

Please see Exhibit B (attached) for contractor requirements and procedures for business participation opportunities for New York State certified MBEs/WBEs and equal employment opportunities for minority group members and women.

For questions relating to MBE/WBE participation, joint ventures and sub-contracting goals ONLY, please contact "MBE/WBE Designated Contact" Mr. Anthony Peterson at 212.417.2337.

B. Restricted Period

Applicants are restricted from making contact with anyone other than the Designated Contact or MBE/WBE Designated Contact specified above during the period from the date of publication of the notice of this RFP in the New York State Contract Reporter through approval of the Contract by BPCA (the "Restricted Period"). Employees of BPCA are required to record certain contacts during the Restricted Period, including, but not limited to, any oral, written or electronic communication with a governmental entity under circumstances where a reasonable person would infer that the communication was intended to influence BPCA's conduct or decision regarding the governmental procurement, and to make a determination of responsibility based, in part, upon any such contact. Failure to abide by this process may result in a finding that the Proposer is non-responsive=.

C. Submission of Proposals

Proposals are due no later than 5:00 p.m. on October 20, 2015

Each Proposer must submit six (6) paper copies of its Proposal and one (1) electronic CD-Rom copy in a sealed package clearly marked "**2015 Irish Hunger Memorial Waterproofing Contractor Proposal**" to the Designated Contact by messenger, overnight courier or certified mail to the following address:

Michael LaMancusa
Battery Park City Authority
200 Liberty Street, 24th Floor
New York, NY 10281

BPCA is not responsible for any internal or external delivery delays which may cause any Proposal to arrive beyond the stated Due Date. To be considered, Proposals must arrive at the time and place specified herein and be time stamped by BPCA's time stamp prior to the Due Date. Please leave ample time for building security, as late Proposals will not be accepted. Proposals submitted by fax or electronic transmission will NOT be accepted. A Proposer may, after submitting a Proposal, amend its Proposal by submitting a second, amended Proposal,

clearly labeled “**2015 Irish Hunger Memorial Waterproofing Contractor Proposal - Amended**” as long as the amended Proposal is submitted by the Due Date.

Public access to Proposals shall be governed by the relevant provisions of the Freedom of Information Law, Article 6 of the New York State Public Officers Law, and regulations adopted pursuant thereto.

D. Mandatory Forms

Proposers must complete and include with their Proposal all “Mandatory Forms,” which can be found at the following URL address: <http://bpca.ny.gov/wp-content/uploads/2015/03/Vendor-Responsibility-Questionnaire.pdf>

These Mandatory Forms include the following:

1) NYS Standard Vendor Responsibility Questionnaire – **Submit with the Cost Proposal (as described below), one (1) original unbound set of a completed NYS Standard Vendor Responsibility Questionnaire with original ink signatures.** Do not include the Standard Vendor Responsibility Questionnaire in the bound copies of the Cost Proposal. The NYS Standard Vendor Responsibility Questionnaire must be notarized and signed by the individual(s) authorized to bind the firm contractually. Indicate the title or position that the signer holds within the firm.

2) State Finance Law § 139 Form 1 – **one original unbound completed SFL 139 Form 1: Professional’s Certifications Pursuant to SFL § 139-j and § 139-k with original signature.** State Finance Law § 139 Forms 1 must be signed by the individual(s) authorized to bind the firm contractually.

3) W-9 form.

4) Statement of Non-Collusion.

5) Diversity Forms.

VI. PROPOSAL FORMAT AND CONTENTS

A. Proposal Format

The Proposal must be printed on either 8½” x 11” or 8½” x 14” paper. The Proposal will be evaluated on the basis of its content, not length. BPCA reserves the right to disqualify Proposals that fail to comply with any of these instructions.

B. Proposal Content

A Proposal in response to this RFP must include the following sections in the order listed:

1) Transmittal Letter, as follows:

The Proposal must include a signed Transmittal Letter from a person within the Proposer’s firm who is authorized to bind the firm, preferably the Lead PM. **Transmittal Letter must be signed. Proposals with unsigned Transmittal Letters will be rejected.**

The Transmittal Letter must include a representation by the Proposer that, except as disclosed in the Proposal, no officer or employee of the Proposer is directly or indirectly a party to or in any other manner interested financially or otherwise in this RFP.

- 2) Executive Summary.
- 3) Discussion of Proposer's understanding of the Services Required (see Section III).
- 4) Responses to the RFP Questions and Required Information.
- 5) RFP Additional Information.
- 6) Response to the question regarding the use of New York State businesses in Section X.
- 7) Mandatory Forms.
- 8) **Cost Proposal, in a separately sealed envelope, as described below in Section VI.E.**

C. RFP Questions and Required Information

1. Describe your firm's background, staff, and history as they may be relevant to the Services Required, with an emphasis on waterproofing, landscaping and masonry preservation and restoration.
2. Describe the relevant special services your firm provides, particularly those that may not be offered by other firms.
3. Describe your experience and methodology for performing waterproofing work, especially any projects which may have involved a combination of waterproofing, masonry and roof-top landscaping work
4. Describe your experience and expertise in projects involving public spaces, public art and/or monument or memorial structures.
5. Describe your experience and qualifications in the performance of landscaping projects and your methodology in handling soils and plantings.
6. Describe your experience handling non-standard masonry installations, including, but not limited to, the removal and cataloging of masonry walls.
7. Discuss your approach to the Project, briefly addressing your conceptual step-by-step approach towards completion of the work and outline the proposed procedures for executing the work.
8. Within the past three years, have there been any significant developments in your firm, such as changes in ownership or restructuring? Do you anticipate any significant changes in the near future? If so, please describe.
9. Has your firm or any of the firm's partners/employees been disciplined or censured by any regulatory body within the last five years? If so, please describe the relevant facts.
10. Within the last five years, has your firm, or a partner or employee in your firm, been involved in litigation or other legal proceedings relating to the provision of engineering and design services? If so, please provide an explanation and the current status or disposition of the matter.
11. Has your firm filed for bankruptcy or reorganization, or had bankruptcy proceedings initiated against it, within the last five years? If so, please describe the relevant facts.
12. In the past five years, have any clients terminated their working relationship with your firm? If so, please provide a brief statement of the reasons. Provide the client's name and its in-house counsel's name, address and telephone number.
13. Are there any potential conflict of interest issues in performing the Services Required for BPCA?
14. If selected, will your firm assign any person to this Project who was previously an employee of BPCA? If so, please i) identify when (month and year) that person's employment at BPCA terminated, and ii) describe that person's involvement, if any, with matters related to the Project during his/her employment at BPCA.
15. List any professional or personal relationships your firm's employees may have with BPCA's Board and/or staff members of BPCA (list of Board Members and staff attached as Exhibit I attached hereto).
16. Identify the Lead PM who will be the primary contact and lead person in providing services to BPCA, and identify who will be listed as a "key person" in any contract with BPCA.
17. Describe your firm's "backup plan" in the event that the Lead PM, or one or more of the key persons, assigned to the Project leaves your firm.

18. Describe your proposed team's experience (including both direct contract work and work performed under subcontracts) with similar work for other public agencies and authorities, with a particular emphasis on New York State and City, and Federal government, agencies and authorities. Include contract dates, the nature of the work performed, the contracting agency, the contract number (if known) and the supervisor for each.
19. Itemize the work you intend to perform with your firm's resources and/or workforce as well as the work for which you propose to use sub-contractors.
20. Provide a list of all proposed sub-contractors for the completion of the work.
21. Identify any and all exceptions taken to BPCA's standard form of contract attached hereto as Exhibit C, detailing the reasons for such exceptions. No exceptions to the Contract will be considered by BPCA after submission of the Proposals. BPCA maintains the right to reject Proposals based on non-conformance with the standard form of contract.
22. Please provide any additional information which would distinguish your firm from other firms, and which you believe may be relevant to this RFP and your capability to perform the Required Services.

D. RFP Additional Information Request

1) Insurance:

a. Do you impose any limitations on liability through your contracts?

b. Describe the levels of coverage for any insurance your firm carries. List the insurance carrier(s) or provide an insurance certificate showing your firm's coverage in accordance with the following

- Commercial General Liability Insurance limits shall not be less than **\$1,000,000** per each occurrence and **\$2,000,000** in the aggregate with Products/Completed Operations limits of not less than **\$1,000,000**;
- Umbrella Liability limits shall not be less than **\$10,000,000**;
- Automobile liability (Combined Single Injury, Bodily Injury and Property Damage) limits shall not be less than **\$1,000,000**;
- Workman's Compensation shall not be less than statutory limits;
- Employers Liability shall not be less than **\$1,000,000**;
- Disability Insurance as required by applicable provisions of law; and
- Professional Liability shall not be less than **\$2,000,000**;
- Contractor's Pollution Liability of not less than **\$5,000,000**

The costs of the insurance shall be included in the Cost Proposal. BPCA, BPCPC and the State of New York shall be listed as Additional Insured on CG 2010 (11/85) or similar and should be included as such on all levels of insurance held by subcontractors. Policies should contain no limitations/exclusions for Labor Law claims. Policies should provide coverage on primary and non-contributory basis and there should be a waiver of subrogation against all Additional Insureds (BPCA, BPCPC and State of New York).

c. Bonding: Provide a letter from your surety(ies) stating that you are able to provide a payment and performance bond as required by the standard form of contract (Exhibit C).

2) Progress Schedule

Attach a bar chart schedule for performance of the Project, showing the sequencing of the work with durations for each element, staffing levels, work shifts, all Project milestones and successful overall completion.

3) References:

Please provide at least three (3) client references for whom your firm has performed similar work to that requested in this RFP. For each client, please provide the name, address and telephone number for the client's project manager or primary project contact.

4) Appendices:

a. Provide resumes for all key management personnel listed in your Proposal, including the staff that your firm is proposing to assign to this Project.

b. Provide a copy of each addendum submitted by BPCA with regard to this Proposal (if applicable) and a signed acknowledgment of receipt of each addendum.

5) Financial Statements:

Provide a copy of your firm's most recent Audited Financial Statements (within the last year).

6) MBE/WBE & EEO Policy Statement

Attach the completed MBE/WBE & EEO Policy Statement form provided as part of Exhibit B.

E. Cost Proposal

Three copies of the Cost Proposal must be submitted in a separately sealed envelope, as directed below. To submit a complete Cost Proposal, Proposer must submit each of the following:

- 1) A lump sum amount for performance of all services described herein, in the form of cost proposal attached hereto as Exhibit D.
- 2) Labor Rates in the form attached hereto as Exhibit E.
- 3) Itemized Schedule of Values in the form attached hereto as Exhibit F.
- 4) Unit Prices in the form attached hereto as Exhibit G.

The Cost Proposal, regardless of whether it is bound, must be submitted in its own separate envelope within the sealed package containing all other Proposal documents. For the avoidance of doubt, the Cost Proposal must be submitted separately and unbound from the remainder of the Proposal documents.

VII. THE EVALUATION PROCESS

A. Objectives

The primary objective of the evaluation process is to select a firm that:

- Demonstrates a thorough understanding of the scope of the engagement and the specific responsibilities it entails;
- Possesses adequate resources to handle assigned responsibilities and to handle unforeseen circumstances that may arise;
- Assigns highly skilled, experienced, diligent, responsible and professional personnel to perform the required services;
- Maintains high ethical standards and has an unblemished reputation; and
- Has no conflict of interest between its performance of the Services Required and its work on behalf of other clients.

The selection process will begin with the review and evaluation of each of the written Proposals. The purpose of this evaluation process is twofold: (1) to examine the responses for compliance with this RFP and (2) to identify the complying Proposers that have the highest probability of satisfactorily performing the Services Required at a reasonable cost to BPCA. The evaluation process will be conducted in a comprehensive and impartial manner by a committee of BPCA’s employees selected by BPCA (the “Committee”). **The Committee will evaluate the Proposals based upon the evaluation criteria set forth below.**

BPCA will reject and return unopened to the Proposer any Proposal received after the RFP Due Date. All timely submitted Proposals will be reviewed to determine if they contain all required submittals specified herein. Incomplete Proposals may be rejected.

B. Interviews

BPCA reserves the right to determine whether interviews will be necessary for any or all of the Proposers. The purpose of the interview is to further evaluate a Proposer’s ability to provide the Services Required, and to impart to the Committee an understanding of how specific services will be furnished. The proposed Lead PM, as well all other key personnel proposed to provide the services, must be present and participate in the interview.

C. Evaluation Criteria for Selection

Selection will be based upon the following criteria:

- i) Experience/expertise in the following critical Project disciplines: 40%
 - Waterproofing utilizing materials specified for Project;
 - Landscaping;
 - Working with monuments, public art, & historic &/or landmarked structures; and
 - Dismantling and restoration of masonry walls.

- ii) Approach to work, staffing and schedule, including the following factors: 40%
 - Project methodology & sequencing;
 - Construction commencement and duration; and
 - Qualifications of assigned staff.

- iii) Cost Proposal: 10%

- iv) M/WBE Status and/or utilization plan: 10%

D. Basis for Contract Award

The Contract will be awarded to the highest technically rated Proposer whose Proposal is determined to be responsive and in the best interests of BPCA.

VIII. NON-COLLUSION

By submitting a Proposal, Proposers hereby warrant and represent that any ensuing Contract has not been solicited or secured directly or indirectly in a manner contrary to the laws of the State of New York, and that said laws have not been violated and shall not be violated as they relate to the procurement or the performance of the Contract by any conduct, including the paying or giving of any fee, commission, compensation, gift, or gratuity or consideration of any kind, directly or indirectly, to any member of the board of directors, employee, officer or official of BPCA.

IX. IRAN DIVESTMENT ACT

By submitting a Proposal or by assuming the responsibility of any Contract awarded hereunder, Proposers hereby certify that they are not on the “Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012” list (“Prohibited Entities List”) posted on the New York State Office of General Services website at: <http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf> and further certify that they will not utilize any sub consultant that is identified on the Prohibited Entities List on this Contract. The selected Proposer agrees that should it seek to renew or extend any Contract awarded hereunder, it must provide the same certification at the time the Contract is renewed or extended. The selected Proposer also agrees that any proposed assignee of the Contract will be required to certify that it is not on the Prohibited Entities List before BPCA may approve a request for assignment of the Contract.

During the term of any Contract awarded hereunder, should BPCA receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, BPCA 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 New York State Iran Divestment Act of 2012 within 90 days after the determination of such violation, then BPCA shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, seeking compliance, recovering damages, or declaring the selected Proposer in default of the awarded Contract.

BPCA reserves the right to reject any request for renewal, extension, or assignment for an entity that appears on the Prohibited Entities List prior to the renewal, extension, or assignment of the Contract, and to pursue a responsibility review with the selected Proposer should it appear on the Prohibited Entities List hereafter.

X. ENCOURAGING USE OF NEW YORK STATE BUSINESSES IN CONTRACT PERFORMANCE

New York State businesses have a substantial presence in State contracts and strongly contribute to the economies of the state and the nation. In recognition of their economic activity and leadership in doing business in New York State, Proposers for this Contract for commodities, services or technology are strongly encouraged and expected to consider New York State businesses in the fulfillment of the requirements of the Contract. Such partnering may be as subcontractors, suppliers, protégés or other supporting roles.

Proposers need to be aware that all authorized users of this Contract will be strongly encouraged, to the maximum extent practical and consistent with legal requirements, to use responsible and responsive New York State businesses in purchasing commodities that are of equal quality and functionality and in utilizing services and technology. Furthermore, Proposers are reminded that they must continue to utilize small, minority and women owned businesses, consistent with current State law.

Utilizing New York State businesses in State contracts will help create more private sector jobs, rebuild New York’s infrastructure, and maximize economic activity to the mutual benefit of the contractor and its New York State business partners. New York State businesses will promote the contractor’s optimal performance under the Contract, thereby fully benefiting the public sector programs that are supported by associated procurements.

Public procurements can drive and improve the State’s economic engine through promotion of the use of New York businesses by its contractors. The State therefore expects bidders/proposers to provide maximum assistance to New York businesses in their contracts. The potential participation by all kinds of New York businesses will deliver great value to the State and its taxpayers.

Proposers can demonstrate their commitment to the use of New York State businesses by responding to the question below:

Will New York State businesses be used in the performance of this contract? ____ Yes ____ No

If yes, identify New York State businesses that will be used and attach identifying information.

EXHIBIT A
SCOPE OF WORK

A. Background and Context

The Irish Hunger Memorial (the “Memorial”) is located at North End Avenue and Vesey Street in Battery Park City and is considered a public work of art situated on dedicated New York City parkland. The Memorial was conceived of and designed by artist Brian Tolle (the “Artist”) (with construction documents prepared by 1100 Architects) and intended to be a contemplative space devoted to raising awareness of the Great Irish Hunger and Migration of 1845 – 1852. The Memorial was dedicated in July 2002.

Since its construction, the Memorial has experienced considerable leaking on its south side, in the underground niche, and near its sound system. In addition, stains and cracks have developed over time throughout the Memorial’s structure. In 2003, a remedial project waterproofed a portion of the Memorial’s cantilevered concrete perimeter, but the leaking has persisted and has worsened over time. As such, the leak remediation and waterproofing required for the Project must be performed.

B. Work Elements

The selected Proposer shall provide all labor, equipment, tools, materials and construction services necessary to complete the Project, in accordance with the drawings and specifications (the “Drawings”) attached hereto as Exhibit H (the “Work”), The Work shall include, but not be limited to:

- Performance of a thorough pre-construction survey indicating elevations, locations of “County” stones, and soils topography in order that the soils and planting material may be reinstalled to replicate existing conditions;
- Temporary protection of existing Memorial and plaza in accordance with specified requirements;
- Cataloguing and removal of existing masonry wall and a portion of the cottage, with particular attention to and recording of the locations of the keystones and larger stones;
- Protection and transportation of existing masonry wall stones for offsite storage; all stones to be returned to the site for reconstruction of the existing fence and portion of the cottage;
- Removal and protection of all soils; soils to be protected off site and replaced upon approved completion of the waterproofing components of the Project;
- Removal of existing plant materials;
- Demolition of existing concrete pathways;
- Removal and protection of existing fencing materials for reinstallation upon approved completion of the waterproofing components of the Project;
- Removal of existing irrigation system (caps and valves to be installed as necessary); reinstallation of same upon approved completion of the waterproofing components of the Project;
- Procurement of new planting materials (both seed and nursery grown) in accordance with planting plan provided in the Drawings;
- Installation of new waterproofing membrane in accordance with the Drawings;
- Reinstallation of all removed stones;
- Installation of new hatches for interstitial spaces;
- Cleaning of interstitial spaces;
- Installation of new pathways in accordance with the Drawings;
- Replacement of speaker covers;

- Provision of appropriate warranties for all materials;
- Provision of as-built drawings documenting the Project work;
- Provision of any required protection of the existing plaza; and
- Cleaning of all water staining/efflorescence at monument base curtain wall and cantilever slab underside throughout per the Drawings using a procedure to be approved by the design engineer.

Add/Alternates Scope

As potential Alternates to the Project, BPCA may elect to add certain cold weather protection to the Work, as specified in the Drawings. If an Alternate is added to the Work, the selected Proposer will be required to provide a covered and heated weather enclosure to encapsulate the Memorial, as needed, sufficient to allow Work to proceed in cold weather conditions (“Alternate 1”) and if also elected, a heavy duty sidewalk shed at the street elevation areas for Alternate 1 Work, including complete coverage of the bridge deck with motion detector(s) with activation sensor/monitor to be provided at a remote location (“Alternate 2”). Alternates 1 and 2 shall include but are not limited to installation, safe operation and removal of all components of such Alternates.

Should they be included in any Proposal, BPCA will consider recommendations for means and methods of providing adequate cold weather protection for the Project other than those specified above and in the Drawings.

EXHIBIT B

CONTRACTOR REQUIREMENTS AND PROCEDURES FOR BUSINESS PARTICIPATION OPPORTUNITIES FOR NEW YORK STATE CERTIFIED MBEs/WBEs AND EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITY GROUP MEMBERS AND WOMEN

Pursuant to New York State Executive Law Article 15-A and 5 NYCRR §§140-145, BPCA recognizes its obligation under the law to promote opportunities for maximum feasible participation of certified MBEs/WBEs and the employment of minority group members and women in the performance of BPCA contracts.

In 2006, the State of New York commissioned a disparity study to evaluate whether MBEs/WBEs 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” (the “Disparity Study”). The report found evidence of statistically significant disparities between the level of participation of MBEs/WBEs in state procurement contracting versus the number of MBEs/WBEs 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 MBEs/WBEs 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 BPCA establish goals for maximum feasible participation of New York State Certified MBEs/WBEs and the employment of minority groups members and women in the performance of New York State contracts.

Business Participation Opportunities for MBEs/WBEs

For purposes of this solicitation, BPCA hereby establishes an overall goal of 30% for MBE/WBE participation, **15%** for MBE participation and **15%** for WBE participation (based on the current availability of qualified MBEs and WBEs). A contractor (“Contractor”) on the Contract must document good faith efforts to provide meaningful participation by MBEs/WBEs as subcontractors or suppliers in the performance of the Contract and Contractor agrees that BPCA may withhold payment pending receipt of the required MBE/WBE documentation. The directory of New York State Certified MBEs/WBEs can be viewed at: <https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp?TN=ny&XID=7562>. For guidance on how BPCA will determine a Contractor’s “good faith efforts,” refer to 5 NYCRR §142.8.

In accordance with 5 NYCRR §142.13, Contractor acknowledges that if it is found to have willfully and intentionally failed to comply with the MBE/WBE participation goals set forth in the Contract, such finding constitutes a breach of Contract and BPCA 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 MBEs/WBEs had Contractor achieved the contractual MBE/WBE goals; and (2) all sums actually paid to MBEs/WBEs for work performed or materials supplied under the Contract.

By submitting a bid or Proposal, a Proposer agrees to demonstrate its good faith efforts to achieve its goals for the utilization of MBEs/WBEs by submitting evidence thereof through the New York State Contract System (the “NYSCS”), which can be viewed at <https://ny.newnycontracts.com>, provided, however, that a Proposer may arrange to provide such evidence via a non-electronic method by contacting BPCA. Please note that the NYSCS is a one stop solution for all of your MBE/WBE and Article 15-A contract requirements. For additional information on the use of the NYSCS to meet the Proposer’s MBE/WBE requirements please see the attached MBE/WBE guidance from the New York State Division of Minority and Women’s Business Development, “Your MWBE Utilization and Reporting Responsibilities Under Article 15-A.”

- A. Additionally, a Proposer agrees to submit a Utilization Plan with their bid or Proposal as evidence of compliance with the foregoing. Any modifications or changes to the Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised Utilization Plan and submitted to BPCA.

- B. BPCA will review the submitted Utilization Plan and advise the Proposer of BPCA's acceptance or issue a notice of deficiency within 30 days of receipt.
- C. If a notice of deficiency is issued, Proposer agrees that it shall respond to the notice of deficiency within seven (7) business days of receipt by submitting to BPCA, at the address specified in this RFP, or by facsimile at 212-417-2279 a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by BPCA to be inadequate, BPCA shall notify the Proposer and direct the Proposer to submit, within five (5) business days, a request for a partial or total waiver of MBE/WBE participation goals. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or Proposal.
- D. BPCA may disqualify a Proposer as being non-responsive under the following circumstances:
 - 1) If a Proposer fails to submit a Utilization Plan;
 - 2) If a Proposer fails to submit a written remedy to a notice of deficiency;
 - 3) If a Proposer fails to submit a request for waiver; or
 - 4) If BPCA determines that the Proposer has failed to document good faith efforts.

Contractors shall attempt to utilize, in good faith, any MBE/WBE identified within its Utilization Plan, during the performance of the Contract. Requests for a partial or total waiver of established goal requirements made subsequent to the Contract award may be made at any time during the term of the Contract to BPCA, but must be made no later than prior to the submission of a request for final payment on the Contract.

Contractors are required to submit a Contractor's MBE/WBE Contractor Compliance & Payment Report to BPCA on a monthly basis over the term of the Contract documenting the progress made toward achievement of the MBE/WBE goals of the Contract.

Equal Employment Opportunity Requirements

By submission of a bid or Proposal in response to this RFP, the Proposer/Contractor agrees with all of the terms and conditions of the attached M/WBE – Equal Employment Opportunity Policy Statement. The Contractor is required to ensure that it shall 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, except where such work is for the beneficial use of the Contractor, 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.

The Proposer further agrees to submit a MBE/WBE and Equal Employment Opportunity Policy Statement, Form # 4, to BPCA with their Proposal.

To ensure compliance with Article 15-A, Proposer further agrees, where applicable, to submit with the Proposal, a staffing plan identifying the anticipated work force to be utilized on the Contract and if awarded a Contract, will, upon request, submit to BPCA a workforce utilization report identifying the workforce actually utilized on the Contract, if known, through the NYSCS; provided, however, that a Proposer may arrange to provide such report via a non-electronic method by contacting BPCA.

Further, pursuant to Article 15 of the Executive Law (the “Human Rights Law”), all other New York 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.

Please Note: 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 are allowed by the Contract.

For questions on MBE/WBE participation, joint ventures and sub-contracting goals ONLY, please contact Mr. Anthony Peterson at 212.417.2337.



Division of Minority and Women's Business Development

Your MBE/WBE Utilization and Reporting Responsibilities Under Article 15-A

The New York State Contract System (“NYSCS”) is your one stop tool compliance with New York State’s MBE/WBE Program. It is also the platform New York State uses to monitor state contracts and MBE/WBE participation.

GETTING STARTED

To access the system, please login or create a user name and password at <https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp?TN=ny&XID=7562>. If you are uncertain whether you already have an account set up or still need to register, please send an email to the customer service contact listed on the Contact Us & Support page, or reach out to your contract’s project manager. For verification, in the email, include your business name and contact information.

VENDOR RESPONSIBILITIES

As a vendor conducting business with New York State, you have a responsibility to utilize minority- and/or women-owned businesses in the execution of your contracts, per the MBE/WBE percentage goals stated in your solicitation, incentive proposal or contract documents. NYSCS is the tool that New York State uses to monitor MBE/WBE participation in state contracting. Through the NYSCS you will submit utilization plans, request subcontractors, record payments to subcontractors, and communicate with your project manager throughout the life of your awarded contracts.

There are several reference materials available to assist you in this process, but to access them, you need to first be registered within the NYSCS. Once you log onto the website, click on the **Help & Support** >> link on the lower left hand corner of the Menu Bar to find recorded trainings and manuals on all features of the NYSCS. You may also click on the **Help & Tools** icon at the top right of your screen to find videos tailored to primes and subcontractors. There are also opportunities available to join live trainings, read up on the “Knowledge Base” through the Forum link, and submit feedback to help improve future enhancements to the system. Technical assistance is always available through the **Contact Us & Support** link on the NYSCS website (<https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp?TN=ny&XID=7562>).

For more information, contact your project manager.

**MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES – EQUAL
EMPLOYMENT OPPORTUNITY POLICY STATEMENT**

MBE/WBE AND EEO POLICY STATEMENT

I, _____ (the “Contractor”), agree to adopt the following policies with respect to the project being developed at, or services rendered to, the Battery Park City Authority (“BPCA”).

MBE/WBE

This organization will and will cause its contractors and subcontractors to take good faith actions to achieve the MBE/WBE contract participations goals set by the State for that area in which the State-funded project is located, by taking the following steps:

- (1) Actively and affirmatively soliciting bids for contracts and subcontracts from qualified State certified MBEs or WBEs, including solicitations to MBE/WBE contractor associations.
- (2) Requesting a list of State-certified MBEs/WBEs from BPCA and soliciting bids from these MBEs/WBEs directly.
- (3) Ensuring that plans, specifications, request for proposals and other documents used to secure bids will be made available in sufficient time for review by prospective MBEs/WBEs.
- (4) Where feasible, dividing the work into smaller portions to enhance participations by MBEs/WBEs and encourage the formation of joint venture and other partnerships among MBE/WBE contractors to enhance their participation.
- (5) Documenting and maintaining records of bid solicitation, including those to MBEs/WBEs and the results thereof. The Contractor will also maintain records of actions that its subcontractors have taken toward meeting MBE/WBE contract participation goals.
- (6) Ensuring that progress payments to MBEs/WBEs are made on a timely basis so that undue financial hardship is avoided, and that bonding and other credit requirements are waived or appropriate alternatives are developed to encourage MBE/WBE participation.

EEO

(a) This organization will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability or marital status, will undertake or continue existing diversity programs to ensure that minority group members are afforded equal employment opportunities without discrimination, and 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.

(b) This organization shall state in all solicitation 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 disability or marital status.

(c) At the request of BPCA, this organization shall request that each employment agency, labor union, or authorized 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 this organization’s obligations herein.

(d) The Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. The Contractor and subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

(e) This organization will include the provisions of sections (a) through (d) of this agreement in every subcontract in such a manner that the requirements of the subdivisions will be binding upon each subcontractor as to work in connection with the State contract.

Agreed to this _____ day of _____, 2015

By _____

Print: _____ Title: _____

_____ is designated as the Contractor's Minority Business Enterprise Liaison responsible for administering the Minority and Women-Owned Business Enterprises - Equal Employment Opportunity (MBE/WBE - EEO) program.

MBE/WBE Contract Goals

30% Minority and Women's Business Enterprise Participation

___% Minority Business Enterprise Participation

___% Women's Business Enterprise Participation

EEO Contract Goals (if applicable)

___% Minority Labor Force Participation

___% Female Labor Force Participation

(Authorized Representative)

Title: _____

Date: _____

EXHIBIT C

BPCA's standard form of contract^[BA3]

(attached)

CONSTRUCTION AGREEMENT

between

BATTERY PARK CITY AUTHORITY,
d/b/a HUGH L. CAREY BATTERY PARK CITY AUTHORITY

and

[CONTRACTOR COMPANY NAME]

Dated as of _____
Contract No. [xx-xxxx]

[PROJECT NAME]

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EXHIBITS

CONSTRUCTION AGREEMENT

AGREEMENT made as of the _____ day of _____, 2014, between BATTERY PARK CITY AUTHORITY, d/b/a HUGH L. CAREY BATTERY PARK CITY AUTHORITY, a body corporate and politic, constituting a public benefit corporation and having a place of business at One World Financial Center, 24th Floor, New York, New York 10281 (“Authority,” “BPCA” or “Owner”) and CONTRACTOR COMPANY NAME, a corporation incorporated under the laws of STATE, having an office at Street Address, City, Zip, Phone, (“Contractor”).

W I T N E S S E T H:

WHEREAS, BPCA has fee title to certain real property located in the City, County and State of New York, generally consisting of approximately 92 acres of land located on the west side of lower Manhattan, bounded by Pier A to the South, the westerly extension of Reade Street to the North, the United States Bulkhead Line to the East and the United States Pierhead Line to the West (collectively, “Battery Park City”); and

WHEREAS, BPCA has caused the staged development of Battery Park City, in individual parcels, creating a richly diversified mixed use community providing residential and commercial space, with related amenities such as parks, plazas, recreational areas and a waterfront esplanade; and

WHEREAS, BPCA intends to hire a contractor to perform [type of services], consisting of the Work, as hereinafter defined, for the [structure] upon which work will be performed (the “Project”), located in and adjacent to [location], in Battery Park City, in the Borough of Manhattan, County, City and State of New York (the “Site”); and

WHEREAS, Contractor has been selected to perform the Work, as hereinafter defined, upon the terms and conditions hereinafter provided; and

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, Contractor and BPCA hereby agree as follows:

ARTICLE 1 - DEFINITIONS

The following terms, wherever used in the Contract Documents, as defined herein, shall have the meanings set forth below or in the Section enumerated below next to each term:

- (a) Agreement - as defined in Section 2.2(a).
- (b) Agreement Termination Date - as defined in Section 3.1(a)
- (c) Architect - Name, address, etc. or n/a.
- (d) Artist - n/a.
- (e) Authority - as defined in the introductory clause of this Agreement.
- (f) BPCA - as defined in the introductory clause of this Agreement. BPCA hereby designates BPCA Person and Title, Project Manager, as the representative of BPCA for the purpose of acting on behalf of BPCA whenever action is required to be taken hereunder by BPCA. Such designation may be revoked in writing at any time after notice given by BPCA to Contractor. In addition, such representative of BPCA shall have full power and authority to delegate in writing any or all of her responsibilities hereunder to any one or more persons after notice to Contractor.
- (g) Certificate of Substantial Completion - as defined in Section 8.6.
- (h) Change Order - as defined in Section 9.1(b).
- (i) Construction Manager - [name and address]
- (j) Contract Documents - as defined in Section 2.2.
- (k) Contract Price - as defined in Article 4.
- (l) Contract Time - the duration of time during which Construction Manager schedules and coordinates the Work of Contractor pursuant to Section 7.2 hereof.
- (m) Contractor - as defined in the introductory clause of this Agreement.
- (n) Drawings - Project drawings comprising part of Exhibit [x].
- (o) Engineer - [name and address]
- (p) Extra Work - Any work in addition to the Work to be performed by Contractor pursuant to the Contract Documents.
- (q) Field Order - as defined in Section 9.3.
- (r) Final Acceptance - as defined in Section 8.7.
- (s) Final Requisition - as defined in Section 5.2.
- (t) Guarantor - as defined in Section 27.3.
- (u) Joint Venture - an entity created pursuant to a written agreement among two or more contractors pursuant to which each shares in the direction and performance of the Work and shares in a stated percentage of profits or losses.
- (v) Key Person/Personnel - as defined in Section 27.25.
- (w) Intentionally Omitted.

- (x) Materialman - Supplier of Materials.
- (y) Materials - All products, materials, fixtures, tools, equipment, apparatus, and furnishings intended to form a part of the Work.
- (z) Minority Business Enterprise or Minority Owned Business Enterprise or MBE - as defined in Article 26.
- (aa) Minority or Minority Group Member - as defined in Article 26.
- (bb) Notice to Proceed – A written directive from BPCA to Contractor signed by a duly authorized BPCA representative directing Contractor to begin performance of the Work set forth in this Agreement on a particular date.
- (cc) Payment Bond - as defined in Section 13.3.
- (dd) Performance Bond - as defined in Section 13.3.
- (ee) Preceding Covered Date - as defined in Section 5.5.
- (ff) Product Data - Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by Contractor to illustrate a Material, product or system for some portion of the Work.
- (gg) Progress Schedule - as defined in Section 3.1(a).
- (hh) Project - as defined in the third Recital of this Agreement.
- (ii) Purchase Order - as defined in Section 10.1(e).
- (jj) Requisitions - as defined in Section 5.2.
- (kk) Samples - Physical examples which illustrate Materials or workmanship and establish standards by which the Work will be judged.
- (ll) Site - as defined in the third whereas clause of this Agreement.
- (mm) Specifications - the specifications comprising part of Exhibit [x].
- (nn) Subcontract - An Agreement between the Contractor and a Subcontractor (as defined in subsection (nn), below) for work on the Site.
- (oo) Subcontractor - A person, firm, partnership or corporation under contract with Contractor.
- (pp) Term - as defined in Section 3.1(i).
- (qq) Trade Payment Breakdown - as defined in Section 5.3.
- (rr) Women's Business Enterprise or Women Owned Business Enterprise or WBE - as defined in Article 26.
- (ss) Work - as defined in Section 2.1.
- (tt) Work Completion Date - as defined in Section 3.1(a).

ARTICLE 2 - SCOPE OF WORK, MATERIALS AND LABOR

2.1 Definition of Work

Contractor shall perform and complete (and shall cause all Subcontractors to perform and complete) for BPCA the work more particularly described in Exhibit [x] - Scope of Work

annexed hereto and made a part hereof, required by and in conformity with the Contract Documents in connection with the construction of the Project on the Site. All materials to be furnished and labor and work to be performed and completed by Contractor and/or Subcontractors as required in the Contract Documents and in conformity with all requirements applicable with respect thereto are herein collectively referred to as the “Work.”

2.2 Contract Documents

The “Contract Documents” shall consist of the following:

(a) This instrument (the “Agreement”), which includes, in addition to the text comprising Articles 1 through 27, the following:

(1) Exhibit A:

(2) Exhibit B:

Etc...

(b) The Payment and Performance Bonds (as defined in Section 13.3).

(c) Change Orders adopted pursuant to Article 9.

The Contract Documents form the contract between BPCA and Contractor. References in the Contract Documents to “the Contract”, “this Contract” or “the Construction Contract” shall be deemed to include all of the Contract Documents. References to “this Agreement” or “the Agreement” shall refer to this instrument (including the Exhibits attached hereto), which is one of the Contract Documents.

2.3 Intent of Contract Documents

(a) The intent of the Contract Documents is to include in the Work all labor and materials, insurance, tools, equipment, permits, licenses, taxes, approvals, transportation, surveys, testing, field Engineering and other professional services (other than the services of BPCA’s Architect, Construction Manager, Engineers and attorneys, and the inspection, survey and testing services of BPCA) and any other items required to execute and complete the Work satisfactorily and in accordance with the Contract Documents. Contractor shall perform and complete the Work in accordance with the true intent and meaning of the Contract Documents and shall perform all Work incident thereto or as is usually performed in connection therewith or as is reasonably inferable therefrom, it being the intention that all work usually performed by the trade covered by this Agreement and necessary to produce the intended result be performed by Contractor whether or not specifically covered by the Contract Documents.

(b) The Contract Documents are complementary and what is called for by one shall be as binding as if called for by all.

(c) If any conflicts or ambiguities are found in or between the Drawings and Specifications, or among any of the Contract Documents, they shall be brought to the attention of Construction Manager immediately for resolution. Architect and Construction Manager will interpret the Contract Documents so as to secure in all cases the most substantial and complete performance of the Work as is most consistent with the needs and requirements of the Work. In the event that Architect and Construction Manager shall disagree as to the interpretation of the Contract Documents, such dispute shall be presented to BPCA, which shall have sole authority to resolve the dispute.

(d) Addenda to parts of the Contract Documents are for the purpose of varying, modifying, rescinding or adding to the affected portion of the Contract Documents. All addenda should be read together with the portions of the Contract Documents to which they pertain. Where an addendum modifies a portion of a paragraph or a Section, the remainder of the paragraph or Section shall remain in force unless otherwise stated in the addendum.

(e) Captions, headings, cover pages, tables of contents and footnote instructions

contained in the Contract Documents are inserted only to facilitate reference and for convenience and in no way define, limit or describe the scope, intent or meaning of any provision of the Agreement.

(f) Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

(g) Drawings and Specifications are complementary. Anything shown in the Drawings and not mentioned in the Specifications, or mentioned in the Specifications and not shown in the Drawings, shall have the same effect as if shown or mentioned in both.

(h) A typical or representative detail indicated on the Drawings shall constitute the standard for workmanship and Materials throughout corresponding parts of the Work. Where necessary, and where reasonably inferable from the Drawings or Specifications, Contractor shall adapt such representative detail for application to such corresponding parts of the Work. The details of such adaptation shall be subject to prior approval by Architect. Repetitive features shown in outline on the Drawings shall be in exact accordance with corresponding features completely shown.

(i) The layout of mechanical and electrical systems, equipment, fixtures, piping, ductwork, conduit, specialty items, and accessories indicated on the Drawings is diagrammatic, and all variations in alignment, elevation, and detail required to avoid interferences and satisfy Architectural and structural limitations are not necessarily shown. Actual layout of the Work shall be carried out without affecting the Architectural and structural integrity and limitations of the Work and shall be performed in such sequence and manner as to avoid conflicts, provide clear access to all control points, including valves, strainers, control devices, and specialty items of every nature related to such systems and equipment, obtain maximum headroom, and provide adequate clearances as required for operation and maintenance.

2.4 Completion of Drawings and Specifications

Contractor acknowledges that there are items of work which are not drawn or specified with complete detail in the Drawings and Specifications but which are required for the completion of the Work. Any such item, when identified as part of the reasonable development of the Work, shall be drawn or specified by Architect in consultation with Contractor, in a manner consistent with contemplated kind and quality and customary standards. When such drawing or specification is approved by BPCA, the drawing or specification so approved shall thereupon be part of the Contract Documents and the item of work shall be performed by Contractor as part of the Work without further action or order of Construction Manager or BPCA and without any increase in the Contract Price (as hereinafter defined) as if such drawing and specification were originally included in the Contract Documents.

2.5 Title to Materials

Title to all Materials shall immediately vest in BPCA upon payment in respect of such Materials, whether or not then incorporated or installed into the Project. The Materials shall then become the sole property of BPCA subject to the right of BPCA, Construction Manager or Architect to reject same for failure to conform to the standards of any or all of the Contract Documents. Title to all Work and Materials shall be in BPCA, free and clear of all liens, claims, security interests or encumbrances. Contractor warrants that no Work or Materials shall be fabricated or delivered to the Site by Contractor or any Subcontractor or Materialman subject to any security interest, lien or similar encumbrance.

2.6 Contractor's Obligations

(a) Contractor shall in a good and workmanlike manner perform all the Work required by this Agreement in accordance with the best practice of Contractor's trade within the time specified herein. Contractor shall supervise and direct the Work using its best skill and attention. Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures within the scope of Contractor's Work.

(b) Contractor shall furnish, erect, maintain, and remove such construction plant and such temporary Work as may be required for the performance of the Work. Contractor shall be responsible for the safety, efficiency and adequacy of Contractor's plant, appliances and methods, and for damage which may result from failure or improper construction, maintenance or operation of such plant, appliances and methods. Contractor shall comply with all terms of the Contract Documents, and shall do, carry on and complete the entire Work under the direction of and to the satisfaction of BPCA.

(c) Contractor shall provide all equipment, tools and materials and whatever else may be required for proper performance of the Work unless stated otherwise in the Contract Documents.

(d) Contractor shall deliver all Materials at such times and in such quantities as will insure the speedy and uninterrupted progress of the Work. All Materials shall be delivered to the Site in proper order and quantity and shall be stored at the Site, if storage space is available in Construction Manager's opinion, in such places as Construction Manager shall direct; provided, that no delivery of Materials shall be made to the Site without prior approval by Construction Manager. Contractor has been advised and is aware that the Project is located in a congested metropolitan area, and there may not be sufficient space to store Materials on Site. If storage space is unavailable on Site, Contractor shall make arrangements to store materials off Site at Contractor's own cost. Contractor shall not be entitled to additional compensation for moving Materials from one storage area to another, whether such storage areas are on or off Site. No Materials shall be removed from the Site without the consent of Construction Manager. Contractor shall handle and take care of all Materials used in performance of the Work whether furnished by Contractor or BPCA, as the same are delivered to the Site or to any applicable offsite storage location and shall be solely responsible for the security and condition of the same. After final completion and acceptance of the Work, or sooner if requested by Construction Manager, Contractor shall remove all surplus Materials and scaffolding furnished by it which have not been incorporated in the Work.

(e) Contractor shall follow and perform the Work in accordance with the Contract Documents as interpreted by Architect, Construction Manager, and BPCA.

(f) Unless otherwise provided in the Contract Documents, Contractor shall secure and pay for all permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work. Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work. If Contractor observes that any of the Contract Documents are at variance with any applicable laws in any respect, Contractor shall promptly notify Architect and Construction Manager in writing, and any necessary changes shall be accomplished by appropriate modification. If Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to Architect and Construction Manager, Contractor shall assume full responsibility therefor and shall bear all costs attributable thereto.

(g) Contractor shall be responsible for collecting all paper, cartons and other debris caused by its Work or personnel, placing the same in a location designated by Construction Manager and keeping the portion of the Site upon which Contractor is performing the Work free from all debris.

(h) Contractor shall attend meetings as directed by BPCA or Construction Manager.

2.7 "Or Equal" Clause

(a) The Materials of manufacturers referred to in the Specifications and on the Drawings are intended to establish the standard of quality and design required by Architect; however, Materials of manufacturers, other than those specified, may be used if equivalent and approved by Architect, Construction Manager and BPCA.

(b) It is deemed that the term "or approved equal" is included after all Materials referred to in the Specifications or on the Drawings.

(c) Architect will initially judge the equivalency of proposed substitute Materials. Architect will make written recommendation of acceptance or rejection to Construction Manager and/or BPCA. Construction Manager and/or BPCA will then authorize Architect to issue to Contractor written approval or rejection of the substitution.

(d) If Contractor desires to use a substitute item, Contractor shall make application to Architect in writing in sufficient time (with regard to the progress of the Work, the period of delivery of the goods concerned and adequate time for Architect's review) stating and fully identifying the proposed substitute, cost changes (if any), and submitting substantiating data, samples, brochures of the item proposed. It is Contractor's responsibility to provide at its sole expense sufficient evidence by tests or other means to support any request for approval of substitutions.

(e) Prior to proposing any substitute item, Contractor shall satisfy itself that the item Contractor proposes is, in fact, equal to that specified and had been used satisfactorily in similar applications to the application proposed for the Work, for at least three years, that it will fit into the space allocated and within the load allocated for the same, that it affords comparable ease of operations, maintenance and service, that its appearance, longevity and suitability for the climate and use are comparable to that specified, and that the substitution requires no change in dimension or design of any other Work of Contractor, of any other contractor or in the time required for the performance thereof.

(f) The burden of proof that a proposed substitution is equal to a specified item shall be upon Contractor, who shall support its request with sufficient test data and other means to permit Architect to make a fair and equitable decision on the merits of the proposal. Any item by the manufacturer other than those cited in the Contract Documents, or of brand name or model number or of generic species other than those cited in the Contract Documents, will be considered a substitution.

(g) Acceptance of substitutions shall not relieve Contractor from responsibility for compliance with all the requirements of the Contract Documents. If, notwithstanding the provisions of subsection (e) above, changes in other parts of the Work or the work of other contractors are required by its substitutions, Contractor shall be responsible for the costs of any such changes including the cost of all design and redesign services related thereto incurred by the Architect and his consultants.

(h) The Contract Time shall not be extended by any circumstances resulting from a proposed substitution, nor shall Contractor be entitled to any compensation for any delay caused thereby or related thereto.

2.8 Quality and Labeling

All Materials furnished shall be new and the quality thereof shall be in accordance with the Contract Documents. When Materials are specified to conform to a given standard, the Materials delivered to the Site shall bear manufacturer's labels stating that the Materials meet such standard. The above requirements shall not restrict or affect BPCA's right to test Materials as provided in this Agreement.

ARTICLE 3 - COMMENCEMENT AND COMPLETION OF THE WORK

3.1 Commencement, Completion and Progress Schedule

(a) Contractor shall prepare and submit a progress schedule for the Work ("Progress Schedule for the Work") and agrees to be bound by and comply with the Work Completion Date and the Progress Schedule for the Project (as the Progress Schedule for the Project shall be updated pursuant to subsection (b)) and waives any right to charge or claim damages or any increased cost, charges or expenses against BPCA, Construction Manager, or Architect, for delays or disruptions from any cause whatsoever. Contractor's sole remedy as against BPCA, Construction Manager, or Architect for any delays or disruptions shall be as provided in Section 3.4 hereof. Notwithstanding the foregoing, the Work shall be completed by no later than [date] (the "Work Completion Date") with time being of the essence in respect of said Work

Completion Date, as more fully set forth in subsection (h) below; this Agreement shall terminate by [date] (the “Agreement Termination Date”).

(b) The Progress Schedule for the Work shall be formatted in a detailed precedence-style critical path method, or such other format satisfactory to BPCA and Construction Manager and shall also (a) provide a graphic representation of all activities and events including float values that will affect the critical path of the Work, (b) incorporate and coordinate all pertinent information involving each phase of Work, and (c) identify dates that are critical to ensuring the timely and orderly completion of the work in accordance with the requirements of the Contract Documents, including the dates for Substantial Completion of each respective phase of the Work. The Progress Schedule for the Work shall be updated weekly, or at any other time at the request of Construction Manager or BPCA, and submitted to Construction Manager and BPCA for review and approval. Failure to submit any requested update shall constitute a material breach of this Agreement. The Contractor shall promptly give written notice of any actual or potential delays to BPCA and Construction Manager. After submission of the Progress Schedule for the Work, Construction Manager shall coordinate the Progress Schedule for the Work with the Progress Schedule for the Project. The Progress Schedule for the Work may be revised by Construction Manager from time to time.

(c) Contractor shall commence the Work upon receipt of a written Notice to Proceed signed by BPCA, and shall prosecute the Work diligently and in accordance with the time and place requirements of the Project as determined and directed by Construction Manager, by using such means and methods of construction as will assure that the Work will be performed hereunder in accordance with the Contract Documents and Progress Schedule for the Work, and to the satisfaction of BPCA, Architect, and Construction Manager.

(d) If, in the opinion of Construction Manager, Contractor falls behind the Progress Schedule for the Project then in effect, Contractor shall take whatever steps may be necessary to improve its progress and shall, if requested by Construction Manager, submit operational plans to demonstrate the manner in which the lost time may be regained. It is the responsibility of Contractor to maintain its schedule so as not to delay the progress of the Project or the schedules of other contractors. If Contractor delays the progress of its Work or the work of other contractors, it shall be the responsibility of Contractor to increase the number of workers, the number of shifts, the days of Work and/or, to the extent permitted by law, to institute or increase overtime operations, all without additional cost to BPCA, in order to regain any time lost and maintain the Progress Schedule for the Project then in effect as established by Construction Manager.

(e) If Contractor shall fail to complete the Work by the Work Completion Date, or within the time to which such completion may have been extended, BPCA may, at its option, withhold from any sums otherwise due and owing to Contractor hereunder, so much of the balance thereof as BPCA shall deem necessary to secure it against any costs, expenses, or damages which may be incurred by BPCA as a result of said failure, but any such withholding shall not be deemed to be a waiver of any rights hereunder, and Contractor shall be liable to and shall indemnify and hold BPCA harmless from any and all cost, expense or damage incurred by BPCA by reason of such failure.

(f) If Contractor shall neglect, fail or refuse to complete the Work on or before the Work Completion Date or any changes thereto in accordance with, or upon the expiration of, any proper extension granted by BPCA, Contractor agrees to pay to BPCA \$_____, not as a penalty, **but as liquidated** damages for loss of beneficial use of the Project, for each and every calendar day that the Contractor is in default. Default shall include abandonment of the Work by Contractor.

(g) Said amount of liquidated damages is agreed upon by and between Contractor and BPCA because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages which BPCA would sustain for loss of beneficial use of the Project in the event of delay in completion, and said amount is agreed to be the amount of damages sustained by BPCA and said amount may be retained from time to time by BPCA. The foregoing liquidated damages are intended to compensate BPCA only for the loss of beneficial use of the Project. In addition, Contractor shall be liable to BPCA, to the fullest extent permitted by law, for whatever actual damages (other than actual loss of beneficial use) BPCA may incur as a result of any actions or

inactions of Contractor or its Subcontractors including, without limitation, interest expense and carrying costs, liabilities to other Contractors working on the Project or other third parties, job extension costs, and other losses incurred by BPCA. The provisions of this paragraph are exclusive to BPCA, and shall not accrue to other contractors or third parties.

(h) It is further agreed that time is of the essence for each and every portion of the Work. In any instance in which additional time is allowed for the completion of any Work, the new time of completion established by said extension shall be of the essence. Contractor shall not be charged with liquidated damages or any excess cost if BPCA determines that Contractor is without fault and that the delay in completion of the Work is due:

(1) to any preference, priority or allocation order duly issued by the Government of the United States or the State of New York;

(2) to an unanticipated cause beyond the control and without the fault of, or negligence of Contractor, and approved by BPCA, including, but not limited to, acts of God or of public enemy, fires, epidemics, quarantine, strikes, freight embargoes and unusually severe weather; and

(3) to any delays of Subcontractors or Materialmen occasioned by any of the causes specified in Subsections 1 and 2 of this paragraph.

(i) Notwithstanding the foregoing, and whether or not, at any given time, a Progress Schedule, or update thereto (as appropriate) has been submitted, the Work shall be completed by the Work Completion Date (with the period between commencement of the Work and the Work Completion Date being referred to herein as the "Term").

(j) Notwithstanding anything to the contrary, a schedule submitted by Contractor showing a time of completion earlier than that specified in the Contract shall not entitle Contractor to any additional compensation in the event the earlier time of completion is not realized.

3.2 Coordination with Other Contractors

Contractor shall coordinate the Work to be performed hereunder with the work of other contractors performing work for the Project in such manner as Construction Manager shall direct. Contractor shall indemnify and hold BPCA, Construction Manager and Architect harmless from any and all claims or judgments for damages, costs and expenses to which BPCA, Construction Manager or Architect may be subjected or which they may suffer or incur by reason of Contractor's failure to promptly comply with Construction Manager's directions. If Contractor notifies Construction Manager in writing that another contractor is failing to coordinate its work with the Work to be performed hereunder, Construction Manager shall promptly investigate the charge. If Construction Manager finds that charge to be true, it shall promptly issue such direction to the other contractor with respect thereto as the situation may require. BPCA, Construction Manager and Architect shall not, however, be liable for any damages suffered by Contractor by reason of the other contractor's failure to promptly comply with the directions so issued by Construction Manager or by reason of another contractor's default in performance. Should Contractor sustain any damage through any act or omission of any other contractor, Contractor shall have no claim against BPCA, Construction Manager or Architect for such damage but shall have a right to recover such damage from the other contractor, under a provision similar to a provision contained in the following sentence which is part of this Agreement and which has been or will be inserted in the contracts with the other contractors engaged in the Project.

Should any other contractor having or who shall hereafter have a contract with BPCA for the performance of work upon the Project sustain any damage through any act or omission of Contractor hereunder, Contractor agrees to reimburse such other contractor for all such damages and to indemnify and hold BPCA, Construction Manager and Architect harmless from all such claims. Any claim against a performance bond surety made by any contractor shall be subordinated to any claim of BPCA then existing or that may arise in the future against such other contractor or its performance bond surety.

3.3 Notice of Delay

Should Contractor be or anticipate being delayed or disrupted in performing the Work hereunder for any reason, including, without limitation, its financial condition or Contractor's general nonpayment of its debts as such debts become due, it shall promptly and in no event more than three (3) days after the commencement of any condition which is causing or is threatening to cause such delay or disruption notify Construction Manager in writing of the effect of such condition upon BPCA's Progress Schedule for the Project, stating why and in what respects the condition is causing or is threatening to cause delay, provided, however, that notwithstanding the above, if such delay or disruption, or anticipated delay or disruption, should be the result of any change or anticipated change in Contractor's financial condition, Contractor shall notify Construction Manager forthwith of such cause or anticipated cause. Failure to strictly comply with this notice requirement shall be sufficient cause to deny Contractor a change in schedule and to require it to conform to the Progress Schedule for the Project then in effect established by Construction Manager.

3.4 Extension of Time

(a) An extension of time under the Progress Schedule for the Project then in effect may be granted by BPCA subject to the provisions hereof upon written application therefor by Contractor. An application for an extension of time under the Progress Schedule for the Project then in effect must set forth in detail the nature of each cause of delay in the performance of the Work, the date or dates upon which each cause of delay began and ended and the number of days delay attributable to each such cause. After the application is submitted, Contractor shall supply any other data that Construction Manager may request.

(b) Contractor shall be entitled to an extension of time under the Progress Schedule for the Project then in effect for delays in the performance of the Work, if caused:

- (1) solely by unanticipated acts or omissions of BPCA, Construction Manager or Architect; or
- (2) by the unanticipated acts or omissions of other contractors or unanticipated causes beyond the control and without the fault or negligence of Contractor including, but not limited to, acts of God, acts of public enemy, acts of any Government body, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, or delays of Subcontractors or Materialmen arising from unforeseeable causes beyond the control and without the fault or negligence of both Contractor and such Subcontractors or Materialmen; provided, that Contractor shall have used its best efforts and diligently sought to have minimized any such period of delay, by taking whatever measures are necessary, including without limitation, if applicable, seeking alternate sources of Materials, other Subcontractors or other facilities in which to perform the required construction operations; and provided, further, that an application is made pursuant to the requirements of the immediately preceding paragraph.

ARTICLE 4 - CONTRACT PRICE

For the performance and completion of the Work, BPCA shall pay Contractor a lump sum amount of \$_____, (such sum is herein sometimes referred to as the "Contract Price"), which amount shall include any monies earned by or paid to Contractor prior to the execution of this Agreement, provided, that if the Contract Price shall be expressly revised by a Change Order in accordance with Article 9 hereof, the Contract Price shall thereafter mean the Contract Price as so revised. Contractor will submit appropriate Time Sheets in the form of Exhibit [x].

ARTICLE 5 - METHOD, SCHEDULE AND TERMS OF PAYMENTS

5.1 Partial Payment

(a) In accordance with Requisitions (as defined in Section 5.2) submitted and approved as provided below for Work performed in accordance with this Agreement, Contractor shall be entitled to partial payment on account of the Contract Price in an amount equal to the value, as determined in accordance with the Trade Payment Breakdown (as defined in Section 5.3), of the portions of the Work completed and acceptable to BPCA and Construction Manager for purposes of such payment, less a retainage equal to ten percent (10%) of the total amount of all prior partial payments. Partial payments shall constitute advances against the Contract Price until final payment is made and accepted. No partial payment made, nor approval of a portion of the Work given for purposes of making a partial payment, shall constitute an acceptance of any Work not in accordance with the Contract Documents.

(b) Upon completion of fifty percent of the Work, Contractor may make written application to BPCA requesting reduction of the retainage set forth in Section 5.1(a) hereof. Approval of such reduction of retainage and the percentage to which the retainage shall be reduced is in the sole discretion of BPCA. If BPCA approves a reduction of retainage as herein described, BPCA shall so notify Contractor in writing. Any reduction of retainage pursuant to this paragraph (b) shall not be deemed to be a waiver of retainage requirements for future partial payments.

5.2 Requisitions

Applications for partial payments (“Requisitions”) and application for final payment (“Final Requisition”) shall be in the form previously supplied by BPCA and shall be submitted by Contractor to Construction Manager or its designee in five original copies in the manner hereinafter provided for the approval of BPCA and Construction Manager. Each Requisition shall be supported by such data substantiating Contractor’s right to payment as BPCA and Construction Manager may require.

5.3 Trade Payment Breakdown

Prior to the submission of the first Requisition, Contractor shall present to Construction Manager for approval a trade payment breakdown (the “Trade Payment Breakdown”) of the various portions of the Work, aggregating the Contract Price, prepared in such form as specified by BPCA and supported by such data to substantiate its correctness as Construction Manager may require. After approval by BPCA and Construction Manager, the Trade Payment Breakdown shall not be changed or revised in any way without the written consent of Construction Manager. The Trade Payment Breakdown, when approved by Construction Manager, shall be used only as a basis for Requisitions and shall not be considered as a basis for reducing or increasing the Contract Price.

5.4 Payment for Stored Materials

If approved in advance of delivery by BPCA and Construction Manager, payments will be made on account of 80% of the value of Materials not incorporated in the Work, but delivered and suitably stored at the Site or at some other offsite location agreed upon in writing by BPCA and Construction Manager. Such payments shall be conditioned upon submission by Contractor of bills of sale or other supporting documentation satisfactory to BPCA and Construction Manager to establish BPCA’s title to such Materials including applicable insurance and transportation to the Site for those Materials stored offsite. In the event that Contractor, with approval of BPCA, stores any Materials offsite, the conditions for payment of Material stored off-site shall include but not be limited to the following: (a) the Material shall be properly stored in a secured location approved by the BPCA and/or Construction Manager; (b) the Material will be covered under the BPCA’s builder’s risk policy subject to policy limits and restrictions; and (c) the Material may be inspected by the BPCA and /or Construction Manager to assure compliance with Contract Documents.

5.5 Receipts and Releases of Liens

With each Requisition, Contractor shall furnish its affidavit of payment and waiver of lien for Work done and Materials furnished through the date covered by the last preceding partial payment (the "Preceding Covered Date") and shall furnish its affidavit certifying that all Subcontractors and Materialmen have been paid for Work performed and Materials furnished through the Preceding Covered Date except for any permitted retainage. BPCA may also require Contractor to attach to each Requisition (i) affidavits of payment and waivers of lien from all Subcontractors and Materialmen dealing directly or indirectly with Contractor for Work performed and Materials furnished through the Preceding Covered Date and/or (ii) the consent of the surety issuing the Payment Bond to such payment. BPCA may require Contractor to execute a waiver of lien at the time payment is made for a Requisition for all Work performed through the date of the Requisition in respect of which payment is being made.

In addition to the documents required to be furnished by the preceding paragraph, with the Final Requisition, Contractor shall furnish (y) its affidavit that there are no liens, claims or demands by, and that there is no indebtedness to, Subcontractors, Materialmen, laborers, other employees or third persons for which BPCA, Construction Manager, or Architect might in any way be responsible and (z) releases from all Subcontractors and Materialmen dealing directly or indirectly with Contractor. Should any such Subcontractor or Materialman fail or refuse to furnish such release, Contractor may be required to furnish a bond satisfactory to BPCA to indemnify it against any such lien, claim or demand. If any such lien, claim or demand remains unsatisfied after all payments are made to Contractor, Contractor shall refund to BPCA all monies that BPCA may be compelled to pay in discharging such lien, claim or demand including all costs, expenses and attorneys' fees which BPCA may incur in connection therewith.

5.6 Time of Payment

Requisitions shall be submitted by Contractor to BPCA and Construction Manager by the seventh day of each calendar month for Work completed up to the last calendar day of the previous month or other day approved by BPCA, and payment shall be made on or about twenty days after BPCA receives the Requisition together with the documents required pursuant to Sections 5.2 and 5.5 hereof. Contractor shall be entitled to payment only in the amount approved by BPCA, and Construction Manager with respect to such Requisitions, each of which must be signed by BPCA, and Construction Manager before payment is made. The value of any Work included in a Requisition for partial payment which is found unacceptable by BPCA, or Construction Manager may be deducted from that or any subsequent Requisition.

5.7 Reduction of Retainage

Upon the issuance of a Certificate of Substantial Completion, as defined in Section 8.6, Contractor shall submit a Requisition in an amount equal to the Contract Price less five percent (5%) of the total contract amount (including all approved change orders and pending change order proposals), and less the total amount of all prior payments. Upon approval of the same by BPCA, BPCA shall pay to Contractor the amount approved less any amount which BPCA is entitled to withhold hereunder.

5.8 Final Payment

(a) The final balance due Contractor under this Agreement shall be payable to Contractor by BPCA, as final payment hereunder, within thirty days after all of the following have taken place:

- (1) Contractor's Final Requisition has been submitted by Contractor and approved by BPCA, and Construction Manager;
- (2) the affidavit provided for in Section 5.5 hereof has been submitted by Contractor, and any other documents or actions expressly specified in the Contract Documents as preconditions to final payment have been submitted or completed; and

- (3) any inspections or approvals with respect to any of the Work that BPCA deems legally required or appropriate by governmental authorities or by the applicable Board of Fire Underwriters have been performed or obtained.

(b) The acceptance of final payment shall constitute a waiver of all claims by Contractor.

5.9 Release and Consent of Surety

Notwithstanding any other provision of this Agreement, before final payment pursuant to Section 5.8 shall become due pursuant hereto or before reduction of retainage, Contractor shall submit to BPCA a consent of surety to final payment or reduction of retainage in a form and substance acceptable to BPCA.

5.10 BPCA's Right to Audit and Inspect Records

Contractor shall maintain and shall keep for a period of at least six years after the date of Final Acceptance of the Work, pursuant to Section 8.7, all records and other data relating to the Work. BPCA or its designee shall have the right to inspect and audit all records and other data of Contractor relating to the Work at any time and from time to time until the end of such six year period. Contractor shall promptly respond to any inquiries of BPCA or any representative of BPCA arising out of any such inspection or audit.

5.11 Withholding of Payments

(a) BPCA may withhold payment or, because of subsequently discovered evidence, may nullify the whole or any part of any previously approved Requisition to such extent as may, in the judgment of BPCA, be necessary:

- (1) to assure payment of just claims or liens of any persons supplying labor or Materials for the Work;
- (2) to protect BPCA from loss due to defective Work or to reimburse BPCA, Construction Manager and Architect for fines on account of non-compliance with applicable laws, rules and regulations, including rules promulgated by the Office of Safety & Health Administration;
- (3) to protect BPCA from loss due to death or injury to persons or damage to the Work or property of BPCA, other contractors or others caused by the act or neglect of the Contractor;
- (4) in the event that there is reasonable evidence that the Work will not be completed for the unpaid balance of the Contract Price;
- (5) in the event that there is reasonable evidence that the Work will not be completed within the time provided; or
- (6) in the event that Contractor persistently fails to perform the Work in accordance with the Contract Documents.

In any of such events, BPCA shall have the right to apply any such amounts so withheld in such manner as BPCA may deem proper to satisfy such claims, to secure such protection, to complete the Work or to compensate BPCA for any loss suffered by reason of Contractor's delay. Such application shall be deemed payment for the account of Contractor. In the event that BPCA gives Contractor notice that it intends to make such application, Contractor shall be estopped from disputing liability or the amount of liability unless, within three days after receipt of such notice, it indicates to BPCA in writing that it is not liable or that the amount of its liability is different from that set forth in the notice.

(b) The provisions of this Section 5.11 are solely for the benefit of BPCA, and any action or non-action by BPCA shall not give rise to any liability on the part of BPCA. Failure to

so act shall not be deemed a waiver of any present or future claims of BPCA.

ARTICLE 6 – CONTRACTOR

6.1 Superintendence by Contractor, Discipline and Employee Skills

Contractor shall provide a competent construction superintendent to be in charge of the Work. The construction superintendent shall devote full time to the Work, shall be present at the Site during the time the Work is required to be performed and shall have full authority to accept instructions, make decisions and act for Contractor at all times. If at any time the construction superintendent is not satisfactory to BPCA or Construction Manager, Contractor shall, if requested by BPCA, replace such superintendent with another satisfactory to BPCA. Contractor shall enforce strict discipline and good order at all times among Contractor's employees and all Subcontractors. Contractor shall not engage any employee not skilled in the task assigned.

6.2 Representations and Warranties

Contractor represents and warrants that:

(a) Contractor is financially solvent and is experienced in, and competent to perform the Work and has the staff, manpower, equipment, Subcontractor, and suppliers available to complete the Work within the time specified in the Agreement for the Contract Price;

(b) Contractor is familiar with all Federal, State or other laws, ordinances, orders, rules and regulations, which may in any way affect the Work;

(c) any temporary and permanent Work required by this Agreement can be satisfactorily constructed, and such construction will not injure any person or damage any property; and

(d) Contractor has carefully examined the Contract Documents and the Site and, from Contractor's own investigations, is satisfied as to the nature and location of the Work, the character, quality and quantity of surface and subsurface materials likely to be encountered, the character of equipment and other facilities needed for the performance of the Work, the general and local conditions, and all other conditions or items which may affect the Work. Prior to submitting its bid for performance of the Work, Contractor notified BPCA or Construction Manager in writing of any discrepancies or errors in the Contract Documents.

6.3 Verifying Dimensions and Site Conditions

Before proceeding with the Work, Contractor will check all previous and surrounding work and determine the correctness of the same; failure on its part to detect or report discrepancies will relieve BPCA of liability from any and all claims to recover cost, expense, loss or damage resulting therefrom. Contractor shall take, determine, investigate and verify all field measurements, dimensions, field construction criteria and Site conditions for the performance of the Work and shall check and coordinate the information contained in the Contract Documents and the boring logs which shall be available for inspection with the requirements of the Work. Contractor shall be responsible for determining the exact location of and to verify the spatial relationships of all Work. If any conflicts or discrepancies are found in the Contract Documents or if Contractor has any questions concerning the foregoing, it shall immediately notify Construction Manager and shall thereafter perform the Work in accordance with the directions of Construction Manager.

6.4 Copies of Contract Documents for Contractor

BPCA shall furnish to Contractor, without charge, two sets of the Contract Documents. Any sets in excess of the number mentioned above may be furnished to Contractor at the cost of reproduction and mailing.

6.5 Meetings

Contractor shall attend all meetings as directed by BPCA or Construction Manager, including meetings set forth in Section 26.3, and shall be represented at such meetings by a person having knowledge of the Work and authorized to act for Contractor at all times. If at any time such person is not satisfactory to BPCA or Construction Manager, Contractor shall, if requested by BPCA, be represented by another person satisfactory to BPCA, having knowledge of the Work and authorized to act for Contractor at all times.

6.6 Related Work

Contractor shall examine the Contract Documents for related work to ascertain the relationship of such work to the Work under the Contract Documents.

6.7 Surveys and Layout

Unless otherwise expressly provided in this Agreement, Owner shall furnish Contractor survey points necessary for the Work, but Contractor shall lay out the Work.

6.8 Reports and Access

Contractor shall furnish BPCA and Construction Manager with daily and monthly manpower reports on forms provided by BPCA or Construction Manager and such other reports as may be required by BPCA or Construction Manager. BPCA, Construction Manager and Architect shall have full and free access to the shops, plants and factories of Contractor, any Materialmen and Subcontractors to inform themselves as to the progress of the Work.

6.9 Financial Information

Until completion of the Work, Contractor agrees to notify BPCA forthwith in writing of any event which has caused or is reasonably anticipated to cause a material adverse change in Contractor's business or financial condition from that shown in the then most recent financial statements furnished by Contractor to BPCA. Contractor has furnished to BPCA financial statements regarding the period from [date] to [date]. Contractor agrees to furnish to BPCA, at BPCA's request from time to time hereafter, quarterly, or annual financial statements (which shall be audited, if such is the practice of Contractor for financial statements covering the applicable period) and such additional information as BPCA shall deem necessary or desirable to satisfy itself of Contractor's continuing ability to complete the Work.

ARTICLE 7 - CONTRACT ADMINISTRATION

7.1 Architect's Responsibilities and Functions

Contractor acknowledges that the role of Architect with respect to the Work shall be as specified in this Agreement. Contractor will comply with the instructions of Architect pursuant hereto.

Architect's duties and services shall in no way supersede or dilute Contractor's obligation to perform and complete the Work in conformity with the Contract Documents.

7.2 Construction Manager's Responsibilities and Functions

(a) Construction Manager shall coordinate and schedule construction to insure that the completion of the Project is on schedule and that the Project is well constructed in accordance with the Contract Documents. Contractor acknowledges that the role of Construction

Manager with respect to the Work shall be as specified in this Agreement. Contractor hereby agrees to comply with the directions and instructions of Construction Manager.

(b) Construction Manager shall call for meetings of Contractor, other contractors, Subcontractors and Materialmen as necessary for the proper coordination of the Work. Such meetings shall be held at the Site on regular working days, during regular working hours, unless otherwise directed by BPCA. Attendance shall be mandatory for all parties notified to attend.

7.3 Scope of Responsibility of Architect and Construction Manager

In no event shall any act or omission on the part of the Construction Manager or Architect relieve Contractor of its obligation to perform the Work in full compliance with the Contract Documents. Neither Architect nor Construction Manager will be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and neither will be responsible for Contractor's failure to carry out the Work in accordance with the Contract Documents or the failure to fulfill any of the requirements of this Agreement.

ARTICLE 8 - INSPECTION AND ACCEPTANCE

8.1 Access to the Work

BPCA, Construction Manager, Architect or their authorized representatives shall at all times have access to and the right to observe the Work and all facilities where the Work or any part thereof is being fabricated or stored, and Contractor shall provide proper facilities for such access and observation.

8.2 Notice of Required Inspections and Tests

If the Contract Documents, or any laws, rules, ordinances or regulations, require that any Work be inspected or tested, Contractor shall give BPCA, Construction Manager and Architect at least five days prior written notice of readiness of the Work for inspection or testing and the date fixed for such inspection or testing.

8.3 Additional Inspections and Tests

(a) Whenever, in the opinion of BPCA, Construction Manager or Architect, it is desirable to require inspection or testing of the Work or its individual components in addition to any such testing which may be originally included in the Work, they shall have authority to do so whether or not such Work be then fabricated, installed, covered or completed. If such inspection or testing reveals a failure of the Work to comply (1) with the requirements of the Contract Documents, or (2) with respect to the performance of the Work, with laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, Contractor shall bear all costs thereof, including Architect's and Construction Manager's additional services made necessary by such failure; otherwise BPCA shall bear such costs, and an appropriate Change Order shall be issued.

(b) In the event that any item of the Work fails inspection or testing, BPCA, Architect or Construction Manager may require inspection or testing of any or all of the other items of the Work at Contractor's cost and expense.

8.4 Uncovering of Work

(a) If any Work shall be covered or concealed contrary to the request of BPCA, Architect or Construction Manager, such Work shall, if required by BPCA, Architect or Construction Manager, be uncovered by examination, inspection or testing. Any examination, testing or inspection shall not relieve Contractor of the responsibility to maintain quality control over the Work. If any test results are below specified minimums, BPCA may order additional testing. The cost of such additional examination, inspection or testing, any additional professional services required, and any other expenses incurred by BPCA as a result of such

examination, inspection or testing shall be borne by Contractor.

(b) In the event that a typical detail fails inspection or testing, BPCA, Architect or Construction Manager may require inspection or testing of any or all of other such typical details at Contractor's cost and expense.

8.5 Correction of Work

Any Work not approved by BPCA, Architect and Construction Manager shall immediately be reconstructed, made good, replaced or corrected by Contractor including all Work of other contractors destroyed or damaged by such removal or replacement. Rejected material shall be removed immediately from the Site. Acceptance of Materials and workmanship by BPCA shall not relieve Contractor from Contractor's obligation to replace all Work which is not in full compliance with the Contract Documents.

8.6 Certificate of Substantial Completion

Upon their receipt of written notice from Contractor stating that in Contractor's estimation the Work has been substantially performed in conformity with the Contract Documents, Architect and/or Construction Manager shall perform an inspection for the purposes of determining whether the Work has been so performed, commencing such inspection within ten (10) days of receipt of such notice and completing it with all due diligence. When Architect and/or Construction Manager find upon inspection that, to the best of their knowledge and belief, the Work is so performed, they shall prepare and deliver to BPCA for delivery to Contractor a certificate specifying the date of substantial completion of the Work for purposes of this Agreement ("Certificate of Substantial Completion") and a punch list of items of Work remaining to be completed prior to the completion of the Work.

The delivery of a Certificate of Substantial Completion shall not terminate or alter Contractor's obligation under this Agreement to complete the Work in conformity with the Contract Documents and to fulfill all terms and conditions of this Agreement.

8.7 Completion of Work and Acceptance

Upon their receipt of written notice from Contractor stating its belief that the Work has been fully performed in conformity with the Contract Documents, and confirming that Contractor has completed any items of Work previously noted to it by Architect and Construction Manager as not having been acceptably completed in any punch list or otherwise, Architect and Construction Manager shall perform an inspection for purposes of determining whether the Work has been so performed. Architect and Construction Manager shall commence such inspection within ten (10) days of receipt of such notice and shall pursue and complete it with all due diligence. When BPCA and Construction Manager find upon inspection that, to the best of their knowledge and belief, the Work has been so performed, they shall prepare a certificate of final completion, and, upon delivery by BPCA to Contractor of said certificate, the Work shall be deemed to be finally accepted by BPCA (such delivery of the certificate of final completion to Contractor is hereinafter referred to as "Final Acceptance").

Final Acceptance shall not terminate or alter Contractor's obligation under this Agreement to complete the Work in conformity with the Contract Documents and to fulfill all terms and conditions of this Agreement.

ARTICLE 9 - CHANGES IN THE WORK

9.1 Change Orders

(a) BPCA may, at any time, in any quantity or amount, without notice to the sureties and without invalidating or abandoning the contract, order Extra Work. Notwithstanding the terms of subsection 3.1(a) hereof, BPCA may, but shall be under no obligation to, change the manner, sequence or method of performance of the Work or direct acceleration of the Work and Contractor shall, therefor, be entitled to a Change Order (as defined in Section 9.1(b)) provided that such change or acceleration was not ordered to maintain the Progress Schedule for the

Project, the Progress Schedule for the Work or to coordinate the Work with the work of other contractors. Contractor shall be obligated to perform changed Work promptly in conformity with any Change Order or Field Order issued in accordance herewith and may not suspend or otherwise refuse to perform the Work contained therein or any other aspect of the Work required under this Agreement because a Change Order has yet to be fully executed.

(b) "Change Order" shall mean a written order issued by the Authority to Contractor after execution of this Agreement, authorizing or requiring:

- (i) Extra Work,
- (ii) items which were erroneously deleted or omitted from the Work,
- (iii) items which were included in the Work but were subsequently deleted,
- (iv) an extension or decrease of time to complete Work,
- (v) an increase or reduction in the payment to Contractor, or
- (vi) any other change in the Contract Documents or in the sequence of performing or phasing of the Work.

(c) All Change Orders shall be prepared, signed and issued by Construction Manager at the instruction of BPCA, and to be valid, must be countersigned by BPCA and Contractor.

9.2 Change in Contract Price and Time

(a) The Contract Price will not be revised due to any change of the Work except as and to the extent expressly provided in the Change Orders. The amount by which the Contract Price is to be increased or decreased by any Change Order shall be determined by BPCA and Construction Manager by one or more of the following methods:

- (1) by accepting an amount agreed upon by BPCA and Contractor;
- (2) by applying the applicable unit prices and alternates where the Work involved is covered by unit prices in this Agreement;
- (3) by receiving from Contractor a detailed breakdown satisfactory to BPCA and Construction Manager, including actual time slips and invoices, itemizing the direct cost of labor and Materials to perform the changed Work and adding thereto fifteen percent (15%) to cover profit and all indirect and overhead costs, except that where the changed Work is performed by a Subcontractor or Materialman, the direct cost of labor and Materials to perform the changed Work plus fifteen percent (15%) for profit and all indirect and overhead costs to Subcontractor or Materialman and an additional sum for profit and all indirect and overhead costs of Contractor equal to ten percent (10%) of the first \$100,000, five percent (5%) of the second \$100,000 and three percent (3%) of any cost in excess of \$200,000 to Contractor. No allowance shall be paid on the premium portion of overtime pay. Where the changed Work involves both an increase and a reduction in any contract Work, the above percentage override shall be applied only on the amount, if any, by which the cost of the increase exceeds the cost of the reduction.
- (4) by receiving from Contractor a true copy of its bid work sheets to determine the contract price for the elimination of any contract Work. The amount of reduction shall not include the overhead or profit of Contractor for the eliminated Work. Should Contractor fail to furnish BPCA with such bid work sheets, then Construction Manager shall determine the amount of the reduction. The determination of Construction Manager shall be final and binding unless erroneously or fraudulently arrived at, or arbitrary and capricious;

- (5) by adding to the Contract Price only the amount of the premium portion of overtime pay resulting from an acceleration of the Work; or
- (6) by adding to the Contract Price, the actual incremental labor and equipment costs incurred by the Contractor resulting from a change in the manner, sequence or method of performing the Work.

(b) The compensation specified in a Change Order shall constitute a release and full payment for the Extra Work covered thereby and for any delay and disruption cost or expense occasioned by reason of said change in the Work.

(c) No time extension shall be granted Contractor by reason of the issuance of any Change Order unless it is expressly stated therein.

9.3 Field Orders

Construction Manager shall have the authority to order minor changes in the Work by the issuance of written field orders (“Field Orders”), which may be issued without prior approval by BPCA. Field Orders must be countersigned by Contractor. Minor changes in the Work for purposes of this Section shall mean only changes which do not necessitate or warrant any revision in the Contract Price in excess of \$5,000 or affect the time of performance of Contractor’s Work, any change in the basic character or design of the Project, or deviation from design standards established for the Project. Except as otherwise provided in the preceding sentence relating to an increase in the Contract Price, no claim for an increase in the Contract Price may be based upon any Field Order. If Contractor, on receipt of a Field Order, claims that the change of Work involved necessitates a Change Order, it shall proceed in accordance with the Field Order under protest and notify BPCA immediately of its claim for additional compensation for Extra Work pursuant to Article 14.

9.4 Changed Conditions

(a) BPCA assumes no responsibility for the correctness of any boring or other subsurface information and makes no representation of any kind regarding subsurface conditions and test borings, reports, rock cores, foundation investigation and topographical maps which may be made available to Contractor.

(b) Contractor shall promptly, and before such conditions are disturbed, notify Construction Manager of: (1) subsurface or latent physical conditions differing materially from those indicated in the Contract Documents, or (2) unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Agreement. Construction Manager shall promptly investigate the conditions, and if it finds that such conditions do materially so differ and cause an increase or decrease in Contractor’s cost of, or the time required for, performance of any part of the Work under this Agreement, Contractor shall be paid in the manner provided for payment with respect to any Change Order and receive, if warranted, a time extension.

(b) No claim of Contractor under this clause shall be allowed unless Contractor has given the notice required in subsection (a) above.

ARTICLE 10 - SUBCONTRACTS AND PURCHASE ORDERS

10.1 Selection of Subcontractors and Materialmen and Approval of Subcontracts and Purchase Orders

(a) Contractor shall submit to Construction Manager, within 21 calendar days of Notice to Proceed, the names of all persons with whom it has contracted or intends to contract or hereafter contracts with respect to the Work.

(b) Except as specifically provided herein, Contractor shall not enter into any Subcontracts or issue any Purchase Orders (as hereinafter defined) to any Materialmen in

connection with the performance of Contractor's obligations hereunder without the prior written consent of BPCA to the use of each such Subcontractor or Materialman, and to the agreement to be entered into between Contractor and any such Subcontractor or Materialman. Contractor shall inform BPCA in writing of any interest it may have in a proposed Subcontractor or Materialman. No such consent by BPCA, or employment, contract, or use by Contractor, shall relieve Contractor of any of its obligations hereunder nor may BPCA be held responsible in any way for the performance of a Subcontractor or Materialman to whom BPCA gave its consent.

(c) Contractor shall be responsible for the performance of the Work of any Subcontractors or Materialmen engaged, including the maintenance of schedules, coordination of their Work and resolutions of all differences between or among Contractor and any Subcontractors. It is expressly understood and agreed that any and all Subcontractors or Materialmen engaged by Contractor hereunder shall at all times be deemed engaged by Contractor and not by BPCA.

(d) Upon the request of BPCA, Contractor shall cause any Subcontractor or Materialman employed by the Contractor in connection with this Agreement to execute a copy of the Agreement wherein such Subcontractor or Materialman shall acknowledge that it has read and is fully familiar with the terms and provisions hereof and agrees to be bound thereby as such terms and provisions are or may be applicable to such Subcontractors or Materialmen.

(e) Contractor shall submit to BPCA promptly following execution, three copies of every revision, amendment, modification or cancellation executed or issued by Contractor with respect to any Subcontractor or Materialman. BPCA is not obligated to make payment on account of Work performed or Materials furnished by a Subcontractor or a Materialman under a Subcontract or contract for construction supplies or Materials (hereinafter "Purchase Order(s)") unless there shall have been filed with BPCA prior to the submission of a Requisition for each payment, three copies of such Subcontract or Purchase Order containing the provisions required by this Agreement to be contained therein, except as may otherwise be specified by BPCA with respect to Purchase Orders for minor purchases.

10.2 Access by BPCA and Others

Contractor shall include a provision in all Subcontracts and Purchase Orders stating that, to permit verification of Contractor's costs, BPCA shall have the right to have its representatives inspect and audit the books of account and records of the Subcontractor and Materialmen, including the right to make excerpts from such books and records. All payments by Contractor to a Subcontractor or Materialman shall be by check specifically indicating that payment is attributable to this Agreement and identifying the invoice(s) for which payment is being made. Contractor shall include a provision in all Subcontracts and Purchase Orders that will enable representatives of the State of New York, Construction Manager and BPCA, as the case may be, to obtain access during working hours to the appropriate books of account and records of the Subcontractors or Materialmen relating to the Work to determine if there is compliance with the requirements of law or this Agreement.

10.3 Retainage

Contractor may provide for a retainage under any of its Subcontracts or Purchase Orders provided that where a Subcontract or Purchase Order provides for a retainage, the retainage shall be no greater in percentage than that provided for under Sections 5.1 or 5.7 hereof with respect to Contractor itself, unless otherwise approved in writing by BPCA. Contractor shall submit with each Requisition a statement setting forth the amounts of all retainage, if any, under its Subcontracts and Purchase Orders.

10.4 Miscellaneous

(a) Contractor shall be fully responsible for the work, acts and omissions of Subcontractors and Materialmen, and of persons either directly or indirectly employed by Subcontractors and Materialmen.

(b) Contractor's use of Subcontractors and Materialmen shall not diminish Contractor's obligation to complete the Work in accordance with the Contract Documents.

Contractor shall control and coordinate the work of Subcontractors and Materialmen.

(c) Nothing contained in this Agreement shall create any contractual relationship between Subcontractors or Materialmen and BPCA, Construction Manager or Architect. Nothing in this Section shall obligate BPCA to pay or to see to the payment of any sums to any Subcontractor or Materialmen.

(d) Contractor shall include a provision in all Subcontracts and Purchase Orders exceeding \$50,000, requiring the Subcontractor or Materialman, if requested by BPCA, until the Subcontractor or Materialman finishes its portion of the Work, to deliver to Contractor unaudited and, if available, audited financial statements of the Subcontractor or Materialman similar to the obligation of Contractor under Section 6.8 and promptly upon receipt thereof Contractor shall deliver copies thereof to BPCA.

ARTICLE 11 - ASSIGNMENT

11.1 No Assignment of Duties

Contractor shall not assign this Agreement or the performance of any obligations of Contractor under this Agreement, nor enter into any Subcontract in respect of the Work or any part thereof except in compliance with Article 10 hereof and with the prior written consent of BPCA, and each and every such assignment, Purchase Order and Subcontract without such compliance and consent shall be void and shall revoke and annul this Agreement.

11.2 No Assignment of Monies

Contractor shall not assign any monies payable hereunder nor execute and deliver any order for payment unless Contractor and the assignee shall have complied with the following terms and conditions:

(a) the assignee shall be a commercial bank or finance company regularly engaged in the business of provided financing to construction contractors and shall be providing such financing to Contractor;

(b) the assignee shall, simultaneously with the assignment, execute and deliver to BPCA an undertaking, in favor of BPCA, in form and substance satisfactory to BPCA, providing that:

(1) assignee will cause Contractor to apply for trust purposes, as defined in New York Lien Law Article 3-A (the "Lien Law"), all funds advanced by assignee to Contractor;

(2) assignee will file a copy of the assignment, containing the covenant required by the Lien Law, with the County Clerk of New York County and the head of the agency having charge of the underlying project;

(c) the assignee shall agree with BPCA in writing that BPCA and Contractor may modify any of the terms of this Agreement, including any of the terms of payment, without the consent of assignee;

(d) the assignee shall agree with BPCA in writing that after the effective date of the assignment, BPCA may make payment directly to any Subcontractor or Materialman without any liability to the assignee;

(e) the assignee shall agree with BPCA in writing that the assignee shall require and cause Contractor to keep his books and records in the form and manner described in New York Consolidated Laws Service Lien Law Article 3-A Section 75; and

(f) the assignee shall agree with BPCA in writing that the assignee will indemnify and hold BPCA harmless from and against any loss, claim or expense incurred as a result of any

failure of performance in accordance with the terms of such undertaking.

11.3 Assignment by BPCA

This Agreement or any rights of BPCA under this Agreement, including any guaranties or warranties of workmanship or material, may at any time be assigned by BPCA to the State of New York or any political subdivision, public corporation or agency of the State.

ARTICLE 12 - MECHANICS' LIENS AND CLAIMS

If any mechanic's lien or other claim shall be filed for or on account of the Work, Contractor shall discharge such lien or claim within thirty days of receiving written notice of such lien or other claim.

ARTICLE 13 – INSURANCE AND CONTRACT SECURITY

13.1 Insurance

(a) Contractor shall procure and maintain all of the insurance required under this Article 13 until Final Acceptance of the Work, except with respect to Completed Operations Coverage, as described in 13.1(f)(3) below.

(b) Contractor shall not commence physical performance of the Work at the Site until Contractor has obtained, and required each Subcontractor to obtain, all the insurance required under this Article and until it has furnished to BPCA the certificate or certificates of insurance required by Section 13.1(c) hereof.

(c) Contractor shall furnish to BPCA, before or upon execution of this Agreement, attention: [name], a certificate or certificates of the insurance required under this Article and, upon BPCA's request, certified copies of the original policies of insurance, within the time period required by BPCA and before commencing physical performance of the Work at the Site. Such certificate or certificates shall be in form satisfactory to BPCA, shall list the various coverages and shall contain, in addition to any other provisions required hereby, a provision that the policy shall not be changed, canceled or reduced and that it shall be automatically renewed upon expiration and continued in force until two years after Final Acceptance unless BPCA is given 90 days' written notice to the contrary. Such policies and certificates should name as additional insureds BPCA, Battery Park City Parks Conservancy Corporation (the "Conservancy"), the State of New York, Construction Manager, and Architect.

(d) All insurance required to be procured and maintained must be procured from insurance companies which have a financial rating by A.M. Best Company as published in the most current key rating guide of "A-X" or better and which are authorized to do business in the State of New York.

(e) If at any time any of the required insurance policies should be canceled, terminated or modified so that insurance is not in effect as required, then, if BPCA shall so direct, Contractor shall suspend performance of the Work. If the Work is not suspended then BPCA may, at BPCA's option, obtain insurance affording coverage equal to that required, the cost of such insurance to be payable by Contractor to BPCA.

(f) Contractor and each Subcontractor shall secure in a form satisfactory to BPCA:

- (1) Worker's Compensation and Employer's Liability Insurance, including United States Longshoreman & Harbor Workers ("USL & H") and Jones Act Coverages, during the Term for the benefit of such employees as are required to be insured by the applicable provisions of law and voluntary compensation for employees excluded from statutory benefits. Employer's Liability Insurance and benefits resulting from disease shall

not be less than an annual aggregate amount of \$_____ for each consecutive 12-month period.

- (2) Disability Benefit Insurance during the life of this Agreement for the benefit of such employees as are required to be insured by the applicable provisions of law.
- (3) Commercial General Liability Insurance as follows:

Standard commercial general liability insurance policy with contractual, products and completed operations and explosion, blasting, collapse, excavation and underground damage liability coverages, under the occurrence policy format, issued to and covering the liability of Contractor for all the Work and operations relating thereto and all obligations assumed by Contractor under this Agreement including, but not limited to indemnity obligations in an amount which shall not be less than the following limits:

Combined Single Limits, Bodily Injury
and Property Damage Liability

\$_____ per each occurrence and \$_____ in the aggregate.

The completed operations coverage shall continue in force until three years after Final Acceptance of the Work and shall contain, in addition to any other provisions required hereby, a provision that the policy shall not be changed, canceled or reduced. As a condition precedent to the making of Final Payment, Contractor shall furnish BPCA with a certified copy of the completed operations policy.

- (4) Automobile Liability Insurance as follows:

A policy covering the use in connection with the Work of all owned, non-owned and hired vehicles bearing license plates, or under the circumstances that such vehicles are being used they are required by the Motor Vehicle Laws of the State of New York to bear license plates. The coverage under such policy shall not be less than the following limits:

Combined Single Limits,
Bodily Injury and Property Damage Liability

\$_____ per each occurrence.

- (5) Marine Protection and Indemnity (“P&I”) insurance of not less than [amount] per occurrence, if Contractor or any of its Subcontractors utilizes floating equipment, barges or floats, or performs marine-related construction, covering any and all claims for personal injury, death and property damage arising out of or in connection with this Agreement.
- (6) Pollution Liability Insurance, on an occurrence basis, providing coverage for bodily injury liability, property damage or environmental damage caused by pollution conditions with a limit of liability of not less than [amount] per occurrence and in the aggregate. The policy shall include coverage for environmental clean-up on land, in air and on water. The policy shall include coverage for completed operations for two (2) years after the completion of the performance of the Work, gradual and sudden and accidental pollution coverage, with a time element of no less than seven (7) days’ notice and thirty (30) days’ reporting. The policy shall not contain a sunset provision, or any other provision, which would prohibit the reporting of a claim and the subsequent defense and indemnity that would normally be provided by the policy. The policy shall provide

transportation coverage for the hauling of hazardous materials from the Project Site to the final disposition location.

- (7) Vessel Pollution Liability Insurance, on an occurrence basis, providing coverage for bodily injury liability, property damage or environmental damage caused by pollution conditions, emanating from any floating equipment, barges or floats, utilized by Contractor or Subcontractors in the performance of Marine related construction, with a limit of liability of not less than [amount] per occurrence and in the aggregate. The policy shall include coverage for environmental clean-up on land, in air and on water.
- (8) Umbrella Liability Insurance, excess of general liability, automobile liability, Protection and Indemnity (“Marine Liability”), vessel pollution and Employer’s Liability, in an amount of not less than [amount].

(g) The insurance required under subsections 13.1(f)3, 4 and 5 shall be of a type which shall protect Contractor and Subcontractors, respectively, against damage claims which may arise from operations under this Agreement, whether such operations be by the insured or by anyone directly or indirectly employed by the insured. Each of the aforesaid policies shall provide that the insurance company or an attorney approved and retained by the insurance company shall defend any suit or proceeding against BPCA or any officers, agents or employees of BPCA whether or not such suit is groundless, false or fraudulent. Notwithstanding the foregoing, BPCA shall have the right to engage its own attorneys for the purpose of defending any suit or proceeding against it or its respective officers, agents or employees, and, in such event, Contractor shall, indemnify BPCA for all attorneys’ fees and disbursements and other costs incurred by it arising out of, or incurred in connection with, any such defense. The said insurance shall name BPCA, the Conservancy, the State of New York, Construction Manager and Architect as additional insureds as respects this location and shall, where applicable, be written on an occurrence basis and shall contain a provision that it is primary and that any similar insurance which BPCA, the Conservancy, the State of New York, Construction Manager, Architect, Contractor or Subcontractor elect to carry for their own benefit is secondary or excess and not contributing insurance.

(h) BPCA, at BPCA’s cost and expense, may, at its sole option, procure and maintain such insurance as shall in the opinion of BPCA, protect BPCA from contingent liability of BPCA to others for damages arising from bodily injury, including death and property damages which may arise from operations under this Agreement. The procurement and maintenance of such insurance by BPCA shall not in any way be construed or be deemed to relieve Contractor from, or to be a limitation on the nature or extent of, such obligations and risk.

(i) BPCA shall, at all times during the period of construction and until completion and Final Acceptance of the Work procure and maintain at the cost and expense of BPCA “Builders Risk” insurance, or its functional equivalent, against direct physical loss or damage to the Work and on all Materials to be made a part of the Work in the names of BPCA, Construction Manager, Contractor and Subcontractors, said amount of insurance to be procured and maintained on a one hundred percentage (100%) completed value basis on the insurable portion of the Work, which insurance shall contain a deductible provision for all losses except flood and earthquake in the amount of \$10,000 and a deductible provision for flood and earthquake in the amount of \$10,000. BPCA recognizes that the deductible applicable to flood and earthquake may be greater than \$10,000 due to insurance market conditions and shall notify Contractor if such deductible is greater than \$10,000. Losses up to and including the amounts of such deductible provisions shall be borne by Contractor. The insurance specified above may, in certain instances, include other parties as named insureds, as the interests of such parties may appear. Loss, if any, is to be made adjustable with and payable to BPCA on behalf and for the named insureds as the interests of such insureds may appear. BPCA shall, in BPCA’s sole discretion, have power to adjust and to settle with the insureds any loss or claim under such insurance. The above is not intended to be a complete, full or accurate description of the coverage provided by the policies of insurance, copies of which are on file with BPCA. This subsection (i) is not intended to create or give any rights to Contractor or Subcontractors other than those which may be made available to such Contractors or Subcontractors under the terms of such policies. BPCA assumes no obligation to obtain insurance other than that evidenced by said policies. Contractor and Subcontractors shall not violate or permit to be violated any term or

condition of such policies and shall at all times satisfy the safety requirements of BPCA and of the insurance companies issuing the aforementioned policies. The Contractor shall, upon notification by BPCA, obtain such insurance at BPCA's expense on a date determined by BPCA, which date shall not be less than thirty (30) days after notice to Contractor of such determination by the BPCA.

13.2 Effect of Procurement of Insurance

Neither the procurement nor the maintenance of any type of insurance by BPCA or Contractor shall in any way be construed or be deemed to limit, discharge, waive or release Contractor from any of the obligations and risks impressed upon Contractor by this Agreement or to be a limitation on the nature or extent of such obligations and risks.

13.3 Contract Security

Contractor shall, if it already has not done so, furnish to BPCA, with the execution of this Agreement, to BPCA, a bond in the form annexed hereto as Exhibit [x] in an amount at least equal to one hundred percent (100%) of the Contract Price for performance of the Work (the "Performance Bond"), and a labor and material payment bond in the form annexed hereto as Exhibit [y] in an amount at least equal to one hundred percent (100%) of the Contract Price for the payment of all persons performing labor or providing Materials in connection with the Work (the "Payment Bond"). The surety on said bond shall be a surety company authorized to do business in the State of New York and shall be rated at last B+ by A.M. Best and Company, or meet such other requirements as are acceptable to BPCA.

13.4 Additional or Substitute Bond

If at any time BPCA shall be or shall become dissatisfied with any surety or sureties then obligated upon the Performance Bond or the Payment Bond, or if for any other reason such bonds shall cease to be adequate security to BPCA, Contractor shall within five (5) days after notice from BPCA to do so, substitute an acceptable bond or bonds in such form and sum and signed by such other surety or sureties as may be satisfactory to BPCA, except that the penal sum of said bond shall not exceed the Contract Price as adjusted by Change Orders. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished such an acceptable bond or bonds to BPCA.

ARTICLE 14 - CLAIMS FOR EXTRA WORK

(a) If Contractor is of the opinion that (i) any work which it has been ordered to perform is Extra Work and not Work as set forth in the Contract Documents, (ii) any action or omission of BPCA, Construction Manager or Architect is contrary to the terms and provisions of the Contract Documents and will require the performance of Extra Work or will cause additional expense to Contractor or (iii) any determination, order or directive of BPCA, Construction Manager or Architect is contrary to the terms of the Contract Documents and will require the performance of Extra Work or will cause additional expense to Contractor, Contractor shall:

- (1) not suspend Work but promptly comply with each determination, order or directive and proceed diligently with the performance of the Work in accordance with BPCA's instructions,
- (2) notify BPCA, Construction Manager and Architect in writing within 72 hours of such determination, order, act or omission that Contractor believes such will require it to perform Extra Work or incur additional expense and the basis for Contractor's conclusion and request a final determination thereon by BPCA, and
- (3) present to the Construction Manager for signature daily time and Material tickets to confirm quantities of Material and hours of labor in cases where Contractor is performing the Work which it considers to be Extra Work.

If BPCA determines that (x) work is Work required to be performed hereunder and not Extra Work, (y) action or omission is proper, or (z) a determination, order or directive is proper, Contractor, in order to reserve its right to claim compensation for or damages resulting from the performance of such work or the compliance with such determination, order or directive, must notify BPCA in writing within three (3) working days after receiving notice of BPCA's determination that it is performing such work or complying with such determination, order or directive under protest.

In addition to the foregoing, Contractor must submit to BPCA, Construction Manager and Architect within thirty (30) days after it has performed such work or complied with such determination, order or directive, a detailed statement of the extra expense claimed to have been incurred and of any claimed damages resulting from the performance of such work or the compliance with such determination, order or directive.

(b) No claim for Extra Work shall be allowed unless the same was done pursuant to written order approved in writing by BPCA. Contractor's failure to comply with any provision of this Article:

- (1) shall constitute a conclusive and binding determination on the part of Contractor that such action, omission, determination, order or directive does not involve Extra Work, has not caused extra expense or damages to Contractor, and is not contrary to the terms and provisions of the Contract Documents; and
- (2) shall constitute an irrevocable waiver by Contractor of any claim for compensation for or damages resulting from the performance of such work or the compliance with such determination, order or directive.

(c) The value of claims for Extra Work, if allowed, shall be determined by the methods described in Section 9.2.

ARTICLE 15 - TERMINATION

15.1 Termination for Cause

(a) If any of the following events shall occur (an "Event of Default") then BPCA or Construction Manager may serve written notice upon Contractor and upon Contractor's surety, if any, terminating this Agreement at a specified date. The notice shall contain the reasons for termination but shall not be effective to terminate this Agreement if Contractor cures all Events of Default stated in the notice prior to the date specified in the notice of termination.

- (1) Contractor shall violate any substantial provision of this Agreement, including, without limitation, by failing to maintain the Progress Schedule for the Project or Progress Schedule for the Work then in effect in accordance with, or failing to discharge any of its responsibilities under, Section 3.1(d) hereof, or by failing to indemnify and hold harmless BPCA (as required by Sections 3.1(e), 3.2, 17.5, 21.1, 21.2., 22(c) or any other provision of this Agreement) from and against any and all claims, liabilities, losses, costs or damages arising out of Contractor's performance of, or failure to perform, its obligations under this Agreement in accordance with its terms, or if the Contractor fails to maintain the insurance required by the provisions of Section 13; or
- (2) any material adverse change shall take place in the financial condition of the Contractor;
- (3) Contractor takes any action which would result in it becoming the subject of any insolvency proceeding. The term "insolvency proceeding" as used herein shall include the filing of a petition for relief under Title 11 of the United States Code by Contractor or the consent, acquiescence or taking

of any action by Contractor, or the filing by or against Contractor of petition or action, looking to or seeking any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any other regulation; or the appointment, with or without the consent of Contractor, of any trustee, custodian, receiver or liquidator of Contractor or of any property or assets of Contractor; or Contractor's making of an assignment for the benefit of creditors or its inability to pay its debts as they become due.

- (4) Contractor misrepresented or omitted information in its submission of the Statement of Qualifications of Contractor submitted by Contractor to BPCA in connection with this Agreement; or
- (5) Any partner, principal, director, officer or shareholder owning in excess of five percent (5%) of the stock of Contractor shall have been convicted of a felony.

(b) Upon the occurrence of an Event of Default, at BPCA's option exercised by written notice to Contractor, title to any or all of Contractor's Materials, equipment, work product, work in process and dies and tools, whether on the Site or off site, which are necessary or useful in completing the Work shall vest in BPCA and BPCA may take possession of and utilize the same for completion of the Work; provided that title to such items shall revert to Contractor upon effectuation of a cure of the Event of Default prior to the termination of this Agreement. If no cure has been effected, this Agreement has been terminated and BPCA has taken possession of the same, then after BPCA has taken possession and the Work shall have been completed by or on behalf of BPCA, BPCA shall pay to Contractor, in respect to the items for which title has vested in BPCA, an amount equal to the sum of:

- (1) the direct costs of Contractor for such Materials and Work in progress, and
- (2) the depreciated book value of such tools and dies less, if BPCA elects to return the tools and dies to Contractor, the salvage value thereof. BPCA shall have the right to set off against such payment due to Contractor any amounts then due and payable by Contractor to BPCA which may accrue as damages owing by Contractor to BPCA under the terms of this Agreement. Contractor shall execute any further documents (including Form UCC-1 Financing Statements to give public notice of the potential ownership interest of Owner as set forth herein) required by BPCA to confirm the terms of this subsection 15.1(b).

(c) Upon termination of this Agreement, BPCA shall have the right, in addition to all other rights and remedies, to complete or have the Work completed by such means and in such manner, by contract or otherwise, with or without public letting as permitted by law, as BPCA deems advisable. BPCA may deduct any loss it incurs thereby from any payment then or thereafter due to Contractor without prejudice to any other remedy BPCA may have.

(d) Immediately upon termination in accordance with the provisions of this Section, each and every Subcontract and Purchase Order entered into by Contractor shall, at BPCA's option, be automatically assigned to BPCA, and Contractor shall insert a provision to this effect in all Subcontracts and Purchase Orders. In the event that it shall be determined that a termination under this paragraph was wrongful or not justified, such termination shall be conclusively deemed to be a termination for convenience of BPCA under Section 15.2 hereof and the sole right, remedy and recourse of Contractor against BPCA shall be governed and determined by Section 15.2 hereof.

(e) Contractor shall, upon the date when such termination shall take effect, promptly notify the union or unions, if any, having jurisdiction over the work by its employees that it releases the Project and consents that the Work be performed by others and Contractor expressly authorizes BPCA to notify the union or unions of such release in the name of Contractor. The failure, neglect or refusal of Contractor to issue such release or the disclaimer by it of the effectiveness of the release issued by BPCA shall subject Contractor to all damages sustained by BPCA.

(f) If this Agreement shall have been terminated by BPCA pursuant to this Section 15.1 and it shall be finally determined by BPCA or a court of competent jurisdiction that adequate grounds for such termination did not exist, then such termination shall be deemed a termination for convenience of BPCA under Section 15.2 hereof and the sole right, remedy and recourse of Contractor against BPCA shall be governed and determined by Section 15.2 hereof.

15.2 Termination for Convenience of BPCA

(a) BPCA, at any time, may terminate this Agreement for its own convenience. Any such termination shall be effected by delivering to Contractor a notice of termination specifying the extent to which performance of Contractor's Work under the Contract is terminated and the date upon which such termination becomes effective. Upon receipt of the notice of termination, Contractor shall:

- (1) stop work under this Agreement on the date specified in the notice of termination;
- (2) place no further Purchase Orders or Subcontracts for Materials, services or facilities;
- (3) unless directed otherwise by BPCA, terminate all Purchase Orders and Subcontracts;
- (4) assign to BPCA, in the manner, at the times, and to the extent directed by Construction Manager, all of the right, title and interest of Contractor under the Purchase Orders and Subcontracts so terminated, in which case BPCA shall have the right, in its sole discretion, to settle or pay any or all claims arising out of the termination of such Purchase Orders and Subcontracts;
- (5) to the extent required by Construction Manager, settle all outstanding liabilities and all claims arising out of such termination of Purchase Orders and Subcontracts, with the approval or ratification of Construction Manager, which approval or ratification shall be final for all the purposes of this Section 15.2;
- (6) transfer title to BPCA and deliver in the manner, at the time, and to the extent, if any, directed by the Construction Manager (i) the fabricated or unfabricated parts, Work in process, completed Work, supplies, and other Material produced as a part of, or acquired in connection with the performance of, the Work terminated by the notice of termination, and (ii) the completed or partially completed plans, drawings, work product, information and other property, which if this Agreement had been completed, would have been required to be furnished to BPCA;
- (7) take such action as may be necessary, or as the Construction Manager may direct, for the protection and preservation of the property related to this Agreement which is in the possession of Contractor and in which BPCA has or may acquire an interest.

(b) In the event of a termination of this Agreement pursuant to this Section 15.2, Contractor shall be paid by BPCA only the apportioned Contract Price for Work installed, the fair and reasonable value of Materials stored on the Site and under order for which Contractor is responsible for payment, less any sums properly deductible by BPCA, except that in no event shall Contractor be entitled to compensation in excess of the total Contract Price.

15.3 Suspension of Work

(a) BPCA may at any time and for any reason direct Contractor to suspend, stop, or interrupt the Work or any part thereof for a period of time. Such direction shall be in writing and

shall specify the period during which the Work is to be stopped. Upon receipt of a direction of suspension, Contractor shall, as soon as practicable, cease performance of the Work as ordered and take immediate affirmative measures to protect the Work from loss or damage. Contractor shall resume the Work upon the date specified in such direction or upon such other date as BPCA may thereafter specify in writing.

(b) The period during which the Work shall have been suspended, stopped or interrupted may, if warranted, be added to the time fixed for performance. A suspension, stoppage or interruption of the Work pursuant to this provision shall not give rise to any claim against BPCA for additional compensation.

ARTICLE 16 - COMPOSITE DRAWINGS AND COOPERATION

Where Contractor shall perform Work in close proximity to work of other contractors or subcontractors, or where there is evidence that Contractor's Work may interfere with work of other contractors, or subcontractors, Contractor shall assist in arranging space conditions to make satisfactory adjustment for the performance of such work and the Work. Contractor shall prepare composite scale working drawings and Sections as directed by Construction Manager, clearly showing how Contractor's Work is to be performed in relation to work of other contractors or Subcontractors. Such direction may include the following: the scale of the drawings, where the drawings are to be drafted, the number of prints or reproducibles, and the requirement of attendance at meetings. The determination as to who shall provide the composite drawings and the contents of the same shall rest exclusively with Construction Manager. Upon request by Construction Manager, Contractor shall sign and be bound by such composite drawings. Such signature shall indicate Contractor's acknowledgment that such drawing is acceptable as related to its Work covered or included in such drawing. If Contractor performs work in a manner which causes interference with the work of other contractors, or Subcontractors, Contractor shall make the changes necessary to correct the condition as directed by Construction Manager.

ARTICLE 17 - PROTECTION OF RIGHTS, PERSONS AND PROPERTY

17.1 Accident Prevention

Contractor shall at all times take every precaution against injuries to persons or damage to property and for the safety of persons engaged in the performance of the Work.

17.2 Safety Programs

Contractor shall be responsible for the initiation, maintenance and supervision of safety precautions and programs as prescribed by Construction Manager in connection with the Work.

17.3 Protection of Work and Property

(a) Contractor shall at all times guard BPCA's property from injury or loss in connection with the Work. Contractor shall at all times guard and protect the Site, the Work and adjacent property. Contractor shall replace or make good any such loss or injury unless such loss or injury is caused directly by BPCA.

(b) Contractor shall have full responsibility to install, protect and maintain all Materials in proper condition and forthwith repair, replace and make good any damage thereto until Final Acceptance of the Work.

(c) No provision is included for stresses or loads imposed by construction operations. If Contractor desires to place such loads in excess of the design load (as shown on the Drawings or Specifications), Contractor shall submit to Architect drawings and calculations prepared by, and bearing the seal of a professional engineer, showing the proposed method for supporting

such loads, for Architect's review and approval. No loading of any kind in excess of design loads shall be placed on any part of the Project prior to Architect's approval of such submitted drawings and calculations. The costs of the Architect's review shall be reimbursed to BPCA by Contractor.

(d) Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work, to make its several parts fit together properly and to make the Work fit together properly with previous and surrounding work. The requirement to cut, fit or patch shall be determined by Construction Manager; provided, that structural elements of the Project shall not be cut, patched, or otherwise altered or repaired without prior authorization by BPCA. Authorization to proceed with remedial operation on any damaged or defective element or portion of the Project shall not constitute a limitation or a waiver of BPCA's, Construction Manager's or Architect's right to require the removal and replacement of any Work which fails to fulfill the requirements of the Contract Documents.

17.4 Adjoining Property

Contractor shall protect all adjoining property and shall repair or replace any such property damaged or destroyed during the progress of the Work.

17.5 Risks Assumed by Contractor

(a) Contractor solely assumes the following risk whether such risk arises from acts or omissions (whether negligent or not and whether supervisory or otherwise) of BPCA, Construction Manager, of Architect or Contractor, of any Subcontractor, of any Materialman, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the prosecution of the Work, whether such risk is within or beyond the control of Contractor and whether such risk involves any legal duty, primary or otherwise, imposed upon BPCA:

the risk of loss or damage, direct or indirect, of whatever nature, to the Work or to any Materials furnished, used, installed or received by BPCA, Contractor or any Subcontractor, Materialmen or workmen performing services or furnishing Materials for the Work, whether such Work or Materials are stored at the Site or at an offsite location in accordance with Section 5.4 hereof. Contractor shall bear such risk of loss or damage until Final Acceptance of the Work by BPCA or until completion of such Materials or removal of such Materials from the Site following a determination that they will no longer be needed for the Project and delivery to the location at which they are to be subsequently stored or disposed of, whichever event occurs last. A portion of the risk of such loss or damage may be insured against under the terms of a "builder's risk" insurance policy maintained in the name of Contractor, among others, as described in Section 13.1(i). Notwithstanding the status of any actual or potential recovery or claim under the said "builder's risk" insurance policy, in the event of any loss or damage, Contractor immediately shall repair, replace or make good any such loss or damage.

(b) Contractor shall not, without obtaining express advance permission of BPCA, raise any defense involving in any way jurisdiction of any court in which BPCA brings an action arising under this Agreement, governmental nature of BPCA or the provisions of any statutes respecting suits against BPCA.

(c) Contractor's obligations under this Article 17 shall not be deemed waived, limited or discharged by the enumeration or procurement of any insurance for liability for damages.

(d) Neither Final Acceptance of the Work nor any payment made hereunder shall release Contractor from Contractor's obligations under this Article 17. The enumeration elsewhere in this Agreement of particular risks assumed by Contractor or of particular claims for which Contractor is responsible shall not be deemed to limit the effect of the provisions of this Article 17 or to imply that Contractor assumes or is responsible for only risks or claims of the

type enumerated; and neither the enumeration in this Article 17 nor the enumeration elsewhere in this Agreement of particular risks assumed by Contractor of particular claims for which Contractor is responsible shall be deemed to limit the risks which Contractor would assume or the claims for which Contractor would be responsible in the absence of such enumerations.

(e) The Contractor is advised that the Work under this Agreement may impose certain obligations and requirements mandated by the U.S. Department of Labor Occupational Safety and Health Administration regulations, Title 29 CFR Part 1926.62 Lead Exposure in Construction, relative to the potential exposure to lead by its employees. The Contractor assumes entire responsibility and liability for complying fully in all respects with these regulations.

(f) Contractor agrees that any unsatisfied claims of the BPCA arising from Contractor's obligations under this Article 17 or Article 13 (Insurance) may be offset or deducted by BPCA from any payments due to Contractor hereunder.

ARTICLE 18 - USE PRIOR TO ACCEPTANCE BY BPCA

(a) If before Final Acceptance of Work, BPCA desires to use the Site or any part thereof which is completed or partly completed, or to place or install therein or thereon equipment, BPCA shall have the right to do so, and Contractor shall in no way interfere with or object to such use by BPCA.

(b) Such use (1) shall not constitute acceptance of space, systems, Materials or elements of the Work, nor shall such use affect the start of any guaranty period and (2) shall not affect the obligations of Contractor for work which is not in accordance with the requirements of this Agreement or other obligations of Contractor under the Contract Documents.

(c) Contractor shall continue the performance of the Work in a manner which shall not unreasonably interfere with such use by BPCA.

ARTICLE 19 - EXEMPTION FROM SALES AND COMPENSATING USE TAXES

19.1 BPCA Exempt

BPCA is exempt from payment of sales and compensating use taxes of the State of New York and of cities and counties thereof on all Materials which will become an integral component of the completed Project pursuant to this Agreement.

19.2 Certificates

Contractor, Subcontractors and Materialmen shall obtain any and all necessary certificates or other documentation from the appropriate governmental agency or agencies, and use such certificates or other documentation as required by law, rule or regulations to obtain said tax exemption.

ARTICLE 20 - WARRANTIES AND GUARANTIES

20.1 In General

(a) Contractor guarantees that all Work performed and all Materials furnished will conform to the Contract Documents as to kind, quality, functions, design and characteristics of material and workmanship. Contractor shall remove, replace and repair, at its sole cost and expense, all defects in workmanship, Materials, ratings, capacities, or design characteristics occurring in or to the Work including, without limitation, any portion of the Work furnished or performed by any Subcontractor or Materialman, within one year from the date of Final

Acceptance. Contractor guarantees that all Work performed and all Materials furnished will conform to the Contract Documents as to kind, quality, functions, design and characteristics of material and workmanship. Contractor hereby acknowledges that BPCA may be required to incur substantial expense if correction of the Work is required particularly if such correction involves the uncovering, removal or replacement of concrete, wiring and piping installed at the Site. If Contractor shall fail to reimburse BPCA for any such expense which may become payable as provided in this paragraph, BPCA shall be entitled to deduct such expense from any payments required to be made by BPCA to Contractor pursuant to this Agreement. Contractor, upon demand, shall pay for all damage to all other Work resulting from such defects and all expenses necessary to remove, replace and repair such other Work which may be damaged in removing, replacing or repairing such defects.

(b) The benefits of this Article 20 shall inure to the benefit of BPCA and its respective successors and assigns. In addition, any bond or guaranty which may be required of Contractor or any Subcontractor or Materialman under the Contract Documents shall inure to the benefit of BPCA and its respective successors and assigns.

(c) The rights and remedies afforded BPCA under this Section are in addition to and not in lieu of and do not in any way affect, change, alter, modify, vary or prejudice any right, remedy or recourse which BPCA may have under other provisions of this Agreement or pursuant to law.

20.2 Additional Guaranties

In addition to the general guaranty set forth in Section 20.1, any other guaranties set forth in the Contract Documents shall be applicable.

20.3 Repair by Another

If BPCA has requested Contractor to correct any Work and Contractor shall not have completed any correction of the Work as shall be required pursuant to this Article 20 within ten (10) working days after receipt of written notice from BPCA specifying the defect or damage required to be removed, replaced or repaired, or if such defect or damage is of such a nature that it cannot be completely removed, repaired and replaced within such ten (10) day period and Contractor shall not have diligently commenced removing, repairing and replacing such defect and damage within such ten (10) day period or shall not thereafter with reasonable diligence and in good faith proceed to do such work, BPCA may employ such other person, firm or corporation as it may choose, to perform such removal, replacement and repair, and Contractor shall, upon demand, pay to BPCA all amounts which BPCA expends for such removal, replacement and repair.

ARTICLE 21 - INDEMNITY

21.1 Delay or Failure

Contractor and its sureties shall be responsible for and pay to BPCA, all loss, damage and additional cost incurred by reasons or on account of (i) the unexcused delays of Contractor (determined as set forth in Section 3.1 hereof) or (ii) Contractor's failure to fully and completely carry out the terms of this Agreement.

21.2 Inventions

In addition to the indemnity set forth in Section 17.5(a), Contractor shall indemnify and hold BPCA harmless from all claims, demands or liabilities of any kind or nature, including costs and expenses, for or on account of any patented or unpatented plan, design, invention, article, arrangement, appliance, Material, or preparation, manufactured, used or followed in the performance of or incident to the Work hereunder, and shall defend any and all actions arising out of the same. In the event of any injunction or legal action by reason thereof, which shall operate to stop or retard the Work, BPCA shall have the right to substitute such other articles of like kind as will enable it to complete the Project, and all costs and expenses occasioned thereby shall be borne by Contractor.

21.3 Liability

Contractor shall hold BPCA, the Conservancy, the State of New York, Construction Manager and Architect and their servants, agents and employees harmless from and shall indemnify them against any and all liability, loss, cost, damage or expense, including attorneys' fees, by reason of claims of Contractors employees or employees of its Subcontractors or Materialmen for injuries or death or by reason of claims of any other person or persons, including BPCA, the Conservancy, the State of New York, Construction Manager, and Architect and their servants, agents or employees, for injuries to person or property or for death occasioned in whole or in part by any act or omission of Contractor, its Subcontractors and Materialmen and their servants, agents and employees whether or not it is contended that BPCA contributed thereto or was responsible therefor by reason of nondelegable duty. If, however, this indemnification is limited by applicable law, then the said indemnification hereby shall be similarly limited to conform with such law, it being the intention that this indemnification shall be as permitted by applicable law. BPCA may retain any monies due or to become due hereunder sufficient to indemnify BPCA, the Conservancy, the State of New York, Construction Manager, and Architect and their servants, agents and employees against such injuries, claims, suits, actions, costs or damages should any such claim arise. Contractor shall, at the sole option of BPCA and upon written demand of BPCA, assume the defense in behalf of BPCA, the Conservancy, the State of New York, Construction Manager, and Architect or their servants, agents or employees of any action or proceeding commenced against them whether or not Contractor is named as a party therein as part of Contractor's aforementioned obligation to indemnify and hold them harmless.

ARTICLE 22 - PATENTS AND ROYALTIES

(a) In the prosecution of the Work, Contractor will not use or furnish any patented appliance, article, device or method of construction unless it has authorization for such use. Contractor shall pay all royalty and license fees.

(b) Any approval of Materials by Architect shall be construed merely as an approval of their adequacy for the Work.

(c) Contractor will be responsible for all claims against BPCA for the infringement of any patents. Contractor shall defend all suits and claims for infringement of any patent rights and shall indemnify and hold BPCA harmless from loss on account thereof. Any expenses incurred by Contractor in connection with suits and claims will not offset the Contract Price.

(d) Contractor hereby and presently grants to BPCA an irrevocable and non-exclusive license to utilize all of the Contractor's rights in and to:

- (1) all United States patents and patents registered in any other foreign country;
- (2) all proprietary knowledge, data and trade secrets; and
- (3) all Engineering data and information necessary in connection with and solely in connection with, all work performed by BPCA or other contractors hired by BPCA to complete the work after termination of this Agreement pursuant to Section 15.1.

Each Purchase Order and Subcontract shall contain a similar clause with respect to the rights of Subcontractor and Materialman in and to the foregoing, in form and substance acceptable to BPCA, granting BPCA the aforesaid license. BPCA shall not be obligated to pay any royalties, license fees or any other consideration to Contractor or any Subcontractor or Materialman for this license. Contractor and each Subcontractor and Materialman shall execute a separate license agreement, in form and substance satisfactory to BPCA, concurrently with the execution of this Agreement, or any Subcontract or Purchase Order, or within ten (10) days thereafter, embodying the terms of this Section. On request, Contractor and each Subcontractor and Materialman shall furnish BPCA with copies of all related Engineering and technical data required to complete the work.

ARTICLE 23 - AS-BUILT DRAWINGS

(a) Contractor shall be furnished by BPCA, at BPCA's expense, with one physical set and two electronic copies (on disk) of 48" x 36" Drawings, on which Contractor, where applicable, shall record the installation of underground utilities, concealed piping, concealed valves and control equipment and record changes in the Work. Such recording shall be kept current and include final and actual sizes as well as the location and elevation of the above figures and offset distances in feet and inches to permanent surface improvements such as buildings, retaining walls or curbs. During the progress of the Work, at the request of Construction Manager and prior to the approval of any Requisition of Contractor, Contractor shall provide a 48" x 36" PDF to BPCA of the up to-date Drawings showing the Work as installed. At completion of the Work, Contractor shall complete, sign and date the 48" x 36" physical set of Drawings and deliver it to Architect.

(b) After review by Architect and return to Contractor for any required changes, Contractor shall furnish to BPCA, at Contractor's expense, at least one physical set and two electronic copies (on disk) of 48" x 36" final Drawings.

ARTICLE 24 - SHOP DRAWINGS AND SAMPLES

24.1 Contractor Submittal

Contractor shall submit to Construction Manager the shop drawings, Product Data and Samples required by the Contract Documents and shall adhere to all submittal and scheduling requirements with respect thereto. After review of such shop drawings, Product Data and Samples by Construction Manager and their approval by Architect, each of such items shall be returned in accordance with the procedures established therefor.

24.2 Contractor's Responsibility

Architect's approval of shop drawings, Product Data and Samples shall not relieve Contractor of responsibility for and deviation from the requirements of the Contract Documents. Contractor shall be responsible for the accuracy of the shop drawings, Product Data and Samples and for the conformity of Documents unless Contractor has notified Architect of the deviation in writing at the time of submission and has received from Architect written approval by separate letter of the specified deviations. Architect's approval shall not relieve Contractor of responsibility for errors or omissions in the shop drawings, Product Data or Samples.

ARTICLE 25 – NOTICES

Whenever it is provided herein that notice, demand, request, consent, approval or other communication shall or may be given to, or served upon, either of the parties by the other, or whenever either of the parties desires to give or serve upon the other any notice, demand, request, consent, approval or other communication with respect hereto, each such notice, demand, request, consent, approval or other communication shall be in writing and shall be effective for any purpose only if given or served by hand with proof of delivery, by delivery by an overnight courier service which obtains receipts, or by mailing the same by express or certified mail, postage prepaid, return receipt requested, addressed to:

(a) If to BPCA:

[Name & Title of BPCA Person], Battery Park City Authority, One World
Financial Center, 24th floor, New York, NY 10281

with a copy to: General Counsel, at the same address

or to such other address as BPCA may from time to time designate in the manner set forth above.

(b) If to Contractor:

[Name, Company and Address]

or to such other addresses as Contractor may from time to time designate in the manner set forth above.

(c) if to Construction Manager

[Name, Company and Address]

or to such other addresses as the Construction Manager may from time to time designate in the manner set forth above.

(d) if to Architect/Engineer/etc.

[Name, Company and Address]

or to such other addresses as Architect or Engineer may from time to time designate in the manner set forth above.

(e) Every notice, demand, request, consent, approval or other communication hereunder shall be deemed to have been given or served (i) in the case of express or certified mail, on the date the receipt is dated by the Post Office or express mail carrier, as the case may be, and (ii) in the case of notice by hand or by overnight courier service, upon delivery, as evidenced by a signed receipt.

ARTICLE 26 - EMPLOYMENT AND DIVERSITY

26.1 Definitions

The following terms shall have the meanings set forth below for the purposes of this Article 26:

(a) “Certified Business.” A business verified as a minority or women-owned business enterprise by the Division or such other New York State agency authorized to make such certification.

(b) “Diversity Program.” The program by which Owner shall monitor Contractor’s compliance with the requirements set forth in (i) the MBE/WBE Required Participation Plan and (ii) the Utilization Plan.

(c) “Division.” The Division of Minority and Women’s Business Development of the New York State Department of Economic Development.

(d) “Director.” The Director or the Executive Director of the Division.

(e) “Directory.” The directory of certified businesses prepared by the Director for use by Owner and contractor in complying with the provisions of the Executive Law of the State of New York, Article 15-A.

(f) “MBE/WBE Required Participation Plan.” The plan previously submitted by Contractor to Owner listing the certified MBEs and/or WBEs which the Contractor intends to use in the performance of this agreement in order to ensure that MBEs and WBEs are awarded a fair share of the total dollar value that is to be paid for the Work.

(g) “Minority” or “Minority Group Member.” A United States citizen or permanent resident alien who is and can demonstrate membership in one of the following groups:

- (1) Black persons having origins in any of the Black African racial groups;
- (2) Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American descent of either Indian or Hispanic origin, regardless of race;
- (3) Native American or Alaskan native persons having origins in any of the original peoples of North America; or
- (4) Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian subcontinent or the Pacific Islands.

(h) “Minority-owned Business Enterprise” (“MBE”). A business enterprise, including a sole proprietorship, partnership or corporation that is:

- (1) at least 51 percent owned by one or more Minority Group Members;
- (2) an enterprise in which such Minority ownership is real, substantial and continuing;
- (3) an enterprise in which such Minority ownership has and exercises the authority to control and operate, independently, the day-to-day business decisions of the enterprise; and
- (4) an enterprise authorized to do business in the State of New of New York and is independently owned and operated.

(i) “Subcontract.” An agreement providing for a total expenditure in excess of \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon between a contractor or consultant and any individual or business enterprise, including a sole proprietorship, partnership, corporation, or not-for-profit corporation, in which a portion of a contractor’s obligation is undertaken or assumed, but shall not include any construction, demolition, replacement, major repair, renovation, planning or design or real property or improvements thereon for the beneficial use of the contractor.

(j) “Utilization Plan.” A plan previously submitted by Contractor to Owner which sets forth the proposed percentages of employees who are either Minority Group Members or women and who will be used by Contractor to perform the Work.

(k) “Women-owned Business Enterprise” (“WBE”). A business enterprise, including a sole proprietorship, partnership or corporation that is:

- (1) at least 51 percent owned by one or more United States citizens or permanent resident aliens who are women;
- (2) an enterprise in which the ownership interest of such women is real, substantial and continuing;
- (3) an enterprise in which such women ownership has and exercises the authority to control and operate, independently, the day-to-day business decisions of the enterprise; and
- (4) an enterprise authorized to do business in the State of New York and which is independently owned and operated.

26.2 Equal Employment Opportunities for Minority Group Members and Women

(a) During the performance of the Work, Contractor agrees as follows:

- (1) Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age,

disability or marital status; shall undertake or continue existing 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; and shall make and document its good faith effort to achieve prompt and full utilization of Minority Group Members and women at all levels and in all segments of its work force where deficiencies exist.

- (2) At the request of Owner, 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 Contractor's obligations herein.
- (3) Contractor shall state in all solicitations or advertisements for employees that in the performance of the Work, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.
- (4) Contractor and any Subcontractor shall be required to submit compliance reports in accordance with this Section 26 relating to their operations and the implementation of the Diversity Program in effect as of the date of execution of this Agreement.
- (5) Contractor shall submit an EEO policy statement to Owner within seventy-two hours of notice from Owner of the awarding of this contract to Contractor. If Contractor does not have an existing EEO policy statement, Owner may provide to Contractor a model statement.

(b) Contractor shall include the provisions of Section 26.2(a) in every Subcontract in such a manner that the provisions will be binding upon each Subcontractor as to the Work in connection with this contract's execution.

(c) Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. Contractor and subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest

(d) Miscellaneous

- (1) The provisions of this Section shall not be binding upon Contractor or its Subcontractors in the performance of Work or the providing of services, or any other activities that are unrelated, separate or distinct from this Agreement as expressed by its terms.
- (2) The requirements of this Section shall not apply to any employment outside New York State, or application for employment outside such state, or solicitations, or advertisements therefore, or any existing programs of diversity regarding employment outside New York State and the effect of contract provisions required by this section shall be so limited.

(e) Enforcement

The parties agree to be bound by provisions of Article 15-A of the Executive Law of the State of New York and by the regulations adopted thereunder.

26.3 Workforce Participation

(a) Contractor is required to make and document good faith efforts to achieve the participation of _____ % Minority Group Members and _____ % women in the workforce for each trade or services utilized by Contractor in the Work as set forth in the Utilization Plan.

(b) To ensure compliance with this Section, Contractor shall submit a staffing plan to document the composition of the proposed workforce to be utilized in the performance of this contract by the specified categories listed, including ethnic background, gender, and Federal occupational categories. Contractors shall complete the staffing plan form and submit it as part of their bid or proposal or within a reasonable time, but no later than the time of award of the contract.

(c) The participation for Minority Group Members and women employees must be substantially uniform throughout the work.

(d) Contractor shall not participate in the transfer of Minority Group Member employees or women employees from employer to employer or from project to project for the sole purpose of satisfying the participation goals above set forth.

(e) In achieving such participation, Contractor is required to make good faith efforts to find and employ qualified Minority Group Members and women supervisory personnel and journeymen.

(f) Contractor shall meet with Owner, and such other persons as Owner may invite, on a periodic basis as required by Owner to discuss issues relating to Minority Group Members and women workforce participation. At such meetings, Contractor shall report on the names of its Subcontractors then engaged in construction on the project to which the Work relates or which within 60 days are scheduled to be engaged in construction of such project, on the nature of the work and anticipated construction schedule of Contractor and Subcontractors, on the anticipated hiring needs of Contractors and Subcontractors, on the names of the responsible foremen directly employed by Contractor, and such information requested by Owner that will then promote the employment of Minority Group Members and women. Contractor shall use its best efforts to obtain the above information and shall, upon Owner's request, cause its Subcontractors to attend said meetings and provide the above information.

(g) Compliance reports with respect to the Utilization Plan ("Utilization Compliance Reports") which shall be submitted to Owner's Diversity officer on a monthly basis and shall be in accordance with the following:

- (1) Owner may require that Contractor submit Utilization Compliance Reports for the duration of this contract to Owner regarding Contractor's operation and implementation of the Utilization Plan portion of the Diversity Program in effect as of the date of execution of this Agreement.
- (2) The Utilization Compliance Reports shall include information on any Subcontractor involved in the performance of the contract with regard to the Subcontractor's compliance with the Diversity Program.
- (3) The Utilization Compliance Reports shall include, but are not limited to the following:
 - (i) a breakdown of the Subcontractors by ethnic background, gender or such other categories as may be required by Owner;
 - (ii) the actions the Contractor and Subcontractors have taken to meet the components of the Diversity Program;
 - (iii) how Contractor and Subcontractors intend to utilize participation of Minority Group Members and women in their workforce in connection with the performance of the Work and timetables therefor

during the remainder of their performance of the Work.

(h) Any failure by Consultant to submit a required Utilization Compliance Report, including information on any of its Subcontractor's compliance, may be deemed a breach of contract with respect to this agreement.

(i) Contractor shall include the provisions in Section 26.3 in every Subcontract, and such provisions shall be binding upon each Subcontractor.

26.4 Minority Business Enterprise (MBE) Participation and Women's Business Enterprise Participation

(a) Contractor shall make good faith efforts to attain the participation of _____ % MBE and _____ % WBE in the total dollar value of the Work.

(b) The total dollar value of the Work for purposes of determining compliance with the MBE/WBE Required Participation Plan shall be calculated as follows:

- (1) if an MBE and WBE is not the Contractor -- the dollar value of the Work subcontracted to MBEs and WBEs; provided, however, that where materials are purchased from an MBE and WBE which acts merely as a conduit for goods manufactured or produced by a non-MBE and non-WBE, only that portion of the price paid for such materials which will accrue as profit to the MBE or WBE and/or the Fee received by the MBE and WBE shall be included;
- (2) if Contractor is a joint venture including one or more MBEs and WBEs as joint venturers -- the Fee multiplied by the percentage of the joint venture's profits (or losses) which are to accrue to the MBE and WBE joint venturer(s) under the joint venture agreement; and
- (3) if an MBE and WBE is Contractor or where Contractor is a joint venture consisting entirely of MBEs and WBEs -- the Fee.

(c) Compliance reports with respect to the MBE/WBE Required Participation Plan ("MBE/WBE Compliance Reports") shall be required as follows:

- (1) MBE/WBE Compliance Reports shall be submitted to Owner on a monthly basis and shall include information with respect to:
 - (i) dividing the Work to be subcontracted into smaller portions, where economically and technically feasible;
 - (ii) actively and affirmatively making a good faith effort to solicit bids for subcontracts from qualified MBEs and WBEs identified in the directory of certified businesses available at the office of the Owner's Diversity Officer, including the circulation of solicitations to Minority contractor associations. Contractor shall maintain records detailing the efforts made to provide for meaningful MBE and WBE participation in the Work, including the names and addresses of all MBEs and WBEs contacted and, if any such MBE or WBE is not selected as a joint venture or subcontractor, the reasons for such decision;
 - (iii) making plans and specifications for prospective work available to MBEs and WBEs in sufficient time for review;
 - (iv) utilizing the services and cooperating with those organizations providing technical assistance to Owner in connection with the participation of MBEs and WBEs in the project to which the Work relates;
 - (v) encouraging the formation of joint ventures, partnerships or

other similar arrangements among subcontractors where appropriate;

(vi) ensuring that provision is made to provide progress payments to MBEs and WBEs on a timely basis; and

(vii) not requiring bonds from and/or providing bonds and insurance for MBEs and WBEs where appropriate, and/or assisting in obtaining bonds and insurance for MBEs and WBEs where feasible.

(2) MBE/WBE Compliance Reports which shall be submitted to the Diversity Department on a monthly basis.

(3) MBE/WBE Compliance Reports shall also include, but not be limited to, the following information:

(i) the name, address and telephone number of each certified MBE and WBE which Contractor is using or intends to use to comply with the MBE/WBE Required Participation Plan.

(ii) a brief description of the contract scope of work to be performed for the Contractor by each certified MBE and WBE and the scheduled dates for performance;

(iii) a statement of whether the Contractor has a written agreement with each certified MBE and WBE which Contractor is using or intends to use, and if requested, copies of such agreements;

(iv) the actual total cost of the contract scope of work to be performed by each certified MBE and WBE for this Agreement; and

(v) The actual amounts of any payments made by Contractor to each certified MBE and WBE as of the date the MBE/WBE Compliance Report was submitted.

(d) Contractor shall provide Owner with Monthly MBE/WBE and Workforce Utilization Reports, by the last calendar day of each month, **in the form of Exhibit [x]** hereto. Failure to provide such reports shall be an event of default of Contractor's obligations pursuant to Article 15.1 (a) (1) hereof.

(e) Contractor shall provide proof of payment to all subcontractors and materialmen in the form of a waiver of lien or cancelled check, with each request for payment. Failure to provide such proof of payment shall be an event of default of Contractor's obligations pursuant to Article 15.1 (a) (1) hereof.

26.5 Failure to Comply

(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 M/WBE participation goals set forth herein or any other requirements set forth in this Article 26, such finding constitutes a breach of contract and Owner may withhold payment from the Contractor as liquidated damages.

(b) Such liquidated damages shall be calculated based on the actual cost incurred by Owner related to Owner's expenses for personnel, supplies and overhead related to establishing, monitoring, and reviewing certified MBE/WBE programmatic goals and Diversity and Equal Opportunity compliance.

ARTICLE 27 - STANDARD PROVISIONS

27.1 Provision Required by Law Deemed Inserted

Each and every provision of law and governmental regulation required by law to

be inserted in the Contract Documents shall be deemed to be inserted therein and this Agreement shall read and shall be enforced as though so included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, this Agreement shall be deemed to be amended to make such insertion or correction. If this Agreement contains any unlawful provision, the same shall be deemed of no effect and shall, upon the application of either party, be deemed stricken from this Agreement without affecting the binding force of the remainder.

27.2 Compliance with Laws, Rules and Regulations

Contractor and each Subcontractor and Materialman shall comply fully with all applicable laws, rules and regulations pertaining to the Project and the Work.

27.3 Applicable Law, Forum and Jurisdiction

This Agreement shall be governed by the laws of the State of New York. All actions or proceedings relating, directly or indirectly, to this Agreement shall be litigated only in courts located within the County of New York. Contractor, any guarantor of the performance of its obligations hereunder (including sureties for Payment and Performance Bonds) (“Guarantor”) and their successors and assigns hereby subject themselves to the jurisdiction of any state or federal court located within such county, waive the personal service of any process upon them in any action or proceeding therein and consent that such process be served by certified or registered mail, return receipt requested, directed to the Contractor and any successor at Contractor’s address hereinabove set forth, to Guarantor and any successor at the address set forth in the instrument of guaranty and to any assignee at the address set forth in the instrument of assignment. Such service shall be deemed made as of the date of the return receipt.

27.4 No Third Party Rights

Nothing in this Agreement shall create or shall give to third parties any claim or right of action against BPCA, Construction Manager, or Architect beyond such as may legally exist irrespective of this Agreement.

27.5 Exculpation; Limitation of Liability

In no event shall any claim be asserted under this Agreement by Contractor or any Subcontractor or Materialman against any member, officer, employee, lessee, consultant or agent of BPCA, Construction Manager, or Architect. By execution of this Agreement, Contractor agrees to look solely to BPCA with respect to any claim which may arise. It is hereby understood by and between the parties hereto that BPCA shall only be liable to the extent of monies available to BPCA.

27.6 Protection of Lives and Health

(a) Contractor’s, Subcontractor’s and Materialman’s attention is specifically called to the rules and regulations, codes and bulletins of the New York State Department of Labor. Attention is also directed to the standards imposed under the Federal Occupational Safety and Health Act of 1970, as amended.

(b) Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under this Agreement, and shall immediately notify BPCA in writing of any injury which results in hospitalization or death.

(c) Contractor alone shall be responsible for the safety, efficiency and adequacy of contractor’s work, plant, appliances and methods, and for any damage which may result from the failure, or the improper construction, maintenance, or operation of such work, plant, appliances and methods.

27.7 Waiver of Immunity Clause

Contractor hereby agrees to the provisions of New York Public Authorities Law Section 2875 which require that upon the refusal of a person, when called before a grand jury, head of a State department, temporary State commission, or other State agency, the Organized Crime Task Force in the State Department of Law, head of a department or other City agency, which is empowered to compel the attendance of witnesses and examine them under oath, to testify in an investigation concerning any transaction or contract had with the State, any political subdivision thereof, or with any public department, agency or official of the State, a public authority or with any public department, agency or official of the State or of any political subdivision thereof or of a public authority, that person must sign a waiver of immunity against subsequent criminal prosecution or to answer any relevant questions concerning such transaction or contract:

(a) such person, and any firm, partnership or corporation of which such person is a member, partner, director or officer shall be disqualified from thereafter selling to or submitting bids to or receiving awards from or entering into any contracts with any public authority or official thereof, for goods, work or services, for a period of five (5) years after such refusal; and

(b) any and all contracts made with any public authority or official thereof, by such person, and by any firm, partnership or corporation of which such person is a member, partner, director or officer may be canceled or terminated by the public authority without incurring any penalty or damages on account of such cancellation or termination, but any monies owing by the public authority for goods delivered or work done prior to the cancellation or termination shall be paid.

27.8 Prohibited Interests

No official of BPCA who is authorized in such capacity and on behalf of BPCA to negotiate, make, accept, or approve, or take part in negotiating, making, accepting, or approving any Architectural, Engineering, inspection, Purchase Order or any Subcontract in connection with the work, shall become directly or indirectly interested personally in the Agreement. Contractor is advised that no official or employee of BPCA is permitted to indirectly solicit, accept, or receive gifts whether in the form of money, service, loan, travel, entertainment, hospitality, thing or promise, or in any other form. No officer, employee, architect, attorney, engineer, inspector or consultant of or for BPCA who is authorized in such capacity and on behalf of BPCA to exercise any legislative, executive, supervisory or other similar functions in connection with the Work, shall become directly or indirectly interested personally in the Agreement, any Purchase Order, Subcontract, insurance contract, or any other contract pertaining to the Work.

27.9 Labor Provisions

(a) It is hereby agreed that all applicable provision of the Labor Law of the State of New York shall be carried out in the performance of the Work.

(b) Contractor specifically agrees, as required by New York Labor Law Sections 220 and 220-d as amended, that:

- (1) no laborer, workman or mechanic, in the employ of Contractor, Subcontractor, Materialman or other person doing or contracting to do the whole or any part of the Work contemplated by the Contract Documents shall be permitted or required to work more than eight (8) hours in any one calendar day or more than five (5) days in any one week, except in the emergencies set forth in the Labor Law.
- (2) the wages paid for a legal day's work shall be not less than the prevailing rate of wages as defined by law;
- (3) the minimum hourly rate of wage to be paid shall be not less than that stated in the Contract Documents and as shall be designated by the Industrial Commissioner of the State of New York; and

- (4) Contractor shall post at appropriate conspicuous points at the Site, a schedule showing all determined minimum wage rates for the various classes of laborers and mechanics to be engaged in the Work and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

(c) The minimum wage rates, if any, herein specified for apprentices shall apply only to persons working with the tools of the trade which such persons are learning under the direct supervision of journeymen mechanics. Except as otherwise required by law, the number of apprentices in each trade or occupation employed by Contractor or any Subcontractor or Materialman shall not exceed the number permitted by the applicable standards of the New York State Department of Labor, or, in the absence of such standards, the number permitted under the usual practice prevailing between the unions and the employers' association of the respective trades or occupations.

(d) All employees of Contractor and each Subcontractor and Materialman shall be paid in accordance with the provisions of the Labor Law.

(e) Contractor agrees that, in case of underpayment of wages to any worker engaged in the Work by Contractor or any Subcontractor or Materialman, BPCA shall withhold from Contractor out of payments due an amount sufficient to pay such worker the difference between the wages actually paid such worker for the total number of hours worked, and that BPCA may disburse such amount so withheld by BPCA for and on account of Contractor to the employee to whom such amount is due. Contractor further agrees that the amount to be withheld pursuant to this paragraph may be in addition to the percentages to be retained by BPCA pursuant to other provisions of the Contract Documents.

(f) The Labor Law provides that this Agreement may be terminated for cause and no sum paid for any Work done thereunder upon a second conviction for willfully paying less than:

- (1) the stipulated wage scale as set forth in New York Labor Law Section 220, subdivision 3, as amended, or
- (2) less than the stipulated minimum hourly wage scale as specified in Labor Law, Section 220-d, as amended.

(g) Contractor specifically agrees, as required by the New York Labor Law Section 220-e, as amended, that:

- (1) in the hiring of employees for the performance of Work under this Agreement or any Subcontract or Purchase Order hereunder, or for the manufacture, sale or distribution of Materials, equipment or supplies hereunder, but limited to operations performed within the territorial limits of the State of New York, no Contractor, Subcontractor, Materialman or any person acting on behalf of such Contractor or Subcontractor, or Materialman, shall by reason of race, creed, color, 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;
- (2) no Contractor, Subcontractor, Materialman, or any person on behalf of such Contractor, Subcontractor or Materialman shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this Agreement on account of race, creed, color, sex or national origin;
- (3) there may be deducted from the amount payable to Contractor, by BPCA under this Agreement, a penalty of \$50.00 for each person for each calendar day during which such person was discriminated against or intimidated in violation of the terms of this Agreement; and
- (4) this Agreement may be canceled or terminated for cause by BPCA and all

monies due or to become due hereunder may be forfeited for a second or any subsequent violation of the terms or conditions of this Section of this Agreement.

(h) Where applicable, Contractor agrees to settle labor disputes in accordance with the provisions of The New York Plan For The Settlement of Jurisdictional Disputes Between The Building And Construction Trades Council Of Greater New York And The Building Trades Employers' Association Of The City of New York.

27.10 Disputes Resolution Procedure

(a) The provisions of this Article shall constitute Contractor's sole means for challenging any determination, order or other act or omission of BPCA or otherwise asserting against BPCA any claim of whatever nature arising under, or in any way relating to, this Agreement (any such challenge or assertion by Contractor being herein referred to as a "Dispute(s)"). Exhaustion of these dispute resolution procedures, including the judicial review set forth below, shall be the parties' sole remedy in connection with any Dispute.

(b) The parties to this Agreement hereby authorize and agree to the resolution of all Disputes arising out of, under or in connection with, this Agreement in accordance with the following and pursuant to the procedures set forth in paragraph (c) of this Section 27.10. With respect to any Dispute which relates in whole or primary part to technical issue(s) under this Agreement including, without limitation, determinations as to the acceptability or fitness of any Work, the meaning or interpretation of the Contract Documents, the question of whether any Work falls within the scope of the Specifications set forth in the Contract Documents, the acceptability of any proposed substitutions, modifications or other submissions under this Agreement, the disapproval of proposed Subcontractors or Materialmen (to the extent such disapproval is related to technical issues), the extension of time to the extent related to a technical matter, the question of whether substantial completion or final completion has been achieved, the parties hereby authorize the General Counsel of BPCA, or his/her designee, (hereinafter referred to as the "Arbiter"), acting personally, to render a final and binding decision.

(c) All Disputes shall be initiated through a written submission by either party (such submission to be hereinafter referred to as the "Dispute Notice") to the Arbiter within ten (10) days of the determination, order or other act or omission which is the subject of the Dispute. Within ten (10) days after the submission of such Dispute Notice, the party initiating the Dispute shall provide the Arbiter with all evidence and other pertinent information in support of the party's position and/or claim. Within thirty (30) days from the date of the Dispute Notice, the party against whom the Dispute Notice was filed shall submit any and all materials which it deems pertinent to the Arbiter. Upon submission of a Dispute Notice to the Arbiter, the Arbiter shall render its decision in writing and deliver a copy of same to the parties within a reasonable time not to exceed sixty (60) days after the receipt of all materials. In rendering such decision, the Arbiter may seek such technical or other expertise as it shall deem necessary or appropriate (notifying both parties to the Dispute when he/she so seeks such other information or expertise) and seek any such additional oral and/or written argument or materials from either or both parties to the Dispute as he/she deems fit. The Arbiter shall have the discretion to extend the time for submittals required hereunder. The Arbiter's ability to render and the effect of a decision hereunder shall not be impaired or waived by any negotiations or settlement offers in connection with the matter presented, whether or not the Arbiter participated therein, or by any prior decision of others, or by any termination or cancellation of this Agreement. The decision of the Arbiter shall be final and binding on both parties to this Agreement.

(d) It is expressly understood and agreed that the pendency of a Dispute hereunder shall at no time and in no respect constitute a basis for any modification, limitation or suspension of Contractor's obligation to fully perform in accordance with this Agreement and that Contractor shall remain fully obligated to perform the Work notwithstanding the existence of any such Dispute.

27.11 Additional Provisions Relating to the Prosecution of Claims for Money Damages

(a) Except as otherwise provided in this Agreement, if Contractor claims or intends to claim compensation or money damages for any damage or loss sustained by reason of any determination, order or other act or omission of BPCA, Contractor shall furnish a written notice to the Arbiter setting forth the nature of the claim and the extent of the damage sustained within ten (10) days of the occurrence of such loss or damages. This written notice shall constitute Contractor's submission to the Arbiter for the purposes of requesting the Arbiter's determination in accordance with Section 27.10 above. Any such claim shall state as fully as then possible all information relating thereto and shall be supported by any then available documentation, including daily records showing all costs incurred. Such information shall be supplemented with any and all further information, including information relating to the quantum of losses or damages sustained, as soon as practicable after the information becomes or reasonably should become known to the Contractor.

(b) Any claim for compensation or monetary damages, the successful prosecution of which necessarily depends upon a technical determination favorable to Contractor, may not proceed unless and until Contractor first obtains such a favorable determination with respect to the technical issue and must be made within ten (10) days of such determination; moreover, Contractor must submit to the Arbiter any documentation or proof in support of the monetary claim within fifteen (15) days of such determination in order to proceed with such a claim. This written notice shall constitute Contractor's submission to the Arbiter for the purposes of requesting the Arbiter's determination in accordance with Section 27.10 above.

(c) Compliance with the provisions hereof shall constitute a condition precedent to the Contractor's submission of a Dispute pursuant to Section 27.10 with respect to any claim for compensation or monetary damages and the Contractor shall be deemed to have waived any claim not submitted in accordance herewith.

(d) Any final determination of the Arbiter with respect to a Dispute initiated pursuant to this Article 27 shall be subject to review solely in the form of a challenge following the decision by the Arbiter in a Court of competent jurisdiction of the State of New York, County of New York, under Article 78 of the New York Civil Practice Law and Rules or a United States Court located in New York City under the procedures and laws applicable in that court, it being understood the review of such Court shall be limited to the question of whether or not the Arbiter's determination is arbitrary, capricious or lacks a rational basis. No evidence or information shall be introduced or relied upon in such proceeding which has not been duly presented to the Arbiter in accordance with this Article 27.

27.12 Limitation on Actions

(a) Subject to the provisions of Section 27.11, no action or proceeding shall lie or shall be maintained by Contractor against BPCA, Construction Manager, or Architect unless (i) such action or proceeding shall be commenced within six (6) months of the date of the issuance of the Certificate of Substantial Completion to Contractor; or (ii) in the case of an action or proceeding for monies due pursuant to Section 5.7 hereof, or arising exclusively from or pertaining exclusively to work performed after the date of issuance of the Certificate of Substantial Completion, unless such action or proceeding is commenced no later than six (6) months after the issuance of the certificate of final completion to Contractor; or (iii) if this Agreement is terminated by BPCA prior to the issuance of the Certificate of Substantial Completion, unless such action or proceeding is commenced within six (6) months after the date of such termination.

(b) Nothing in this Section 27.12 shall be construed to modify or lengthen a shorter limitations period provided by applicable law.

(c) No action or proceeding shall be commenced by Contractor against BPCA, Construction Manager, or Architect except in the Supreme Court of the State of New York, County of New York.

(d) Nothing in this Section 27.12 shall be construed to suggest that Contractor, under any circumstances, may bring an action or proceeding against Construction Manager, or Architect.

27.13 Waiver of Remedies

Contractor acknowledges that it can be compensated adequately by money damages for any breach of this Agreement which may be committed by BPCA, Construction Manager, or Architect. Contractor agrees that no default, act or omission of BPCA, Construction Manager, or Architect shall constitute a material breach of contract entitling Contractor to cancel or rescind this Agreement or to suspend or abandon performance thereof, other than the failure of BPCA to make a payment of the Contract Price in accordance with the terms hereof solely because sufficient funds to pay the Contract Price have not been appropriated or will otherwise not be made available to BPCA. Contractor hereby waives any and all rights and remedies to which Contractor might otherwise be or become entitled to because of any wrongful act or omission of BPCA, Construction Manager, or Architect except as provided in this Section 27.13 and Contractor's right to money damages.

27.14 Modification of Agreement

No change in or modification, termination or discharge of this Agreement in any form whatsoever shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith or its duly authorized representative, provided, however, that any change in or modification, termination or discharge of this Agreement expressly provided for in this Agreement shall be effective as so provided.

27.15 Signs and Parking

Contractor agrees that it shall not display on or about the Site any sign, trademark or other advertisement without the approval of BPCA and Construction Manager. Contractor shall not and shall not permit any of its Subcontractors or Materialmen to park any vehicles on the Site.

27.16 Entire Agreement

The Contract Documents constitute the entire Agreement between the parties and incorporate all prior understandings in connection with the subject matter hereof.

27.17 Rights and Remedies

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by BPCA, Construction Manager, or Architect or Contractor including, but not limited to, the making of any payment or permitting Contractor to continue with the performance of the Work shall constitute a waiver of any right or duty afforded any of them under this Agreement, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

27.18 Participation in International Boycott Prohibited

Contractor agrees, as a material condition of this Agreement, that neither Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated or is participating or shall participate in an international boycott in violation of the provisions of the United States Export Administration Act of 1969, as amended, or the United States Export Administration Act of 1979, as amended, or the Regulations of the United States Department of Commerce promulgated thereunder. This Agreement shall be rendered forfeit and void by the Comptroller of the State of New York if, subsequent to execution, such person, firm, partnership or corporation has been convicted of a violation of the provisions of either of such federal acts or such Regulations or has been found upon the final determination of the United States Commerce Department or any other appropriate agency of the United States to have violated the provisions of either of such federal acts or such Regulations.

27.19 Compliance with “Buy-American” Statutes

Contractor and any substantially owned or affiliated person, firm, partnership or corporation agrees to comply with the New York Public Authorities Law, Section 2603-A as amended (affects steel or steel products).

27.20 Permitted Successors

References to parties and entities herein shall be deemed to include their permitted successors.

27.21 MacBride Fair Employment Principles

If the amount payable to Contractor under this agreement is greater than \$15,000, Contractor hereby certifies that it and/or any individual or legal entity in which it holds a 10% or greater ownership interest, and any individual or legal entity that holds a 10% or greater ownership in it, either have no business operations in Northern Ireland; or shall take lawful steps in good faith to conduct any business operations they have in Northern Ireland in accordance with the MacBride Fair Employment Principles relating to nondiscrimination in employment and freedom of workplace opportunity regarding such operations in Northern Ireland, as set forth in New York State Finance Law Article XI Section 165(5), and shall permit independent monitoring of their compliance with such Principles.

27.22 Iran Divestment Act

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

27.23 Termination for Failure to Disclose Under State Finance Law §139k

BPCA reserves the right to terminate this contract in the event it is found that the certification filed by Contractor pursuant to New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, BPCA may exercise its termination right by providing written notification to the Contractor in accordance with the written notification terms of this contract. If a contract is terminated in accordance with State Finance Law §139k(5), BPCA, its subsidiaries and affiliates, will include a statement in BPCA’s procurement record describing the basis for any action taken under the termination provision.

27.24 Labor Peace

The Contractor and its Subcontractors and Materialmen shall not employ on the Work any labor, materials or means whose employment, or utilization during the course of this Agreement, may tend to or in any way cause or result in strikes, Work stoppages, delays, suspension of Work or similar troubles by workers employed by the Contractor or its Subcontractors, Materialmen, or by any of the trades working in or about the buildings and premises where Work is being performed under this Agreement, or by other contractors or their subcontractors pursuant to other agreements, or on any other building or premises owned or operated by BPCA, its contractors or affiliates. Any violation by the Contractor of this requirement may be considered as proper and sufficient cause for declaring the Contractor to be in default, and for BPCA to take action against Contractor as set forth in Article 15 of this Agreement, or such other Section of this Agreement as BPCA may deem proper.

27.25 Comptroller’s Approval

If this Agreement is considered an “eligible contract,” as defined by New York Code, Rules and Regulations Title 2 Part 206.2, it is subject to the New York State Comptroller’s approval, and therefore shall not be valid and enforceable until that approval has been obtained. A contract is considered an “eligible contract,” as defined by Title 2 of NYCRR Part 206.2, if it is not a specifically exempt contract, is executed by a state authority on or after March 1, 2010

where the aggregate consideration under the contract may reasonably be valued in excess of one million dollars (including all reasonably anticipated renewals and amendments), AND the contract (A) was or shall be awarded on a single-source basis, sole-source basis or pursuant to any other method of procurement that is not a competitive procurement OR (B) shall be paid in whole or in part with monies appropriated by the State, either directly to a state authority or to a state agency which pays the money to a state authority.

27.26 Key Person/Personnel

The parties understand that in entering into this Agreement, BPCA has relied upon Contractor's representation that [name(s) and title(s)] (hereinafter the "Key Personnel") will be directly and consistently involved in supervising the Work and actively engaged in the day-to-day management of the Work, which shall include attending mandatory Project meetings. If the Key Personnel is/are not available as described herein, or if the Key Personnel depart from the firm or severs his/her/their relationship with the Contractor, or for whatever other reason is/are not available to work on the Project, then BPCA shall have the right to terminate this Agreement. The parties also agree that at any time during the course of the Work, BPCA may designate additional or substitute key personnel to perform the Work. Contractor agrees to make the additional or substituted key personnel available under the same conditions set forth herein.

27.27 Form of Agreement Not an Offer

Notwithstanding anything herein to the contrary, the submission of this form of Agreement by BPCA to Contractor shall not constitute an offer, and execution hereof by Contractor shall not be considered acceptance of an offer. A binding contract between the parties shall exist only if and at such time as both parties have executed this document.

27.28 General Responsibility

(a) The Contractor shall at all times during the Agreement term remain responsible. The Contractor agrees, if requested by BPCA or its designee, to present evidence of Contractor's continuing legal authority to do business in New York State, integrity, experience, ability, prior performance, and organizational and financial capacity.

(b) BPCA or its designee, in its sole discretion, reserves the right to suspend any or all activities under this Agreement, at any time, when BPCA discovers information that calls into question the responsibility of Contractor. In the event of such suspension, Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, Contractor must comply with the terms of the suspension order. Activity under the Agreement may resume at such time as BPCA or its designee issues a written notice authorizing a resumption of performance under the Agreement.

(c) Upon written notice to the Contractor, and a reasonable opportunity to be heard with appropriate BPCA officials or staff, the Agreement may be terminated by BPCA or its designee at Contractor's expense where Contractor is determined by BPCA or its designee to be nonresponsible. In such event, BPCA or its designee may complete the contractual requirements in any manner BPCA may deem advisable and pursue available legal or equitable remedies for breach.

SIGNATURE PAGE FOLLOWS

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, as of the date first above written.

BATTERY PARK CITY AUTHORITY, d/b/a
HUGH L. CAREY BATTERY PARK CITY AUTHORITY

By: _____

Name: _____

Title: _____

CONTRACTOR NAME

By: _____

Name: _____

Title: _____

FEIN # _____

EXHIBIT D

COST PROPOSAL

(Proposer to submit executed Cost Proposal on its letterhead)

Date:

Battery Park City Authority
200 Liberty Street, 24th Floor
New York, New York 10281

Attention: Mr. Michael LaMancusa
Contract Administrator

Dear Mr. LaMancusa:

The undersigned (the "Proposer") hereby proposes to perform the work set forth in the Exhibit A (Scope of Work) attached to the Request for Proposal for **2015 Irish Hunger Memorial Waterproofing Contractor** (the "RFP"). The Proposer agrees to commence the Work immediately upon execution of the Contract in accordance with the terms stipulated in the following pages, for the lump sum amount written below.

A. Base Proposal

A total lump sum amount of \$ _____ (_____ Dollars and _____ Cents) to perform all work as described in Exhibit A of the RFP.

B. Schedule of Values, Unit Prices and Labor Rates

1. The Proposer has submitted with its Cost Proposal an itemized cost for the Work, according to the Schedule of Values attached as Exhibit F.
2. Enclosed with its Cost Proposal, Proposer has submitted a completed Form of Unit Pricing according to the attached Unit Pricing Form attached as Exhibit G.
3. Enclosed with its Cost Proposal, Proposer has submitted a completed Form of Technical Salaries, showing labor rates for all trades, including all costs except overhead and profit. Prices shown include base hourly rates, overtime rates, insurance and benefits.

C. Add Alternates (SEE SPEC SECTION 012300 FOR FURTHER DESCRIPTION)

The following items are not included in the Base Proposal. The prices of any accepted Alternates will be added to the Contract amount.

1. Alternate #1: A proposed cost for provision of a full coverage heated weather enclosure to encapsulate the Memorial to allow work to proceed in cold weather conditions ("Alternate 1"), expressed as:

- (a) A lump-sum cost for installation and removal of Alternate 1; and
- (b) A lump-sum per-week cost to maintain and operate Alternate 1.

2. Alternate #2 Description: A proposed cost for installation of a heavy-duty sidewalk shed at the street elevation areas for Alternate 1 Work in compliance with Section 27-1021 of the Building Code of the City of New York, including

complete coverage of the bridge deck with motion detector(s) with activation sensor/monitor to be provided at a remote location to be confirmed (“Alternate 2”), expressed as:

- (a) A lump-sum cost for installation and removal of Alternate 2; and
- (b) A lump-sum per-week cost to maintain and operate Alternate 2.

In addition, Proposers may recommend means and methods of providing adequate cold weather protection for the Project other than those specified as Alternate #1 and Alternate #2 in the Scope of Work and the Drawings, so long as the Cost Proposal includes both a lump-sum cost for installation and removal of all cold weather protection elements and a lump-sum per-week cost to maintain and operate the cold weather protection elements.

Name of Proposer:

By: _____

Title: _____

EXHIBIT E

Form of Labor Rates

Project Manager - per hour	\$ _____	O/T \$ _____
Superintendent - per hour	\$ _____	O/T \$ _____
Roofer - per hour	\$ _____	O/T \$ _____
Mason - per hour	\$ _____	O/T \$ _____
Welder - per hour	\$ _____	O/T \$ _____
Carpenter - per hour	\$ _____	O/T \$ _____
Laborer - per hour	\$ _____	O/T \$ _____
Plumber - per hour	\$ _____	O/T \$ _____
Electrician - per hour	\$ _____	O/T \$ _____
Sheet Metal Mechanic -per hour	\$ _____	O/T \$ _____
Painter – per hour	\$ _____	O/T \$ _____

EXHIBIT F

Form of Schedule of Values

The undersigned, having inspected the project site and familiarized himself with all conditions likely to be encountered affecting the cost and schedule, hereby proposes to furnish all labor, materials, equipment, and services required to complete the work as required by these Bid Documents for a single lump sum.

In the interest of uniformity and fairness when evaluating and comparing bids, we urge you to use the following list when submitting your bid breakdown

BASE BID.....	\$
DIVISION 1 - GENERAL REQUIREMENTS.....	\$
DIVISION 3- CONCRETE WORK	\$
DIVISION 4 - MASONRY WORK.....	\$
Stonework.....	\$
Masonry Restoration & Cleaning	\$
DIVISION 5- METAL WORK	\$
DIVISION 7 - THERMAL & MOISTURE.....	\$
Resin Based Roofing System.....	\$
Flashing and Sheet Metal	\$
Joint Sealers.....	\$
DIVISION 9 - FINISHES.....	\$
DIVISION 22 – PLUMBING.....	\$
DIVISION 23 – HEATING & VENTILATION.....	\$
DIVISION 26 – ELECTRICAL SYSTEMS.....	\$
DIVISION 31 – EARTH WORKS.....	\$
Site Clearing.....	\$
Earth Moving	\$
DIVISION 31 – EXTERIOR IMPROVEMENTS.....	\$
Soil Preparation.....	\$
Concrete Paving	\$
Plants	\$
Allowance #1 Roof Slab/Deck patching.....	\$

Allowance #2 Shallow concrete patching.....	\$
Allowance #3 Poured concrete repair.....	\$
Allowance #4 Additional/Replacement Field Stone.....	\$
Allowance #5 Wood Fence Posts.....	\$

EXHIBIT G

Unit Pricing

UNIT PRICES (SEE SECTION 012300 IN SPECIFICATIONS FOR FURTHER DESCRIPTION)

1. Installation of CMU masonry per wythe (per sq. ft.).....	\$
2. Repointing of finished stone masonry (per sq. ft).....	\$
3. Installation of concrete patching less than 2" deep (per s.f.).....	\$
4. Installation of poured concrete repair (per s.f.).....	\$
5. Installation of rapid setting patching mortar (per s.f.).....	\$
6. New resin flashing at roof penetrations (per unit).....	\$
7. Installation of new full-size drain (ea.).....	\$
8. Localized replacement of polished stone cladding units (per sq. ft.).....	\$
9. New organic component (per cu. yd.).....	\$
10. Installation of new sand for drainage layer (per cu. yd.).....	\$
11. Installation of new blended planting soil (per cu. yd.).....	\$
12. Installation of new perennial plants (per quart).....	\$
13. Installation of new perennial plants (per plug).....	\$
14. Installation of new shrub plants (1 gallon).....	\$
15. Installation of new seed (per lb.).....	\$
16. Temporary hook-up of watering and drainage systems (ea.).....	\$

EXHIBIT H

DRAWINGS AND SPECIFICATIONS^[BA4]



CTA ARCHITECTS P.C.

PROJECT MANUAL

IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NEW YORK 10004

16 July 2015

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SECTION 011000 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-I Specification sections, apply to work of this section.

1.02 PROJECT/WORK IDENTIFICATION:

A. General: Project name is "Irish Hunger Memorial Restoration" , as shown on Contract Documents prepared by Cutsogeorge Tooman & Allen Architects, P.C. Drawings and Specifications are dated 16 July 2013.

B. Contract Documents: Indicate the Work of the Contract and related requirements and conditions that have an impact on the project. Related requirements, restrictions and conditions to the Contract Documents include, but are not necessarily limited to the following:

1. Existing site conditions and restrictions on the use of the site.
2. Work performed prior to work under this Contract and work performed under a separate contract or Change Order but running in conjunction with work described in these Documents.
3. Alterations and coordination with existing work.
4. Alternates.

C. Summary by References: Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specification Sections, Drawings, Addenda and modifications to the Contract Documents issued subsequent to the initial printing of this Project Manual and including but not necessarily limited to printed material referenced by any of these. It is recognized that work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces outside the Contract Documents.

D. Abbreviated Written Summary: Briefly and without force and effect upon the Contract Documents, the work of the Contract can be summarized as follows:

1. Temporary protection, security and protection of the Public, protection of NIC Plaza and limestone paving areas throughout the entire construction process.
 2. Temporary protection of the public bicycle sharing program bicycle racks ensuring full public access to and use of same is available throughout the entire construction process.
 3. Carefully remove, catalog and store off-site for replacement, stone thresholds and Irish field stone freestanding walls and wall cladding from supporting concrete and/or CMU cores at affected walls in the monument areas. Note all stone is to be reinstalled at the repaired and waterproofed substrates and core walls.
 4. Removal of plant materials per instruction/direction of Landscape Architects. Coordinate removals with/through Owner/BPCPC to allow them the opportunity to remove select plantings for storage off-site by Others.
-



5. Excavation of soils from the work areas to be stored off-site at an approved facility, for replacement back on the monument upon completion of the waterproofing and repair of the underlying substrates.
 6. Removal of concrete paving areas including underlying gravel and compacted fill to expose the underlying grade level concrete slab.
 7. Modifications to and flashing of existing trench-drain to remain.
 8. Careful removal of portions of the blank glass panels in the stone cladding at the pass-through entrance corridor to the monument to install ventilation louvers. Installation of louvers per approved shop drawing and sample.
 9. Protection in place of compacted structural fill and drainage membrane located between soil layer and fill layers below exposed by the excavation.
 10. Soils and plantings in the on-grade non-work areas are to be protected in place for the duration of the construction period. Temporary hook-up of watering systems and drainage systems is to be supplied per direction of the Landscape Architect.
 11. Temporarily remove catalog and store existing posts and cables from the perimeter tether rail system. Attachment brackets are to be protected in place for application of waterproofing system and reinstallation of the tether rail system.
 12. Protecting for the existing sub-surface drainage system. Full function must be confirmed before, during construction, and after Substantial and Final completion.
 13. Removal and replacement of existing metal vault hatches per approval of Owner and Artist.
 14. Removal and replacement of existing wood fence posts set in metal sleeves in the soil and wire fence at the work areas.
 15. Carefully remove, catalog and store off-site for replacement existing standing stone , boulders, County-stones and other miscellaneous landmarks within the monument site which may be disturbed by the contract work. VIF. All stones are to be replaced back in their current locations upon completion of the contract work.
 16. All electrical conduit exposed during excavation is to be protected, cataloged, and function verified for replacement as part of the construction work. Verify exact locations in the field.
 17. Replacement of through wall drainage pipes per field direction and per recommendations of the Landscape Architect.
 18. Removal of existing waterproofing assembly from the exposed raised concrete areas and CMU/Concrete core walls. Note existing resin based waterproofing firmly adhered at solid core wall locations may remain subject to field inspection by Architect and Manufacturer.
 19. Remove and replace roof drain including associated piping to nearest elbow beneath. Install new full size promenade drain with extension collar drain with interior lead caulk connection including associated drain strainer assembly.
 20. Remove existing wall ties and backing plates/fasteners exposed by removal of the field stone cladding for replacement.
-



21. Prepare exposed concrete and CMU surfaces to receive new resin based waterproofing per manufacturers instructions including preparation of existing resin-based waterproofed areas to remain per field direction.
 22. Existing CMU/concrete core walls are to remain. Remove and rebuild loose or damaged portions VIF. New and or replaced sections are to be fully grouted and dowelled to the existing sections to remain.
 23. Sound-test the concrete deck exposed by the demolition and patch repair as required prior to application of waterproofing.
 24. Prepare existing cold-joints and through cracks in the underlying concrete deck per manufacturers directing and install continuous minimum 6" wide resin based flashing strip prior to installation of resin based waterproofing at the main filed areas.
 25. Install resin based waterproofing system to the prepared concrete deck, curbs, penetrations and concrete and CMU core walls per direction of the manufacturer and per applicable details. Typical throughout all raised monument areas.
 26. Installation of waterproofing at the interior cottage corner junction and tie in with trench drain.
 27. Prepare concrete perimeter per manufacturers requirements and install continuous seamless resin-based waterproofing edge treatment strip from the underside drip edge up and over the top of the main field of the concrete deck above. Waterproofing at the main field is to overlap the edge flashing.
 28. Prepare edge flashing and install granule surfacing and sealer per approved samples. Note field sample is subject to approval by the Artist and Owners.
 29. Installation of new perforated pipe drainage system per approved shop drawing.
 30. Installation of new sprinkler/watering system per approved shop drawing. Watering system is to be tied into watering system remaining at the undisturbed areas.
 31. Rebuilding of Cottage and Fieldstone walls reusing the stone previously removed, catalogued and stored. Rebuilding is to incorporate the installation of wall ties/wall tie system at the rate of minimum 1-tie per 2 square feet of exposed surface area.
 32. Note all stone rebuilding is subject to approval by the Artist and Owners. Contractor must provide a minimum of two full size mock-ups, 6'-0"± in length. Mockups include Cottage walls and Field walls. Mockups may be applied to the monument directly and if successful may be fully incorporated into the completed work.
 33. Install wall ties/wall-tie system on the prepared core/substrate walls at a minimum rate of 1-tie per 2 square feet of exposed surface area. Note all penetrations and attachments for the wall ties are to be fully wrapped and waterproofed with resin-based flashing prior to rebuilding the wall facings.
 34. Rebuilding of the cottage and overlook wall is to incorporate the installation of a through-wall scupper drain at the lower/South corner of the attached lintel. Scupper is to be full flashed in with resin based flashing. Scupper outlet is to drain to the soil outside the cottage area behind plantings located in the area.
 35. Installation of new electrical conduit in areas exposed, flashing of same with resin based flashing.
 36. Form new curb as required to fully support new access hatches to the underlying interstitial spaces beneath. Install new access hatches. Hatch finish surface subject to approval by the Artist and Owners.
-



37. Installation of new exposed aggregate concrete paving per samples approved by Artist and Owners, on new compacted fill. Note: Edges and extent of the monument paving are subject to approval by the Artist and Owners.
38. Reinstall stone threshold previously removed catalogued and stored.
39. Reinstall existing grating at the trench drain location. Prepare, prime and paint the exposed grating frame.
40. Flash attachment bracket for the previously removed perimeter tether rail system. Reinstall previously removed, catalogued and stored posts. Install new cables, turnbuckles and tensioning devices.
41. Reinstall soil previously removed and stored off-site per direction of Landscape Architects and BPCPC.
42. Reinstall previously removed, catalogued and stored existing standing stones, boulders, County-stones and other miscellaneous landmarks within the monument site back in their previous locations upon completion of the contract work.
43. Installation of new plans and plantings per approved planting schemes and shop drawings.
44. Reinstallation of previously removed wood fence posts set in metal sleeves in the soil and new wire fencing to match existing. Wood fence posts to be replaced as necessary per applicable allowance.
45. Prepare prime and paint sliding gate at monument entrance. Finish color to be approved by Artist and Owner.
46. Sound-test exposed concrete areas and underside. Prepare and patch per appropriate detail from Contract allowance.
47. Replacement of speaker covers for monument sound-system.
48. Replacement of light fixtures and associated conduit and wiring within the monument interstitial/mechanical spaces.
49. Prolonged water wash cleaning of masonry per specified and approved procedure.
50. Photographic documentation of existing conditions throughout work area, submitted digitally to Owner and Architect.
51. Perform water/flood testing at all completed portions of waterproofing membrane installation prior to the installation of overburden.

1.03 TESTING AND INTERIM CONTROL

- A. The Contractor shall bear the responsibility for independent testing to determine the presence of lead in any painted surface to be scraped, stripped or otherwise prepared. Testing is to be performed by laboratory tests of paint samples,(AAS for lead) in accordance with all pertinent regulations.
-

B. The Contractor will be required to conform to all pertinent ordinances and regulations in the treatment of the area to be painted and the disposal of the debris resulting from the surface preparation. These regulations include but are not limited to the Lead Safe Work Practices (Safe Work Practices) contained in New York City Local Law 1 of 2004. Guides to conformance with these standards can be obtained from the NYC Department of Health (212) 226-5323. Questions about exterior paint scraping/removal protection requirements can be referred to The NYC Department of Health Lead Abatement Safety Unit (LASU) (212) 676-8186. Disposal of materials collected shall be in accordance all pertinent regulations. Disposal and transportation requirements are contained in New York State Department of Environmental Conservation *Environmental Compliance and Pollution Prevention Guide for Small Quantity Generators*, most recent edition. This manual can be obtained from the NYSDEC at (718) 482-4900.

C. The Contractor will be required to conform to all pertinent ordinances and regulations in the treatment of the area to be painted and the disposal of the debris resulting from the surface preparation including but not limited to Title 40: Protection of Environment – Part 745 of the United States Environmental Protection Agency (EPA). Disposal of materials collected shall be in accordance all pertinent regulations. Disposal and transportation requirements are contained in New York State Department of Environmental Conservation *Environmental Compliance and Pollution Prevention Guide for Small Quantity Generators*, most recent edition. This manual can be obtained from the NYSDEC at (718) 482-4900.

D. The Contractor shall bear the responsibility for independent testing to determine the presence of asbestos in any roofing or masonry surface, membranes, insulation, flooring, glazing compound, mastics, flashing or caulking to be scraped, stripped, removed or otherwise prepared. Testing is to be performed by either laboratory tests of material samples, or portable testing in accordance with all pertinent regulations. Test results made available to the Contractor by the Owner may not represent all affected surfaces and shall not be deemed to be a complete representation. The preceding list does not represent a comprehensive listing of all possible asbestos containing materials. Additional materials not listed may require testing and or abatement.

1.04 CONTRACTOR USE OF PREMISES:

A. General: The Contractor shall limit his/her use of the premises to the Work area, so as to allow for Owner occupancy and use by the public.

B. Use of the Site: Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.

C. Keep existing driveways and entrances serving the premises clear and available to the Owner and his/her employees at all times. Do not use these areas for parking or storage of materials.

D. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated. If additional storage is necessary obtain and pay for such storage off site.

E. Contractor Use of the Existing Building: Maintain the existing building in a safe and weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building during the construction period.

F. Protection: All pedestrian protection of public sidewalks, courtyards, rear yards, alleyways and fire exits, not specifically called out elsewhere in these Contract Documents, shall be the responsibility of the Contractor per applicable provisions of the New York City Building Code. Protection of all trees, plantings and sidewalk furniture is included in this requirement. Costs for protection over and above that specified should be entered in Item I of the Bid Form " Exceptions to Plans and Specifications." Costs listed must reference specific areas requiring additional protection and will be considered part of the Contractor's Bid.

- G. All temporary pedestrian protection/sidewalk sheds shall be installed and maintained in compliance with current law upon their installation and for the entire period in which sidewalk protection remains.
- H. Keep public areas such as sidewalk and street free from accumulation of waste material, rubbish or construction debris.
- I. Hours of Work: Per Battery Park City Authority direction.
- J. Emergency Contact: The Contractor shall maintain a system allowing for monument personnel to directly contact contractor's supervisory personnel in the event of an emergency situation at all times during the course of the project. The system will be capable of providing a response to a telephone call by Contractor's supervisory personnel within a maximum of one hour. The emergency contact system shall consist of two telephone numbers for Contractor's supervisory personnel as well as two pager numbers for Contractor's supervisory personnel. These numbers shall be distributed to the Owner, Architect, Owner's Representative as well as any other personnel as directed by the Owner or Owner's Representative. This information shall be provided at the commencement of the project on an 8-1/2" X 11" paper format.

1.05 OWNER OCCUPANCY:

- A. Full Owner Occupancy: The Owner will occupy the site and the existing building during the entire period of construction. Cooperate fully with the Owner or his/her representative during construction operations to minimize conflicts and to facilitate Owner usage. Perform the Work so as not to interfere with the Owner's operations.

1.06 COORDINATION:

- A. General: The Work of this Contract includes coordination of the entire work of the project, including preparation of general coordination drawings, diagrams and schedules, and control of site utilization, from beginning of construction activity through project close-out and warranty periods.

1.07 DESTRUCTIVE INSPECTION:

- A. The Architect reserves the right to require destructive inspections of completed work of up to 2.5% of the total contract amount. All required demolition, repair and reinstallation shall be performed at no additional cost.

1.08 PROJECT WARRANTY:

- A. At the time of Substantial Completion the Contractor shall provide the Owner with a written warrantee. The warrantee shall meet the requirements of section 3.5.2 of the Supplementary Conditions to the General Conditions described in these specifications.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION 011000

SECTION 012100 - ALLOWANCES**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-I Specification sections, apply to work of this section.

B. Reminder: General Conditions of the Contract include the following subparagraph pertaining to "Allowances":

"4.8.2.2 the Contractor's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in the allowance;..."

C. Coordinate allowance work with related work to ensure that each selection is completely integrated and interfaced with related work.

1.02 DESCRIPTION OF REQUIREMENTS:

A. Definitions and Explanations: Certain requirements of the work related to each allowance are shown and specified in contract documents. The allowance has been established in lieu of additional requirements for that work, and further requirements thereof (if any) will be issued by change order.

B. Types of allowances scheduled herein for the work include the following:

1. Lump sum allowances.
2. Unit-cost allowances.

C. Selection and Purchase: At earliest feasible date after award of Contract, advise Architect/Engineer of scheduled date when final selection and purchase of each product or system described by each allowance must be accomplished in order to avoid delays in performance of the work.

D. As requested by the Architect/Engineer, obtain and submit proposals for the work of each allowance for use in making final selections; include recommendations for selection which are relevant to the proper performance of the work.

E. Purchase products and systems as specifically selected (in writing) by the Architect/Engineer.

F. Change Order Data: Where applicable, include in each change order proposal both the quantities of products being purchased and unit costs, along with total amount of purchases to be made. Where requested, furnish survey-of-requirements data to substantiate quantities. Indicate applicable taxes, delivery charges, and amounts of applicable trade discounts.

G. For unit-cost type allowances, submit a substantiated survey of quantities of materials, as shown in the "Schedule of Values", revised where necessary, and corresponding with change order quantities.

H. Unit-Cost Allowances: Each change order amount for unit-cost type allowance shall be based solely on the difference between the actual unit purchase amount and the unit allowance, multiplied by the final measure or count of work-in-place, with reasonable allowances, where applicable, for cutting losses, tolerances, mixing wastes, normal product imperfections and similar margins.



- I. Include installation costs in the purchase amount only where indicated as a part of the allowance.
- J. When requested, prepare explanations and documentation to substantiate the margins as claimed.
- K. Prepare and submit substantiation of a change in the scope of work (if any) claimed in the change orders related to unit-cost type allowances.
- L. Change Order Mark-Up: The amount of each change order resulting from final selection of products and systems covered by an allowance shall be the difference between purchase order amount and allowance, and shall not include Contractor's mark-up (or subcontractor's mark-up) except to the extent clearly demonstrated (by Contractor) that either scope of installation or nature of work required was changed from that which could have been foreseen from description of allowance and other information in contract documents. No mark-up is permitted for selection of higher or lower priced materials or systems, of same scope and nature as originally indicated. This is a procedural clarification of Paragraph 4.8.2.3 of General Conditions.
- M. Where it is not economically feasible to return unused material for credit and when so requested by the Architect/Engineer, prepare unused material for the Owner's storage, and deliver to the Owner's storage space as directed. Otherwise, disposal of excess material is the Contractor's responsibility.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 SCHEDULE OF ALLOWANCES:

Allowance No. 1: Allow for the installation of rapid setting patching mortar at a total of 10% of the area of the roof deck.

Allowance No. 2: Allow for the installation of 100 s.f. of shallow concrete repairs.

Allowance No. 3: Allow for the installation of 50 s.f. of poured concrete repairs.

Allowance No. 4: Allow for the installation and replacement of 20% of the field stone.

Allowance No. 5: Allow for the installation and replacement of 30% of the wood fence posts. As distributed by Wayside Fence, 63 Third Avenue, Bayshore, New York 11706.
Telephone (800) 847-7789

END OF SECTION 012100

SECTION 012300 - ALTERNATES AND UNIT PRICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-I Specification sections, apply to work of this section.
- B. Specific work described in the Schedule of Alternates and the unit prices below shall comply with all applicable sections of the Project Manual.

1.02 DESCRIPTION OF REQUIREMENTS:

- A. Definition: An alternate is the amount proposed by Bidders and stated on the Bid Form that will be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either scope of work or in products, materials, equipment, systems or installation methods described in Contract Documents.
- B. Coordination: Coordinate related work and modify or adjust adjacent work as required to ensure that work affected by each accepted alternate is complete and fully integrated into the project.
- C. Notification: Immediately following award of Contract, prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates, if any.
 - 1. The Owner reserves the right to select any of the alternates at any time prior to Substantial Completion unless remobilization to a work area is required. Alternates selected by the Owner after execution of the Contract for Construction shall be accepted through the issuance of a Change Order.
- D. Include as part of each alternate, miscellaneous devices, appurtenances and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 SCHEDULE OF ALTERNATES:

- A. Alternate 1: Provision of a full coverage, heated weather enclosure to encapsulate the monument for the duration of the work allowing work to proceed in all weathers.
 - B. Alternate 2: Install a sidewalk shed for Base Bid Work in compliance with Section 27-1021 of the Building Code of the City of New York for the duration of the project. Include as part of this work a complete coverage of the bridge deck with motion detector(s) with activation sensor/monitor to be provided at a remote location to be confirmed. Work includes installation and maintenance of shed lighting in conformance with LL51/10
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3.02 UNIT PRICES:

- A. Installation of CMU masonry per wythe: Work shall include demolition and replacement of existing CMU masonry at a nominal 8" thickness, hollow configuration, fully grouted, including installation of new dowels, wall ties and necessary flashing. Per square foot unit price requested.
 - B. Repointing of finished stone masonry: Work shall include raking out mortar from joints to expose sound, un-weathered mortar. Brush, vacuum or flush joints to remove dirt and loose debris and mortar from masonry surfaces within raked-out joint, and installation of new tooled mortar to match adjacent profile, at the masonry joints in the polished ashlar stone monument base areas. Per square foot unit prices requested.
 - C. Patching of concrete: Work shall include sound testing of existing concrete, removal of existing material and proper preparation of substrate and perimeter for patches less than 2" in depth on average. Per square foot unit price requested.
 - D. Poured concrete repair: Work shall include sound testing of all exposed concrete, removal of existing material and proper preparation of substrate and perimeter, installation of stainless steel threaded rod with double nut and washer for patches over 2" in depth and / or greater than 1'-0" in length. Per square foot unit price requested.
 - E. Installation of rapid setting patching mortar/Patching of roof slab: Work shall include the removal of existing material and proper preparation of substrate and the installation of new rapid setting patching mortar. Per square foot unit price requested.
 - F. New resin flashing at roof penetrations: Work shall include preparation of all substrates and installation resin based flashing at roof penetration. Per location unit price requested.
 - G. Installation of new full-size drains: Work shall include removal of existing unit and proper installation of new drain, including lead flashing, new cast iron piping from the new drain connection to the nearest elbow, interior protection, and repair of interior finish to primed condition and, associated roof flashing tie-in. Per drain unit pricing requested.
 - H. Localized replacement of polished stone cladding units at monument base areas. Bond pattern and mortar to match existing per approved field sample. Subject to approval by the Artist and Architect. Per square foot pricing requested.
 - I. New organic matter. Per cubic yard price requested.
 - J. Installation of new sand for drainage layer. Per cubic yard price requested.
 - K. Installation of new blended planting soil. Per cubic yard price requested.
 - L. Installation of new perennial plants. Per quart pricing requested.
 - M. Installation of new perennial plants. Per plug pricing requested.
 - N. Installation of new shrub plants. Per 1 gallon container pricing requested.
 - O. Installation of new seed. Per pound unit pricing requested.
 - P. Temporary hook-up and relocation of watering system as necessary to provide function during construction. Per location unit price requested.
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CTA ARCHITECTS P.C.

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Irish Hunger Memorial Restoration

END OF SECTION 012300



SECTION 012500 - PRODUCTS AND SUBSTITUTIONS**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF REQUIREMENTS:

A. Definitions: Definitions used in this paragraph are not intended to negate the meaning of other terms used in the contract documents, including such terms as, "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction" and similar terms. Such terms are self-explanatory and have recognized meanings in the construction industry.

B. "Products" are items purchased for incorporation in the Work, regardless of whether they were specifically purchased for the project or taken from the Contractor's previously purchased stock. The term "product" as used herein includes the terms "material", "equipment", "system" and other terms of similar intent.

C. "Named Products" are products identified by use of the manufacturer's name for a product, including such items as a make or model designation, as recorded in published product literature, of the latest issue as of the date of the contract documents.

D. "Materials" are products that must be substantially cut, shaped, worked, mixed, - finished, refined or otherwise fabricated, processed, or installed to form units of work.

E. "Equipment" is defined as a product with operational parts, regardless of whether motorized or manually operated, and in particular, a product that requires service connections such as wiring or piping.

F. Substitutions: The Contractor's requests for changes in the products, materials, equipment and methods of construction required by the contract documents are considered requests for "substitutions", and are subject to the requirements specified herein. The following are not considered as substitutions:

1. Revisions to the contract documents, where requested by the Owner or Architect are considered as "changes" not substitutions.

2. Substitutions requested during the bidding period, which have been accepted prior to the Contract Date, are included in the contract documents and are not subject to the requirements for substitutions as herein specified.

3. Specified Contractor options on products and construction methods included in the contract documents are choices available to the Contractor and are not subject to the requirements for substitutions as herein specified.

4. Except as otherwise provided in the contract documents, the Contractor's determination of and compliance with governing regulations and orders as issued by governing authorities do not constitute "substitutions" and do not constitute a basis for change orders.

G. Standards: Refer to Division-I section "Definitions and Standards" for the applicability of industry standards to the products specified for the project, and for the acronyms used in the text of the specification sections.



1.03 QUALITY ASSURANCE:

A. Source Limitations: To the fullest extent possible, provide products of the same generic kind, from a single source, for each unit of work.

B. Compatibility of Options: Compatibility of products is a basic requirement of product selection. When the Contractor is given the option of selecting between two or more products for use on the project, the product selected must be compatible with other products previously selected, even if the products previously selected were also Contractor options. The complete compatibility between the various choices available to the Contractor is not assured by the various requirements of the Contract documents, but must be provided by the Contractor.

1.04 SUBMITTALS:

A. Substitution Request Submittal:

1. Requests for Substitutions: Submit 3 copies of each request for substitution. In each request identify the product or fabrication or installation method to be replaced by the substitution; include related specification section and drawing numbers, and complete documentation showing compliance with the requirements for substitutions. Include the following information, as appropriate, with each request.

a. Provide complete product data, drawings and descriptions of products, and fabrication and installation procedures.

b. Provide samples where applicable or requested.

c. Provide a detailed comparison of the significant qualities of the proposed substitution with those of the work originally specified. Significant qualities include elements such as size, weight, durability, performance and visual effect where applicable.

d. Provide complete coordination information. Include all changes required in other elements of the work to accommodate the substitution, including work performed by the Owner and separate Contractors.

e. Provide a statement indicating the effect the substitution will have on the work schedule in comparison to the schedule without approval of the proposed substitution. Include information regarding the effect of the proposed substitution on the Contract Time.

f. Provide complete cost information, including a proposal of the net change, if any in the Contract Sum.

g. Provide certification by the Contractor to the effect that, in the Contractor's opinion, after thorough evaluation, the proposed substitution will result in work that in every significant respect is equal-to or better than the work required by the Contract documents, and that it will perform adequately in the application indicated.

B. Change Order Form: Submit requests for substitutions in the form and in accordance with procedures required for change order proposals.

C. Architect's Action: Within five (5) working days of receipt of the Contractor's request for substitution, the Architect will request additional information or documentation as may be needed for evaluation of the request. Within ten (10) working days of receipt of the request, or within five (5) working days of receipt of the requested additional information or documentation, whichever is later, the Architect will notify the Contractor of either the acceptance or rejection of the proposed substitution.

1. Acceptance will be in the form of a change order.

PART 2 - PRODUCTS

2.01 GENERAL PRODUCT COMPLIANCE:

A. Visual Matching: Where matching an established sample is required, the final judgment of whether a product proposed by the Contractor matches the sample satisfactorily will be determined by the Architect. Where there is no product available within the specified product category that matches the sample satisfactorily and also complies with other specified requirements, comply with the provisions of the contract documents concerning "substitutions" and "change orders" for the selection of a matching product in another product category, or for non-compliance with specified requirements.

B. Producer's Statement of Applicability: Where individual specification sections indicate require a "Statement of Applicability" from the manufacturer or other producer, submit a written-certified statement from the producer stating that the producer has reviewed the proposed application of the product on the project. This statement shall state that the producer agrees with or does not object to the Architect's specification and the Contractor's selection of the product for use in the Work. The statement shall also state that the proposed application of the product on the project is suitable and proper.

2.02 SUBSTITUTIONS:

A. Conditions: The Contractor's request for a substitution will be received and considered when extensive revisions to the contract documents are not required, when the proposed changes are in keeping with the general intent of the contract documents, when the requests are timely, fully documented and properly submitted, and when one or more of the following conditions is satisfied, all as judged by the Architect; otherwise the requests will be returned without action except to record non-compliance with these requirements.

1. The Architect will consider a request for substitution where the request is directly related to an "or equal" clause or similar language in the contract documents.

2. The Architect will consider a request for a substitution where a substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to the Architect for redesign and evaluation services, the increased cost of other work by the Owner or separate contractors, and similar considerations.

3. The Architect will consider a request for substitution when the specified product or method cannot be provided in a manner which is compatible with other materials of the work, and where the Contractor certifies that the substitution will overcome the incompatibility.

4. The Architect will consider a request for substitution when the specified product or method cannot be properly coordinated with other materials in the work, and where the Contractor certifies that the proposed substitution can be properly coordinated.

5. The Architect will consider a request for substitution when the specified product or method cannot receive a warranty as required by the contract documents and where the contractor certifies that the proposed substitution receive the required warranty.

B. Work-Related Submittals: The Contractor's submittal of and the Architect's acceptance of shop drawings, product data or samples which relate to work not complying with requirements of the contract documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.



PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS:

A. General: Except as otherwise indicated in individual sections of these specifications, comply with the Manufacturer's instructions and recommendations for installation of the products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work. Clean exposed surfaces and protect surfaces as necessary to ensure freedom from damage and deterioration at time of acceptance.

END OF SECTION 012500

SECTION 012900 - SCHEDULES, REPORTS, PAYMENTS**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-I Specification sections, apply to work of this section.

1.02 COORDINATION:

A. Coordinate both the listing and timing of reports and other activities required by provisions of this and other sections, so as to provide consistency and logical coordination between the reports. Maintain coordination and correlation between separate reports by updating at monthly or shorter time intervals. Make appropriate distribution of each report and updated report to all parties involved in the Work including the Architect, Owner, and BPCPC. In particular provide close coordination of the progress schedule, schedule of values, listing of subcontracts, schedule of submittals, progress reports, and payment requests.

1.03 FULLY-DEVELOPED PROGRESS SCHEDULE:

A. Bar-Chart Schedule: Based on the preliminary development of the progress schedule, if any, and on whatever updating and feedback may have occurred during the project start-up, secure critical time commitments for performing major elements of the work. Within 10 (ten) working days of the date established for "commencement of the work", submit a comprehensive bar-chart type progress schedule indicating, by stage-coded symbols, a time bar for each major category or unit of work to be performed at the site; include minor elements of work which are, nevertheless, involved in overall sequencing of the work. Arrange schedule to show graphically the major sequences of work necessary for the completion of related elements of work. Arrange the schedule to show how Substantial Completion is scheduled to allow for the Architect's procedure for Certification of Substantial Completion. Prepare and maintain the schedule on either a sheet of sufficient width (or else a series of sheets) to show the required data clearly for the entire Construction Time. Prepare the schedule on sheets of stable transparency, or other reproducible material, to permit reproduction for the required distribution.

B. Distribution: Following the initial submittal to and response by the Architect, print and distribute progress schedules to the Architect (3 copies), Owner, BPCPC, separate contractors, the principal subcontractors and suppliers or fabricators, and others with a need-to-know schedule-compliance requirement. Post copies in the project meeting room and temporary field office. When revisions are made, distribute updated issues to the same entities and post updated issues in the same locations. Delete entities from distribution when they have completed their assigned work and are no longer involved in the performance of scheduled work.



1.04 PROGRESS MEETINGS, REPORTING:

A. General: In addition to specific coordination and pre-installation meetings for each element of work, and other regular project meetings held for other purposes, hold a general progress meeting each month with time coordinated with preparation of the payment request. Require each entity then involved in planning, coordination or performance of work to be properly represented at each meeting. Review each entity's present and future needs including interface requirements, time, sequences, deliveries, access, site utilization, temporary facilities and services, hours of work, hazards and risks, housekeeping, change orders, and documentation of information for payment requests. Discuss whether each element of current work is ahead of schedule, on time, or behind schedule in relation with updated progress schedule. Determine how behind-schedule work will be expedited, and secure commitments from entities involved in doing so. Discuss whether schedule revisions are required to ensure that current work and subsequent work will be completed within Contract Time. Review everything of significance which could affect progress of the Work.

B. Initial Progress Meeting: Schedule initial progress meeting, recognized as "Pre-Construction Meeting", for a date not more than 10 (ten) working days after date of commencement of the Work. Use it as an organizational meeting, and review responsibilities and personnel assignments.

C. Reporting: Within 3 (three) working days after each progress meeting date, distribute copies of minutes-of-the-meeting to each entity present and to others who should have been present. Include brief summary (in narrative form) of progress of the Work since previous meeting and report.

D. Schedule Updating: Immediately following each progress meeting, where revisions to progress schedule have been made or recognized, revise progress schedule. Reissue revised schedule concurrently with report of each meeting.

E. Existing Conditions Photographs: Prior to beginning construction work the Contractor shall be responsible for photographing the existing conditions in the areas of work. Photographs shall be taken with a dated camera, marking each print with a clearly readable date. Copies of all photographs shall be sent to the Owner and the Architect prior to beginning work. Photographs can be taken in stages as work proceeds to different areas of the site.

1.05 UNIT PRICE COMPENSATION:

A. The Owner reserves the right to reject the Contractor's measurement of work-in-place which involves use of established unit prices, and to have this work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

1.06 PAYMENT REQUESTS:

A. General: Except as otherwise indicated, the progress payment cycle is to be regular, submitted on a monthly basis. Each application must be consistent with previous applications and payments. Certain applications for payment, such as the initial application, the application at Substantial Completion, and the final payment application involve additional requirements.

B. Payment Application Times: The "date" for each progress "payment" is as indicated in Owner-Contractor Agreement or, if none is indicated therein, it is the 15th day of each month. The period of construction work covered by each payment request is period indicated in Owner-Contractor Agreement or, if none is indicated therein, it is period ending 15 days prior to date for each progress payment, and starting day following end of preceding period.

C. Payment Application Forms: AIA Document G702 and Continuation Sheets; available from "Publications, a Division of The AIA Service Corporation", 1735 New York Avenue, NW, Washington, DC 20006 (also available at most local AIA chapter offices).

D. Application Preparation: Except as otherwise indicated, complete every entry provided for on the form, including execution by authorized persons. Incomplete applications will be returned by Architect without action. Entries must match current data of schedule of values and progress schedule and report. Listing must include amounts of change orders issued prior to last day of the "period of construction" covered by application.

E. Releases of Liens: With every payment application submitted a release of liens shall be included indicating that payment to all subcontractors, manufacturers, suppliers and other entities providing goods or services on this project and paid for by the Owner in previous applications have been made. The form submitted shall be identical to the form included in this Project Manual and entitled "Release and Waiver of Claims, Liens and Rights."

F. Initial Payment Application: The principal administrative actions and submittals which must precede or coincide with submittal of contractor's first payment application can be summarized as follows, but not necessarily by way of limitation:

1. Listing of subcontractors, principal suppliers and fabricators.
2. Progress schedule (preliminary if not final).
3. Schedule of unit prices.
4. Schedule of submittals (preliminary if not final).
5. Copies of acquired building permits and similar authorizations and licenses from governing authorities for current performance of the work.
6. Evidence satisfactory to the Owner that the Contractor's insurance coverage have been secured.
7. Initial progress report, including report of pre-construction meeting.

G. Application at Time of Substantial Completion: Following issuance of the Architect's final "Certificate of Final Completion" and also in part as applicable to prior certificates on portions of completed work as designated, a "special" payment application may be prepared and submitted by the Contractor. The principal administrative actions and submittals which must proceed or coincide with such special applications can be summarized as follows, but not necessarily by way of limitation:

1. Occupancy permits and similar approvals or certifications by governing authorities and franchised services, assuring Owner's full access and use of completed work.
 2. Warranties (guarantees), maintenance agreements and similar provisions of contract documents.
 3. Test/adjust/balance records, maintenance instructions, meter readings, start-up performance reports, and similar change-over information germane to Owner's occupancy, use, operation and maintenance of completed work.
 4. Final cleaning of the work.
 5. Application for reduction (if any) of retainage, and consent of surety.
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6. Advice to Owner on coordination of shifting insurance coverages, including proof of extended coverages as required.
 7. Final progress photographs, where required.
 8. Listing of Contractor's incomplete work, recognized as exceptions to Architect's/Engineer's certificate of substantial completion.
- H. Final Payment Application: The administrative actions and submittals which must precede or coincide with submittal of contractor's final payment application can be summarized as follows, but not necessarily by way of limitation:
1. Completion of project closeout requirements.
 2. Completion of items specified for completion beyond time of substantial completion (regardless of whether special payment application was previously made).
 3. Assurance, satisfactory to Owner, that unsettled claims will be settled and that work not actually completed and accepted will be completed without undue delay.
 4. Transmittal of required project construction records to Owner.
 5. Proof, satisfactory to Owner, that taxes, fees and similar obligations of Contractor have been paid.
 6. Removal of temporary facilities, services, surplus materials, rubbish and similar elements.
 7. Consent of surety for final payment.
 8. Provision of the attached "Final Release and Waiver of Claims, Liens and Rights" form, signed and notarized and indicating a release of liens from all subcontractors, manufacturers and installers on this project.
- I. Application Transmittal: Submit 3 executed copies of each payment application. Transmit each copy with a transmittal form listing those attachments, and recording appropriate information related to application in a manner acceptable to Architect. Transmit to Architect by means ensuring receipt within 24 hours.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 012900



SECTION 013100- PROJECT COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK:

A. Minimum administrative and supervisory requirements necessary for coordination of work on the project include but are not necessarily limited to the following:

1. Coordination and meetings.
2. Administrative and supervisory personnel.
3. General installation provisions.
4. Conservation and salvage.

1.03 COORDINATION AND MEETINGS:

A. General: Prepare a written memorandum on required coordination activities. Include such items as required notices, reports and attendance at meetings. Distribute this memorandum to each entity performing work at the project site. Prepare similar memorandum for separate contractors where interfacing of their work is required.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS:

A. Pre-Installation Conferences: Hold a pre-installation meeting at the project site well before installation of each unit of work that requires coordination with other work. Installer and representatives of the Manufacturers and Fabricators who are involved in or affected by that unit of work, and with its coordination or integration with other work that has preceded or will follow shall attend this meeting. Advise the Architect of scheduled meeting dates.

B. Record significant discussions of each conference, and record agreements and disagreements, along with the final plan of action. Distribute the record of meeting promptly to everyone concerned, including the Owner and Architect.

C. Do not proceed with the Work if the pre-installation conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene pre-installation conference at the earliest feasible date.



- D. Installer's Inspection of Conditions: Require the Installer of each major unit of work to inspect the substrate to receive work and conditions under which the Work is to be performed. The Installer shall report all unsatisfactory conditions in writing to the Contractor. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
- E. Manufacturers Instructions: Where installations include manufactured products, comply with the Manufacturer's applicable instructions and recommendations for installation, to the extent that these instructions and recommendations are more explicit or more stringent than requirements indicated in the contract documents.
- F. Inspect each item of materials or equipment immediately prior to installation. Reject damaged and defective items.
- G. Provide attachment and connection devices and methods for securing work. Secure work true to line and level, and within recognized industry tolerances. Allow expansion and building movement. Provide uniform joint width in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable visual-effect choices to the Architect for final decision.
- H. Install each unit-of-work during weather conditions and project status which will ensure the best possible results in coordination with the entire work. Isolate each unit of work from incompatible work as necessary to prevent deterioration.
- I. Coordinate enclosure of the work with required inspections and tests, so as to minimize the necessity of uncovering work for that purpose.
- J. Mounting Heights: Where mounting heights are not indicated, mount individual units of work at industry recognized standard mounting heights and in compliance with all local building codes for the particular application indicated. Refer questionable mounting height choices to the Architect for final decision.

3.02 CLEANING AND PROTECTION:

- A. General: During handling and installation of work at the project site, clean and protect work in progress and adjoining work on the basis of continuous maintenance. Apply protective covering on installed work where it is required to ensure freedom from damage or deterioration at time of substantial completion.
- B. Clean and perform maintenance on installed work as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
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C. Limiting Exposures of Work: To the extent possible through reasonable control and protection methods, supervise performance of the work in such a manner and by such means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period. Such exposures include, where applicable, but not by way of limitation the following:

- Excessive static or dynamic loading.
- Excessive internal or external pressures.
- Excessively high or low temperatures.
- Thermal shock.
- Excessively high or low humidity.
- Air contamination or pollution.
- Water or ice.
- Solvents.
- Chemicals.
- Puncture.
- Abrasion.
- Heavy traffic.
- Soiling.
- Bacteria.
- Combustion.
- Electrical current.
- Incompatible interface.
- Destructive testing. Misalignment.
- Excessive weathering.
- Unprotected storage.
- Improper shipping or handling.
- Theft.
- Vandalism.

3.03 CONSERVATION AND SALVAGE:

A. General: It is a requirement for supervision and administration of the work that construction operations be carried out with the maximum possible consideration given to conservation of energy, water and materials. In addition maximum consideration shall be given to salvaging materials and equipment involved in performance of the work but not incorporated therein. Refer to other sections for required disposition of salvage materials that are the Owner's property.

END OF SECTION 013100



SECTION 013300 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF REQUIREMENTS:

A. General: This section specifies procedural requirements for non-administrative submittals including shop drawings, product data, samples and other miscellaneous work-related submittals. Shop drawings, product data, samples and other work-related submittals are required to amplify, expand and coordinate the information contained in the Contract Documents.

B. Refer to other Division-I sections and other contract documents for specifications on administrative, non-work-related submittals. Such submittals include, but are not limited to the following items:

1. Permits.
2. Payment applications.
3. Insurance certificates.
4. Listing of subcontractors.

C. Shop drawings are technical drawings and data that have been specially prepared for this project.

D. Standard information prepared without specific reference to a project is not considered to be shop drawings.

E. Product data includes standard printed information on manufactured products that has not been specially-prepared for this project, including but not limited to the following items:

1. Manufacturer's product specifications and installation instructions.
2. Standard color charts.
3. Catalog cuts.

F. Samples are physical examples of work, including but not limited to the following items:

1. Partial sections of manufactured or fabricated work.
2. Small cuts or containers of materials.

G. Miscellaneous submittals are work-related, non-administrative submittals that do not fit in the three previous categories, including, but not limited to the following:

1. Specially-prepared and standard printed warranties.
2. Overrun stock.

1.03 SUBMITTAL PROCEDURES:

A. General: Refer to the General Conditions for basic procedures for submittal handling:



- B. Coordination: Coordinate the preparation and processing of submittals with the performance of the work. Coordinate each separate submittal with other submittals and related activities such as testing, purchasing, fabrication, delivery and similar activities that require sequential activity.
- C. Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the Architect's need to review a related submittal. The Architect reserves the right to withhold action on any submittal requiring coordination with other submittals until related submittals are forthcoming.
- D. Review Time: Allow sufficient time so that the installation will not be delayed as a result of the time required to properly process submittals, including time for re-submittal, if necessary. Advise the Architect on each submittal, as to whether processing time is critical to the progress of the work, and if the work would be expedited if processing time could be shortened.
- E. Allow two weeks for the Architect initial processing of each submittal. Allow a longer time period where processing must be delayed for coordination with subsequent submittals. The Architect will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination.
- F. Allow one week for reprocessing each submittal.
- G. Submittal Preparation: Mark each submittal with a permanent label for identification. Provide the following information on the label for proper processing and recording of action taken:
 - 1. Project name.
 - 2. Date.
 - 3. Name and address of Architect/Engineer.
 - 4. Name and address of Contractor.
 - 5. Name and address of subcontractor.
 - 6. Drawing number and detail references, as appropriate.
 - 7. Similar definitive information as necessary.
- H. Provide a space on the label for the Contractor's review and approval markings, and a space for the Architect "Action" marking.
- I. All submittals shall be submitted in triplicate.

1.04 SPECIFIC SUBMITTAL REQUIREMENTS:

- A. General: Specific submittal requirements for individual units of work are specified in the applicable specification section. Except as otherwise indicated in the individual specification sections, comply with the requirements specified herein for each type of submittal.
 - B. Drawings: Information required on shop drawings includes, dimensions, identification of specific products and materials which are included in the work, compliance with specified standards and notations of coordination requirements with other work. Provide special notation of dimensions that have been established by field measurement. Highlight, encircle or otherwise indicate deviations from the contract documents on the shop drawings.
 - C. Do not permit shop drawing copies without an appropriate final "Action" marking by the Architect to be used in connection with the work.
 - D. Preparation: Submit newly prepared information, drawn to accurate scale on sheets not less than 8 1/2" x 11". The maximum sheet size shall not exceed 36" x 48". Indicate the name of the firm that prepared each
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shop drawing and provide appropriate project identification in the title block. Provide a space not less than 20 sq. in. beside the title block for marking the record of the review process and the Architect "Action" marking.

- E. Do not reproduce contract documents or copy standard printed information as the basis of shop drawings.
 - F. Initial Submittal: Provide one correctable translucent reproducible print and one blue-line or black-line print; the reproducible print will be returned.
 - G. Final Submittal: Provide 3 prints. 2 prints will be retained; the remainder will be returned. One of the prints returned is to be marked up and maintained by the Contractor as a "Record Document".
 - H. Product Data: General information required specifically as product data includes manufacturer's standard printed recommendations for application and use, compliance with recognized standards of trade associations and testing agencies, and the application of their labels and seals (if any), special notation of dimensions which have been verified by way of field measurement, and special coordination requirements for interfacing the material, product or system with other work.
 - I. Submittals: Product data submittal is required for information and record and to determine that the products, materials and systems comply with the provisions of the contract documents. Therefore, the initial submittal is also the final submittal, except where the Architect observes that there is noncompliance with the provisions of the contract documents and returns the submittal promptly to the Contractor marked with the appropriate "Action".
 - J. Initial Submittal: Except as otherwise indicated in individual sections of these specifications, submit 3 copies of each required product data submittal. The Architect will retain one copy, and will return and distribute the others marked with "Action" and corrections or modifications as required.
 - K. Installation Copy: Do not proceed with installation of materials, products and systems until a copy of product data applicable to the installation is in the possession of the installer. Do not permit the use of unmarked copies of product data in connection with the performance of the work.
 - L. Samples: Submit samples for the Architect/Engineer's visual review of general generic kind, color, pattern, and texture, and for a final check of the coordination of these characteristics with other related elements of the work. Samples are also submitted for quality control comparison of these characteristics between the final sample submittal and the actual work as it is delivered and installed.
 - M. Refer to individual work sections of these specifications for additional sample requirements, which may be intended for examination or testing of additional characteristics. Compliance with other required characteristics is the exclusive responsibility of the Contractor; such compliance is not considered in the Architect review and "Action" indication on sample submittals.
-



- N. Documentation required specifically for sample submittals includes a generic description of the sample, the sample source or the product name or manufacturer, compliance with governing regulations and recognized standards. In addition, indicate limitations in terms of availability, sizes, delivery time, and similar limiting characteristics.
- O. Submittal: At the Contractor's option, and depending upon the nature of the anticipated response from the Architect, the initial submittal of samples may be either a preliminary submittal or a final submittal.
- P. Warranties: Refer to section "Products and Substitutions" for specific general requirements on warranties, product bonds, workmanship bonds and maintenance agreements. In addition to copies desired for the Contractor's use, furnish 2 executed copies of such warranties, bonds or agreements.
- Q. Material Safety Data Sheets: Provide Material Safety Data Sheets (M.S.D.S.) for all products showing compliance with all local Volatile Organic Compound (V.O.C.) limitations. Where specified products do not meet local requirements, contractor shall be responsible for providing alternate materials in compliance with substitution requirements in this Project Manual.
- R. Project Binder: Copies of all submitted product data including M.S.D.S. shall be kept on site in a project specific binder for inspection at any time.

1.05 ARCHITECT/ENGINEER'S ACTION:

- A. General: Except for submittals for the record and similar purposes, where action and return on submittals is required or requested, the Architect will review each submittal, mark with appropriate "Action", and where possible return within 2 weeks of receipt. Where the submittal must be held for coordination the Architect will so advise the Contractor without delay.
- B. Action Stamp: The Architect will stamp each submittal to be returned with a uniform, self explanatory action stamp, appropriately marked and executed to indicate whether the submittal returned is for unrestricted use, final-but-restricted use (as marked), must be revised and resubmitted (use not permitted) or without action (as explained on the transmittal form).

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION 013300

SECTION 017700 - PROJECT CLOSEOUT**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF REQUIREMENTS:

A. Definitions: Project closeout is the term used to describe certain collective project requirements, indicating completion of the Work that are to be fulfilled near the end of the Contract time in preparation for final acceptance and occupancy of the Work by the Owner, as well as final payment to the Contractor and the normal termination of the Contract.

B. Specific requirements for individual units of work are included in the appropriate sections in Divisions 2 through 16.

C. Time of closeout is directly related to "Substantial Completion"; therefore, the time of closeout may be either a single time period for the entire Work or a series of time periods for individual elements of the Work that have been certified as substantially complete at different dates. This time variation, if any, shall be applicable to the other provisions of this section.

1.03 PREREQUISITES TO SUBSTANTIAL COMPLETION:

A. General: Complete the following before requesting the Architect inspection for certification of substantial completion, either for the entire Work or for portions of the Work. List known exceptions in the request.

1. In the progress payment request that coincides with, or is the first request following, the date Substantial Completion is claimed, show either 100% completion for the portion of the Work claimed as "substantially complete", or list incomplete items, the value of incomplete work, and reasons for the Work being incomplete.

2. Include supporting documentation for completion as indicated in these contract documents.

3. Submit a statement showing an accounting of changes to the Contract Sum.

4. Submit specific Manufacturer's warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.

5. Complete final cleaning up requirements, including touch-up painting of marred surfaces.

B. Inspection Procedures: Upon receipt of the Contractor's request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled prerequisites.

1. Following the initial inspection, the Architect will either prepare the Certificate of Substantial Completion, or will advise the Contractor of work which must be performed before the certificate will be issued. The Architect will repeat the inspection when requested and when assured that the Work has been substantially completed.

2. Results of the completed inspection will form the initial "punch-list" for final acceptance.

1.04 PREREQUISITES TO FINAL ACCEPTANCE:

- A. General: Complete the following before requesting the Architect final inspection for certification of final acceptance, and final payment as required by the General Conditions. List known exceptions, if any, in the request.
1. Submit the final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Architect final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and has been endorsed and dated by the Architect.
 4. Provide the attached "Final Release and Waiver of Claims, Liens and Rights" form, signed and notarized and indicating a release of liens from all subcontractors, manufacturers and installers on this project.
 5. Submit Installer's Warrantee meeting the requirements of Section 3.5.2 of the Supplementary Conditions to the General Conditions.
- B. Re-inspection Procedure: The Architect will re-inspect the Work upon receipt of the Contractor's notice that the work, including punch-list items resulting from earlier inspections, has been completed, except for these items whose completion has been delayed because of circumstances that are acceptable to the Architect.
1. Upon completion of re-inspection, the Architect will either prepare a certificate of final acceptance, or will advise the Contractor of work that is incomplete or of obligations that have not been fulfilled, but are required for final acceptance.
 2. If necessary, the re-inspection procedure will be repeated.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES:

- A. As part of this instruction provide a detailed review of the following items:

1. Warranties, bonds, maintenance agreements and similar continuing commitments.

3.02 FINAL CLEANING:

- A. General: Special cleaning requirements for specific units of Work are included in the appropriate sections of Divisions 2 through 16. General Cleaning during the regular progress of the Work is required by the General Conditions and is included as part of the scope of work.
- B. Cleaning: Provide final cleaning of the Work at the time indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to the condition expected from a normal, commercial building cleaning and maintenance program. Comply with the manufacturer's instructions for operations.
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1. Complete the following cleaning operations before requesting the Architect inspection for certification of substantial completion:
 - a. Clean transparent materials, glass, to a polished condition. Remove putty and other substances which are noticeable as vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Plaster cracks, spalls, etc. resulting from the Work must be repaired and/ or replaced.
 - b. Clean the project site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas to a broom clean condition; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
 - c. Removal of Protection: Except as otherwise indicated or requested by the Architect, remove temporary protection devices and facilities which were installed during the course of the Work to protect previously completed Work during the remainder of the construction period.
 - d. Compliance: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at the site. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
 - e. Where extra materials of value remaining after completion of associated Work have become the Owner's property, dispose of these materials to the Owner's best advantage as directed.

END OF SECTION 017700



SECTION 030130 - CONCRETE REPAIR WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK:

A. Concrete repair work includes, but is not necessarily limited to, the following:

1. Sound testing and removal of all loose material.
2. Scraping and treating of all exposed steel reinforcing.
3. Repair of all spalled areas using stainless steel pins and trowel-applied mortar based on depth criteria listed below.
4. Forming and pouring of repairs based on size and depth criteria listed below.
5. Re-establishing of drips on the underside of the slabs where necessary, or required by Architect's direction.
6. Work may include the alteration of the existing profile to achieve sufficient coverage over existing steel reinforcement.

B. Refer to unit prices in Section 012300.

C. Refer to the Schedule of Alternates in Section 012300 for the work of alternates (if any) that relate to this section.

D. Refer to Allowances in Section 012100 for work related to this section.

1.03 QUALITY ASSURANCE:

A. Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:

1. International Association of Concrete Repair Specialists' "Surface Preparation Guidelines for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Oxidation."
2. ACI 318 "Building Code Requirements for Reinforced Concrete".
3. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".
4. ASTM C-1059-86

B. Materials and installed work may require testing and retesting, as directed by Architect, at anytime during progress of work. Allow free access to material stockpiles and facilities. Tests, including retesting of rejected materials and installed work, shall be done at Contractor's expense.



C. All work shall be performed in close association with the manufacturer's representative. A letter shall be obtained by the Contractor from the Manufacturer stating that the methods of installation meet the Manufacturer's installation requirements.

1.04 SUBMITTALS:

A. Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, repair compounds, mechanical fasteners, and others as requested by Architect.

B. Shop Drawings: If reinforcing replacement is required during the progress of the work, provide shop drawings sealed by a New York State Licensed Engineer/Architect for placement of new reinforcement bars. Show lap splicing of bars to indicate full performance of splice.

C. Samples: Submit samples of materials as specified and as otherwise requested by Architect, including names, sources and descriptions.

D. Manufacturer's Warrantee: Submit manufacturer's standard five year warrantee on all proprietary repair materials and coatings. Provision of this warrantee shall be a condition for final payment and is in addition to the Contractor's Warrantee required as part of Division 1 of these Specifications.

1.05 PROJECT CONDITIONS

A. No repair mortar placement either poured or trowel applied will be performed when ambient temperatures are below 45 degrees Fahrenheit or are expected to be below 45 degrees Fahrenheit for a period of three days after completion of the repair material placement.

B. The Contractor shall maintain at the site an exterior thermometer capable of measuring maximum and minimum temperatures for each day. The Contractor shall maintain a log of minimum and maximum temperatures for each day that repair material placement or curing is ongoing.

PART 2 - PRODUCTS

2.01 REINFORCING MATERIALS:

A. Replacement Reinforcing Bars if Required: ASTM A 615, Grade 60, deformed.

B. Supports for Replacement Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening replacement reinforcing bars if required.

2.02 CONCRETE REPAIR MATERIALS:

A. Water: Potable.

B. Products: Subject to compliance with requirements, provide the following:

1. Trowel-Grade Concrete Repair Mortar: Provide the following to be applied to spalled areas of maximum 2" depth, Maximum length of trowelled repairs is to be 1'-0" see size criteria and unit pricing:

a. Jahn M90 Concrete / Precast Mortar. Jahn Restoration Mortars are distributed by Cathedral Stone ® Products, Inc., 7266 Park Circle Drive, Hanover, MD 21076; tel. (410) 782-9150; fax. (410) 782- 9155; website: www.cathedralstone.com; email: info@cathedralstone.com



2. Poured Repair Concrete: Provide the following to be applied to spalled areas over 2" in depth, 1'-0" in length and at all corner repair locations, see size criteria and unit pricing:
 - a. Eucocrete Polymer Mortar by The Euclid Chemical Co., 19218 Redwood Road, Cleveland, OH Tel: (800) 321-7628, Fax: (216) 531-9596.
3. Steel Reinforcing Coating/ Bonding Agent for Poured Repairs Provide the following:
 - a. Duralprep A.C. Anti-corrosion Coating by The Euclid Chemical Co., 19218 Redwood Road, Cleveland, OH Tel: (800) 321-7628, Fax: (216) 531-9596.
4. Stainless Steel Rods: Provide the following for mechanical bond of repair to substrate and general pinning of the concrete:
 - a. Type 304 3/8" Diameter Stainless Steel Threaded Rods by Hilti, Inc., 5400 S. 122nd East Ave. Tulsa, OK 74146-6007, Tel: (866) 445-8827, Fax: (800) 879-7000.
 - b. Provide stainless steel double nut and washer for those applications where the rod is being used to produce a mechanical bond to the substrate for repair.
 - c. For setting rods provide Flexocrete by the Euclid Chemical Company.

2.03 FORM MATERIALS:

- A. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Formwork is to duplicate all existing edge conditions including curves and recessed areas, decorative banding and integral drips, etc.. Furnish in largest practicable sizes to minimize number of joints and to conform to the existing condition. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection. Sheet metal forms are to be used only with the approval of the Architect.
- B. Use plywood complying with U.S. Product Standard PS-I "B-B (Concrete Form) Plywood", Class 1, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
- C. Form Coatings: Provide Form Shield Pure Form Release Agent by The Euclid Chemical Co., 19218 Redwood Road, Cleveland, OH Tel: (800) 321-7628, Fax: (216) 531-9596.

2.04 PROPORTIONING AND DESIGN OF MIXES:

- A. General: All mixing, proportioning, placing and finishing of repair materials shall be performed in strict accordance to the manufacturer's instructions.

2.05 PRE-REPAIR CONFERENCE:

- A. At least 7 days prior to commencement of repairs, the contractor shall hold a meeting to review the detailed requirements for those repairs. Surface preparation, proposed equipment and procedures, material mixing, placing and finishing procedures, schedules, climatic conditions and sample repair areas shall be reviewed in the presence of the manufacturer's representative.
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PART 3 - EXECUTION

3.01 PREPARATION OF AREAS FOR REPAIR:

- A. General: All exposed concrete on the edges of the terraces shall be "sound tested" to determine areas of concern. All loose concrete shall be removed and repaired.
- B. All loose concrete and existing repair material shall be removed down to a sound substrate.
- C. At perimeter of all areas requiring repairs cut substrate back so as to avoid "feathered edges." Depth of cut shall be as follows: Spalls less than 1/2" deep; 1/4" minimum, Spalls greater than 1/2" deep; 1/2" minimum. Form and pour areas; 3/4" minimum.
- D. At all locations where oxidized reinforcing is exposed and/or bond has been lost to the substrate cut material out from behind the reinforcing member providing minimum 3/4" clearance behind.
- E. Remove all oxidation and scaling from the exposed reinforcing using mechanical means, and coat with protective coating following the manufacturer's specifications.
- F. Remove all bond-inhibiting materials from substrate, including dirt, concrete slurry, loosely bonded aggregates, etc., using abrasive blasting or high-pressure water blasting with or without abrasive. Provide a chipped concrete substrate with a surface profile of +/- 1/16" with a new aggregate fractured surface. After cleaning check to insure that surfaces are free of loose aggregate, and that additional delaminations have not occurred. Care must be taken to minimize micro-cracking in the base concrete.

3.02 PROJECT DEMOLITION/SURFACE PREPARATION SEQUENCING

- A. Sequence demolition/surface preparation on an elevation by elevation schedule. Do not proceed with repair installation unless the entire elevation has been prepared for repairs. No demolition/surface preparation is to be performed at areas adjacent to newly repaired areas. Confirm sequence of repairs at the pre repair conference (See Paragraph 2.05 above)

3.03 REPLACING REINFORCEMENT:

- A. Comply with ACI 318 and the Concrete Reinforcing Steel Institute's recommended practice for replacing and/or lapping of reinforcing bars, for details and methods of reinforcement replacement, and as herein specified.
 - B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with mortar repair.
 - C. Replace or lap all reinforcing steel that has lost more than 25% of its cross section (20% if 2 or more consecutive parallel bars are affected.)
 - D. Accurately position, support and secure reinforcement against displacement by construction, or repair placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
 - E. Place reinforcement to obtain at least 3/4" minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during repair placement operations. Set wire ties so ends are directed into repair, not toward exposed concrete surfaces.
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3.04 INSTALLATION OF STEEL RODS FOR MECHANICAL BOND:

- A. General: All installation shall be done in strict accordance with the manufacturer's instructions and specifications and as described below.
1. Stainless steel threaded rods shall be installed at all repairs 2" or deeper.
 2. All rods shall be installed inside the existing or replacement reinforcing steel.
 3. Rods shall be installed at an upward angle where possible.
 4. Install rods at a maximum 6" on center.
 5. Rods shall be installed so that the ends are a minimum of 3/4" from the face of repairs to be applied.
 6. The diameter of the holes drilled in the concrete shall be 1/4" greater than the diameter of the threaded rods.
- B. Drill 5/8" diameter hole in substrate 4" deep. Clean out hole using a blow-out bulb, or compressed air, and a nylon brush. Clean dust from substrate in area around hole.
- C. Inject adhesive into hole while withdrawing dispenser. Do not overfill.
- D. Immediately insert rod slowly into uncured adhesive, turning slightly.
- E. Remove all excess adhesive from face of substrate.
- F. When adhesive has fully cured, install double nut and washer, locking assembly into position. Do not load until adhesive is fully cured.

3.05 REPAIR TYPE SIZE CRITERIA AND UNIT PRICE DEFINITIONS:

- A. Prepared repair sites up to 2" in depth and 1'-0" in length, any direction: Trowel Repair.
- B. Prepared repair site over 2" in depth of any length: Formed and Poured Repair.
- C. Prepared repair site over 1'-0" in length: Formed and Poured Repair. Note: all formed and poured repairs are to be a minimum of 2" in depth.
- D. Prepared corner repair site of any length: Formed and Poured Repair.
- E. Unit Price Definitions
1. Unit Price - Trowel repair as described above up to 2" in depth per lineal foot of slab edge.
 2. Unit Price - Deep poured repair 2" to 6" in depth per lineal foot of slab edge without full post encapsulation at balcony fences.
 3. Unit Price - Full depth curb re-pouring without post encapsulation per lineal foot of slab edge.
 4. Unit Price - Full depth curb re-pouring per post location assuming 6" running length on either side of the post (lineal foot)
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3.06 TROWEL REPAIR MORTAR PLACEMENT:

- A. General: Apply/install all repair products in strict accordance with the manufacturer's instructions and specifications and as described below.
- B. Trowelable Repair Mortar:
 - 1. Dampen the surface to be repaired with clean, potable water.
 - 2. Mixing: Mix prepackaged components per the manufacturer's instructions.
 - 3. At time of application the substrate should be damp, with no standing water.
 - 4. Scrub bond coat of repair mortar into substrate, filling all pores and voids. Bond coat is to consist of repair mortar components mixed to a plastic consistency. While bond coat is still plastic, force material against edge of repair and work towards center. After filling, consolidate and screed. Allow mortar to set to desired stiffness and finish with trowel for smooth finish. Finish to match existing adjacent concrete. Institute manufacturer's recommended curing procedure immediately.
 - 5. Replicate all edge detailing and drips located in the adjacent material.
 - 6. At areas where previous repairs are to remain, re-establish drip at underside by saw cutting as necessary. Areas where saw cutting is performed are to be sound tested after saw cutting unsound areas are to be repaired as described above.

3.07 TROWEL APPLIED REPAIR CURING AND PROTECTION:

- A. Cure areas to be coated per manufacturer's instructions use a fine mist of water then cover with wet burlap, or polyethylene for 24 hours. Curing compounds are not to be used without the approval of the repair mortar and concrete coating manufacturers.

3.08 FORMS:

- A. General: Comply with the repair type size criteria in Section 3.04
 - B. Design, erect, support, brace and maintain formwork for large repairs to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure/substrate. Construct formwork so that repairs are of correct size, shape, alignment, and position. Form profiles are to closely replicate adjacent concrete. Minimum rebar cover of 1" shall be maintained within formwork and confirmed prior to pour.
 - C. If an extension of the original profile of the concrete is required for adequate cover of original reinforcing steel, confirm shape and extent of this extension/alteration with Architect and Owner via approval of a successful sample visible from an accessible location. Do not proceed with formwork or trowel applied repairs that deviate from the original profile without the approval of the Architect.
 - D. Design formwork to be readily removable without impact, shock or damage to cast-in-place repairs, surfaces and adjacent materials.
 - E. Chamfer exposed corners and edges to match original condition, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
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- F. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive repair material. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement required to eliminate mortar leaks and maintain proper alignment.
- G. Seal form perimeters as required to provide a watertight condition. Spilling or run out of repair concrete will be unacceptable. Use sealant as approved by the repair material manufacturer. Completely remove all sealant residues after form removal.

3.09 PREPARATION OF FORM AND SUBSTRATE SURFACES:

- A. Clean re-used forms of all repair material residue, repair and repair as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.
- C. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.
- D. Dampen the surface of the repair substrate with clean water within 12 Hours of repair concrete placement. Coat all surfaces of the substrate intended to bond to the new repair with the bonding agent. Bonding Agent must be applied within 12 Hours of repair concrete replacement.

3.10 POURED REPAIR MATERIAL PLACEMENT:

- A. Mix all poured repair concrete in an approved mechanical mixer. Drill and paddle mixing of small batches is to be performed only upon specific approval of the Architect. Discharge mechanical mixer contents into a clean vessel suitable for transporting the repair concrete to the placement site immediately.
- B. Fill forms carefully to avoid over flow and spills. Do not overfill forms. Vibrate mix while liquid/plastic using manufacturer's approved methods and vibrating equipment.

3.11 CURING OF POURED REPAIRS

- A. Cure formed repairs in accordance with manufacturer's instructions.
- B. Apply approved curing compound upon removal of formwork. In weather 80 degrees Fahrenheit or above or severely windy weather rewet the repair surfaces after curing compound application and drying and cover with polyethylene sheeting for a minimum of three days.

3.12 POST CURE FINISHING

- A. Carefully examine all completed repairs for ridges, visible seams, excess concrete residue, bumps or voids. Abrade, grind or remove ridges and protrusions using abrasive techniques acceptable to the Manufacturer.
- B. Formed and poured repairs containing excessive voids or air pockets will be rejected by the Architect.

3.13 COATING OF CONCRETE AND REPAIRS:

- A. General: Application of the waterproof coating shall be done in strict accordance with the Manufacturer's instructions and specifications, and as described below:
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- B. Clean all surfaces to be coated of any bond-inhibiting materials prior to application of the coating. All surfaces shall be dry, sound and frost free.
- C. Mix the product as specified by the manufacturer.
- D. Two coats of material shall be applied by brush, roller or spray equipment, making sure that full coverage is achieved.
- E. The application of the material shall be terminated at a straight taped line to be determined with the Architect. The termination point of the waterproof coating shall be consistent at all terraces.

END OF SECTION 030130

SECTION 040120 - EXTERIOR MASONRY CLEANING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK:

A. This section of the specifications addresses the masonry cleaning work on stone surfaces. Types of masonry cleaning work required include:

1. Prolonged water wash cleaning of masonry using only clean potable water
- B. Related masonry restoration work is described in Sections 040120 and 044300 of these specifications.
- C. Related joint sealer work is described in Section 079200 of these specifications.
- D. Refer to the Schedule of Alternates in Section 012300 for the work of alternates (if any) that relate to this section.

1.03 SUBMITTALS

- A. Environmental Regulations: Describe testing, handling, treatment, containment, collection, transport, disposal, and discharge of any hazardous wastes and cleaning effluents. Describe any hazardous materials to be cleaned from substrates. Submit applicable local environmental regulations.
- B. Protection: Describe methods for protecting surrounding areas, landscaping, pedestrians, vehicles, and non-masonry surfaces during the work from contact with chemical restoration cleaners residues, rinse water, fumes, wastes, and cleaning effluents.
- C. Surface Preparation: Describe surface preparation to be completed before application of restoration cleaners and paint strippers.

1.04 QUALITY ASSURANCE

- A. Restoration Specialist: Work must be performed by a firm having not less than 5 years successful experience in comparable masonry restoration projects and employing personnel skilled in the restoration processes and operations indicated.
 - B. Pre-Application Meeting: Convene a pre-application meeting a maximum of three weeks before the start of exterior masonry restoration cleaning. Require attendance of parties directly affecting work of this section, including the Contractor, Architect, applicator,. Review environmental regulations, test panel procedures, protection of surrounding areas and non-masonry surfaces, surface preparation, application, and coordination with other work.
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1.05 ENVIRONMENTAL REGULATIONS

A. Comply with applicable federal, state, and local environmental regulations regarding testing, handling, treatment, containment, collection, transport, disposal, and discharge of hazardous wastes and cleaning effluents.

B. Confirm that water used for prolonged wash will be drawn from a metered source. If the source is not metered by the New York City Department of Environmental Protection (NYCDEP) notify Owner of the requirement for a hydrant permit. Permit fees will be the responsibility of the Owner. No additional administrative charges will be borne by the Owner for the securing of hydrant permits. Securing of hydrant permits if required will be the responsibility of the Contractor. Permits may be obtained from the DEP Meter Permit Office of the pertinent borough.

C. No prolonged water wash will be permitted during NYCDEP declared Drought Watch or Drought Emergency, Stage One or higher. The Contractor shall be responsible for confirming the existence of the above drought conditions and informing the Owner in writing of the drought condition at the intended time of cleaning. Drought information can be obtained at the NYCDEP website (www.ci.nyc.us/html/dep/home.html).

1.06 TEST PANELS

A. Before full scale application, review manufacturer's product data sheets to determine the suitability of each product for the specific surfaces. Apply each restoration cleaner to test panels to determine dilution rates, dwell times, number of applications, compatibility, effectiveness, application procedures, effects of pressure rinsing, and desired results.

B. Perform prolonged washing and bristle scrubbing at the test panel Scrub lightly after 18 hours, 36 hours and finally after 72 hours. Evaluate and document conditions after each time period Do not begin full scale application until test panels are inspected and approved by the Architect.

1. Size: Minimum 6 feet by 6 feet each.
2. Locations: As determined by the Architect.
3. Number; minimum of three to allow for the evaluation of wash time required as above.

C. Test all cleaning effluents generated by the restoration cleaning of the test panels to determine any hazardous characteristics. Comply with applicable federal, state, and local environmental regulations regarding testing, handling, treatment, containment, collection, transport, disposal, and discharge of hazardous wastes.

D. Retain and protect approved test panels in undisturbed condition during the work of this section, as a standard for judging the restoration cleaning work.

1.07 PROJECT CONDITIONS

A. Do not clean masonry surfaces when temperatures are below freezing or will be overnight, to avoid harm to masonry. Clean masonry surfaces only when air and masonry surface temperatures are 40°F and above. Allow adequate time for masonry to thaw if freezing conditions exist prior to application.

PART 2 - PRODUCTS

2.01 WATER

A. Water for Rinsing: Clean and potable containing no deleterious materials leading to masonry discoloration.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify by examination that masonry surfaces are acceptable to receive the specified restoration cleaners.
- B. Verify that all non-masonry surfaces requiring protection can be adequately protected using plastic sheeting material. Identify any surfaces where alternate protection is required and confirm protection methods with Architect and Manufacturer's Representative prior to cleaning.

3.02 PROTECTION

- A. Protect surrounding areas, landscaping, pedestrians, vehicles, and non-masonry surfaces during the work from contact with restoration cleaners and, residues, rinse water, fumes, wastes, and cleaning
- B. Confirm all temporary protection measures to prevent perimeter leakage during masonry cleaning operations. Coordinate with building staff for all required access. Refer to Section 01010 for emergency contact requirements. Contractor's personnel must be reachable and on call during all prolonged rinsing operations.
- C. Divert and protect pedestrian and auto traffic.

3.03 SURFACE PREPARATION

- A. Apply all specified caulking and sealants and allow to cure before cleaning begins. Institute all temporary protection measures to prevent interior leakage.

3.04 PROLONGED RINSE AND SCRUB

- A. General: Use application procedures determined from test panel results approved by the Architect.
- B. Using apparatus proven successful in the test panels introduce a continuous low pressure rinse of the stone surfaces for the period of time determined by the successful test panel. Arrange apparatus to provide low pressure wetting of all stone surfaces to be cleaned at a constant rate.
- C. After the approved rinse time period gently scrub the stone surfaces with approved natural soft bristle brushes and conduct final rinsing.

3.05 FIELD QUALITY CONTROL

- A. Inspection: Inspect the restoration cleaning work with the Contractor, Architect, applicator, and, and compare with approved test panels. Determine if the substrates are suitably prepared to start masonry restoration.

3.06 FINAL CLEANING

- A. Clean site of all unused products, residues, rinse water, wastes, and cleaning effluents in accordance with environmental regulations.
- B. Remove and dispose of all materials used to protect surrounding areas and non-masonry surfaces, following completion of the work of this section.

END OF SECTION 040120



SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes unit masonry assemblies consisting of the following:

1. Concrete masonry units (CMUs).
2. Mortar and grout.
3. Reinforcing steel.
4. Masonry joint reinforcement.
5. Ties and anchors.
6. Miscellaneous masonry accessories.

B. Related Sections include the following:

1. Division 07 Section "Flashing and sheet metal".
2. Division 07 Section "Joint Sealants" for sealing control and expansion joints in unit masonry.

1.03 DEFINITIONS

A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.04 SUBMITTALS

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

1. Provide Environmental Materials Reporting Form.

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"

C. Samples for Verification:

1. Weep holes/vents.
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2. Accessories embedded in masonry.

D. 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.

E. Qualification Data: For testing agency.

F. Material Certificates: Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards. Provide for each type and size of the following:

1. Masonry units.

a. Include material test reports substantiating compliance with requirements.

b. For CMU, include size-variation data verifying that actual range of sizes falls within specified tolerances.

2. Reinforcing bars.

3. Joint reinforcement.

4. Anchors, ties, and metal accessories.

G. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.

H. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with cold-weather requirements.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated, as documented according to ASTM E 548.

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, through one source from a 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 a single manufacturer for each cementitious component and from one source or producer for each aggregate.

1.06 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 lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.
- F. Store aggregates away from contaminants where grading and other required characteristics can be maintained.

1.07 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 (600 mm) down both sides and hold cover securely in place.
 - 2. Where 1 wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches (600 mm) 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 3 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 (4 deg C) and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
 - 2. No masonry work will be permitted if temperatures are, or are expected to be, below 40°F at the time of construction or if temperatures are, or are expected to be, below 35°F within the three (3) days following construction.
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- E. Protect new masonry from rain or snow for at least 24 hours by covering with weather-resistive membrane.
- F. Use windbreaks or enclosures when wind is in excess of 15 mph.
- G. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.01 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.

2.02 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects, including dimensions that vary from specified dimensions by more than stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

2.03 CONCRETE MASONRY UNITS (CMUs)

A. Shapes: Provide shapes indicated and as follows:

- 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. Concrete Masonry Units: ASTM C 90.

- 1. Weight Classification: Normal weight.
- 2. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.

C. All CMU shall be 100% regional materials.

2.04 MORTAR AND GROUT MATERIALS

A. General: No additives will be allowed. "Waterproof cement/mortar" and "masonry cement/mortar" are not acceptable.

B. Portland Cement: ASTM C 150, Type I, except Type III may be used for cold weather construction. Provide natural color or white cement as required to produce required mortar color.

C. Hydrated Lime: ASTM C 207, Type S.

D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

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. White-Mortar Aggregates: Natural white sand or crushed white stone.

3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

4. Colored Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with record of satisfactory performance in masonry mortars.

F. Colored Mortar: Contractor may elect to use pre-colored mortar, or Architect may require its use. Colored mortar provided by the following manufacturers will be considered acceptable:

1. Color Mortar Blend (Color Portland Cement-lime Mortar) by Glen-Gery Corporation, Northeast Regional Sales Office, 75 Hamilton Road, Somerville, NJ 08876, Tel: (908) 359-7305, Fax: (908) 359-5116.

2. Custom Color Cement by Lehigh Portland Cement Company, 7660 Imperial Way, Allentown, PA 18195, Tel: (800) 523-5488, Fax: (610) 366-4684.

2.05 REINFORCEMENT

A. Reinforcing Steel: For reinforcement of parapet walls, provide #5 epoxy-coated rebar shop bent to the required configuration.

B. Adhesive: For installation of parapet reinforcing provide "HY 150" by Hilti, P.O. Box 21148, Tulsa, OK 74121, (800)926-0333.

C. Wall Reinforcement: For installation in all masonry walls provide Extra Heavy stainless steel #140 Truss Twin Mesh by Hohmann & Barnard, Inc. 631-234-0600.

B. Joint Reinforcement: Provide welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10', with prefabricated corner and tee units, and complying with requirements indicated below:

2.06 TIES AND ANCHORS

A. Wall Ties: Tie-HVR-195VB Anchor System in stainless steel by Hohmann & Barnard, Inc. 631-234-0600. Provide stainless steel fasteners as recommended by the Manufacturer for substrate type.

B. Expansion Joint Stabilizers: Provide stainless steel "Slip-Set Stabilizer" by Hohmann & Barnard, Inc. 631-234-0600.

2.07 MISCELLANEOUS MASONRY ACCESSORIES

A. Weep holes: Provide injection-molded "Brick Vents" by Williams Products, 1750 Maplelawn Boulevard, Troy, Michigan 48084. Tel: (248) 643-6400, or (800) 521-9594.

B. Soft Joint Pad: Provide "NS - Closed Cell Neoprene Sponge" by Hohmann & Barnard, Inc. 631-234-0600. Pad shall be 1/4" thick or sized properly for joint size, neoprene with self-adhesive, and shall comply with ASTM D 1056 Grade 2A1.

C. Expandable Joint Filler: For installation in all vertical expansion joints provide Backerseal Expanding Foam Sealant by Emseal Joint Systems Ltd., 25 Bridle Lane, Westborough, MA 01581-2603, Tel: (800) 526-8365, Fax: (508) 836-0281.

2.08 MORTAR 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. Limit cementitious materials in mortar to portland cement and lime.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

1. For masonry below grade or in contact with earth, use Type M.

2. For reinforced masonry, use Type N.

3. For mortar parge coats, use Type N.

4. 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.

D. Colored Mortar: Contractor may elect to use pre-colored mortar, or Architect may require its use. Colored mortar provided by the following manufacturers will be considered acceptable:

1. Color Mortar Blend (Color Portland Cement-lime Mortar) by Glen-Gery Corporation, Northeast Regional Sales Office, 75 Hamilton Road, Somerville, NJ 08876, Tel: (908) 359-7305, Fax. (908) 359-5116.

2. Custom Color Cement by Lehigh Portland Cement Company, 7660 Imperial Way, Allentown, PA 18195, Tel: (800) 523-5488, Fax: (610) 366-4684.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. Verify that foundations are within tolerances specified.

2. 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.

3.02 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown.

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 Work: Match coursing, bonding, color and texture of new masonry work with existing work.

G. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:

1. 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 maximum.

2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet maximum.

3. 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 (3 mm in 3 m) maximum.

4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm). Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).

5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).
6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.
7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

3.03 MORTAR BEDDING AND JOINTING

- A. Lay 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.
- B. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or filled with concrete or grout. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.
- C. Maintain joint widths shown, except for minor variations required to maintain bond alignment. If not shown, lay walls with 3/8" joints.
- D. Cut joints flush for masonry walls which are to be concealed or to be covered by other materials, unless otherwise indicated.
- E. Tool exposed joints slightly concave using a jointer larger than joint thickness, unless otherwise indicated.
- F. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners or jambs to shift adjacent stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.
- G. Collar Joints: After each course is laid, fill the vertical longitudinal joint between wythes solidly and with mortar except at joints directly above concealed flashing where weeps are installed. For solid walls only.
- H. Weeps: Install weeps at a maximum of 24" on center in the head joints of the course directly above all concealed flashings. Ascertain that the joint is kept clear of mortar.

3.04 STRUCTURAL BONDING OF MULTI-WYTHE MASONRY:

- A. Use individual metal ties installed in horizontal joints to bond wythes together. Provide ties as shown, but not less than one metal tie for 2 sq. ft. of wall area spaced not to exceed 16" o.c. horizontally and vertically. Stagger ties in alternate courses. Provide additional ties within 1'-0" of all openings and space not more than 3'-0" apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24" o.c. vertically.
- B. Where indicated use continuous horizontal joint reinforcement installed in horizontal mortar joints for bond tie between wythes. Install at not more than 16" o.c. vertically.
- C. Corners: Provide interlocking masonry unit bond in each course at corners, unless otherwise shown.

3.05 ANCHORING MASONRY VENEERS

A. Anchor masonry veneers to backup with seismic masonry-veneer anchors to comply with the following requirements:

1. Fasten seismic anchors to masonry backup with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
2. Embed connector sections and continuous wire 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 (458 mm) o.c. vertically and 24 inches (610 mm) o.c. horizontally, with not less than 1 anchor for each 2 sq. ft. (0.2 sq. m) of wall area. Install additional anchors within 12 inches (305 mm) of openings and at intervals, not exceeding 8 inches (203 mm), around perimeter.

3.06 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 using one of the following methods:

1. Fit bond-breaker strips into hollow contour in ends of concrete masonry units on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
2. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake out joint for application of sealant.

C. 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 (10 mm)]

1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry at each floor.

3.07 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 temporary 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.
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3.08 FIELD QUALITY CONTROL

A. Inspectors: Owner will engage qualified independent inspectors to perform inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.

1. Place grout only after inspectors have verified compliance of grout spaces and grades, sizes, and locations of reinforcement.

B. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections indicated below and prepare test reports:

1. Payment for these services will be made from Testing and Inspecting Allowance, as authorized by Change Orders.

2. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.

C. Testing Frequency: One set of tests for each 5000 sq. ft. (465 sq. m) of wall area or portion thereof.

D. Concrete Masonry Unit Test: For each type of unit provided, per ASTM C 140.

E. Mortar Test (Property Specification): For each mix provided, per ASTM C 780. Test mortar for mortar air content and compressive strength.

F. Grout Test (Compressive Strength): For each mix provided, per ASTM C 1019.

3.09 PARGING

A. Parge exterior faces of below-grade masonry walls, where indicated, in 2 uniform coats to a total thickness of 3/4 inch (19 mm). Dampen wall before applying first coat and scarify first coat to ensure full bond to subsequent coat.

B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot (3 mm per 300 mm). Form a wash at top of parging and a cove at bottom.

C. Damp-cure parging for at least 24 hours and protect parging until cured.

3.10 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. Clean stone by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
3. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
4. Clean stone trim to comply with stone supplier's written instructions.

3.14 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.

END OF SECTION 042000

SECTION 044300 - EXTERIOR STONE**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to the work of this section.

1.02 DESCRIPTION OF WORK:

A. The work of this section shall cover all work necessary for the production and installation of Stone cladding. The work shall include, but is not necessarily limited to:

1. Careful removal, cataloging, and storage off-site for replacement, Irish field stone cladding and freestanding wall portions from supporting concrete and/or CMU cores at the Field and Cottage wall in the monument areas indicated to allow flashing of the underlying condition. Do not disturb underlying reinforcing bars. Note all stone is to be reinstalled at the repaired and waterproofed substrates. Tooling and fabrication of all required profiles.

2. Protection of the monument, cottage walls and field stone walls not being removed; in position throughout the entire construction period.

3. Rebuilding of the Cottage and Fieldstone walls reusing the stone previously removed, catalogued and stored. Shortfall in stone is to be accommodated from Contract Allowance. Rebuilding is to incorporate the installation of wall ties/wall tie system at the rate of minimum 1-tie per 2 square feet of exposed surface area.

4. Note all stone rebuilding is subject to approval by the Artist and Owners. Contractor must provide a minimum of two full size mock-ups, 6'-0"± in length. Mockups include Cottage walls and Field walls. Mockups may be applied to the monument directly and if successful may be fully incorporated into the completed work.

3. All necessary attachments to the substrate.

4. Fabrication, delivery and installation of new replacement field stone to replace any shortfall per Contract Allowance.

1.03 RELATED SECTIONS

A. Related stone maintenance and cleaning is described in Section 040120 of these specifications.

B. Related masonry work is described in Section 042000 of these specifications.

C. Related flashing work is found in Section 075554 of these specifications.

D. Related joint sealer work is described in Section 079200 of these specifications.

1.04 QUALITY ASSURANCE:

A. Coordination: Coordinate the installation of all stone work closely with all related work to produce and maintain a watertight condition.



- B. Source Limitations for Stone: Obtain each variety of stone from one quarry, whether specified in this Section or in another Section of the Specifications, with resources to provide materials of consistent quality in appearance and physical properties.
- D. Installation: Engage a firm with not less than 5 years experience in successful installation of Stone types similar to those required for this project. Closely follow all manufacturer's installation instructions.
- E. Job Mock-Up: Prior to installation of stonework, provide sample panels of stonework indicated with proposed range of color, texture and workmanship to be expected in completed work. Build mock-up at site, as directed, using stone, anchors and jointing, as shown and specified in accordance with final shop drawings.
- F. Obtain Architect's acceptance of visual qualities of sample panels before start of stonework. Replace unsatisfactory mock-up work, as directed, until acceptable to Architect. Retain sample panels during construction as a standard for judging completed stonework. Do not alter, move or destroy mock-up until work is completed.
- G. Note all stone rebuilding is subject to approval by the Artist and Owners. Contractor must provide a minimum of two full size mock-ups, 6'-0"± in length. Mockups include Cottage walls and Field walls. Mockups may be applied to the monument directly and if successful may be fully incorporated into the completed work.
- H. In the case of more variegated stones, color photos shall be submitted in addition to the number of samples to show the full range of color and markings to be expected.
- I. Mortar Samples: Full range of exposed color and texture.
- H. If sealant primers, sealants, resin-adhesives, water repellents and other compounds are required in the finished stonework, build mock-up and apply compounds in sufficient time to allow for final test for staining or other deleterious effects from such applications.

1.04 SUBMITTALS:

- A. Samples for Verification Purposes: Submit the following samples:
 - 1. Stone samples for each type of exposed unit required; include in each set the full range of exposed color and texture to be expected in completed work.
 - 2. Colored mortar samples for each color required showing the full range of color, which can be expected, in the finished work. Label samples to indicate type and amount of colorant used.
 - 3. Fastener samples of each type required. Include Manufacturer's data showing the pullout strength of each fastener type.
 - 4. Shop drawings indicating size and dimensions of all new masonry units including all associated fasteners/hangers.
 - B. Product Data: Submit the manufacturer's specifications, installation instructions and general recommendations.
 - C. Shop Drawings: The Stone Manufacturer shall prepare and submit complete, properly marked fabrication and setting drawings, showing details and sizes of stones, arrangement of joints, bonding, inserts, joints, connections to adjoining walls or materials, reinforcing and method of installation and anchoring. All anchorage and details to be prepared by a licensed P.E. in the State of New York. Drawings shall be stamped by the licensed P.E. Shop drawings shall provide for but are not limited to the following the following:
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1. Suitable wash on all exterior sills, cornices, banding, projecting courses and pieces with exposed top surfaces.
2. All projecting pieces and soffit stones shall have drips under the outer edge.
3. The shop drawings shall show the setting mark of each stone and its location on the structure. The stone, when delivered, shall bear the same corresponding setting mark on an exposed surface.
4. Shop drawings indicating size and dimensions of all new masonry units including all associated fasteners/hangers.

1.05 JOB CONDITIONS:

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.
- B. Application temperatures: no stone installation shall proceed at ambient temperatures less than 50 degrees Fahrenheit. Temperatures above this absolute minimum shall be maintained for a period of seven days after stone work.
- C. Hot Weather requirements: Comply with hot weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
- D. Prior to the installation of the setting bed all debris shall be removed from substrate.

1.06 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver masonry materials to project in undamaged condition.
 - B. Store and handle masonry units to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion or other causes.
 - C. Store cementitious materials off the ground, under cover and in a dry location. Store aggregates where grading and other required characteristics can be maintained.
 - D. Store aggregates away from contaminants where grading and other required characteristics can be maintained.
 - E. Store accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.
 - F. Handle stone to prevent chipping, breakage, soiling or other damage. Do not use pinch or wrecking bars without protecting edges of stone with wood or other rigid materials. Lift with wide-belt type slings wherever possible; do not use wire rope or ropes containing tar or other substances, which might cause staining. If required, use wood rollers and provide cushion at end of wood slides.
 - G. Store stone on wood skids or pallets, covered with non-staining, waterproof membrane. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking of stones. Protect stored stone from weather with waterproof, non-staining covers or enclosures, but allow air to circulate around stones.
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PART 2 - PRODUCTS

2.01 STONE FABRICATOR / SUPPLIER:

A. Obtain materials for all stone from a single source to insure proper quality and color, pattern and texture to match existing.

2.02 STONE MATERIALS:

A. All stone shall be reused from existing stone carefully removed, catalogued and stored to allow waterproofing and repairs be performed to the substrates and core walls.

B. Replacement stone shall be of a similar size color range texture and shape as the existing un-cut randomly sized and shaped field stones.

C. Final color selection for replacement stones shall be made by Artist, Owner and Architect from samples supplied by the Contractor.

2.03 MORTAR MATERIALS FOR REBUILDING FIELD AND COTTAGE STONE:

A. General: No additives will be allowed. "Waterproof cement/mortar" and "masonry cement/mortar" are not acceptable.

B. Pre-blended Hydraulic Lime Mortar Mix: Ecologic™ Mortar "DGM", type G, custom blend; as manufactured by LimeWorks.US, PO Box 151, Milford Square, PA 18935, telephone (215) 536 6706, Fax. (215) 536 2281. Website: http://www.limeworks.us/ecologic_more.html

C. Pre-blended Hydraulic Lime Mortar Mix: Ecologic™ Mortar "SCG", type G; as manufactured by LimeWorks.US, PO Box 151, Milford Square, PA 18935, telephone (215) 536 6706, Fax. (215) 536 2281. Website: http://www.limeworks.us/ecologic_more.html

D. Final color selection for mortar for use in the replacement of stones shall be made by Artist, Owner and Architect from samples supplied by the Contractor.

E. Aggregate for Mortar: N/A; included in the premixed hydraulic mortar blend. Do not add more aggregate.

F. Water: Clean and potable, free from chlorides or any other salts.



2.04 MORTAR MIXES FOR REBUILDING FIELD AND COTTAGE STONE:

A. General:

1. Measurement and Mixing: Measure pre-blended hydraulic lime mortar mix in a dry condition by volume or equivalent weight. Do not measure by shovel, use a known measure. Mix materials with the required volume of clean water in a clean mechanical batch mixer, masons paddle mixer, or clean 5-gallon pail with a high torque electric power drill with a rigid paddle attachment.

2.05 MISCELLANEOUS MATERIALS:

A. Expansion Joint Filler: As approved by the Architect.

B. Stone clips: Provide stainless steel anchor clips as approved by the Architect.

C. All metal clips shall have a slot at rear leg to allow for vertical adjustment.

D. Wall Ties: Tie-HVR-195VB Anchor System in stainless steel by Hohmann & Barnard, Inc. 631-234-0600. Provide stainless steel fasteners as recommended by the Manufacturer for substrate type.

E. All shims used for horizontal adjustment shall match the full depth of the angles being shimmed. Shims shall be of the greatest practicable thickness based on the size of the void to be filled

F. Anchor Bolts, Nuts and Washers: Fabricate from AISI Type 302/304 stainless steel.

G. Stone Anchors: Type and size as required to securely anchor and fasten stonework in place. Fabricate anchors and dowels from AISI Type 302/304 stainless steel.

H. Setting Buttons: Lead or plastic buttons of the thickness required for the joint size indicated, and of the size required to maintain uniform joint width.

2.06 FABRICATION:

A. General: Fabricate as shown and as detailed on final shop drawings and in compliance with recommendations of applicable stone association. Provide holes and sinkages cut or drilled for anchors, fasteners, supports and lifting devices, as shown and as necessary to secure stonework in place. Cut and back-check as required for proper fit and clearance. Shape beds to fit supports.

B. Contiguous Work: Provide chases, reveals, reglets, openings and features as required for contiguous work. Coordinate with drawings and final shop drawings showing contiguous work.

C. Cut accurately to shape and dimensions shown on final shop drawings, maintaining fabrication tolerances of applicable stone associations.

D. Dress Joints (bed and vertical) straight and at 90 degree angle to face, unless otherwise indicated.

E. Thickness: Provide stone of thickness indicated. Saw-cut back surfaces which will be concealed in finished work.

F. Carve and cut decorative surfaces and inscriptions in accordance with final shop drawings.



PART 3 - EXECUTION

3.01 INSTALLATION:

A. General: Comply with manufacturers' instructions, except where more stringent requirements are indicated. The Architect reserves the right to reject any and all damaged stones. Rejected stones shall be replaced at no cost to the Owner.

B. Confirm layout pattern of stone with the Architect prior to beginning installation.

C. Sort stone before it is placed to remove stone that does not comply with requirements relating to aesthetic effects, physical properties or fabrication or that is otherwise unsuitable for the intended use.

D. Clean dirty or stained stone surfaces by removing soil, stains and foreign materials before setting. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives.

E. All stone shall be installed by experienced tradesmen, accurately and in accordance with the shop and setting drawings. Unless otherwise noted, every stone shall be held in place by (2) gravity connections and (2) lateral connections. All joints shall be pointed in a color matched approved mortar. Mortar is to be deeply recessed away from the from stone faces to mimic the appearance of "dry-stone walling". All hangers/hardware shall be firmly installed per manufacturer's recommendations, shimmed and adjusted to correctly place units.

F. All anchors, dowels and other anchoring devices shall be furnished by the setting contractor as shown in the approved shop drawings.

G. When setting with mortar, all stones not thoroughly wet shall be drenched with clear water just prior to setting.

H. After each stone has been set, all joints shall be raked to be deeply recessed away from the stone faces to mimic the appearance of "dry-stone walling". The face of each stone shall then be sponged off to remove any splashed mortar or mortar smears.

I. Install pointing mortar in the vertical and underside joints. Before pointing, the face of all Cast Stone shall be scrubbed with a fiber brush, using soap powder and potable water, and shall then be thoroughly rinsed with clean running water. No acids or prepared cleaners shall be used without the express approval of the Limestone supplier.

K. All stone shall be protected from splashing mortar or damage by other trades. Any foreign matter dropped on stones shall be removed immediately.

3.02 STONE SETTING AND RESETTING:

A. Remove stones to be reset using methods that do not damage stone surfaces or arrises. Mark and document stone locations prior to site storage. Do not mark stones on faces to be exposed.



B. Confirm sound condition of stone upon removal bring any cracks, spalls or other defects to the attention of the Architect immediately. Inspect condition of back up masonry at resetting sites. Localized brick masonry replacement to achieve a sound substrate is included in the work. Key new back up masonry soundly into existing.

C. Set stones using approved anchors in a full bed of mortar. Set stones plumb and level matching existing bond patterns and jointing. Tool mortar joints to match approved profiles.

3.04 SEALANT INSTALLATION

A. For sealant application at penetrations, expansion joints, perimeters, etc. refer to Section 07920 of these Specifications.

3.05 CONSTRUCTION TOLERANCES

A. Variation from Plumb: For vertical lines and surfaces do not exceed ¼ inch in 10 feet. For external corners, expansion joints and control joints, do not exceed ¼ inch in 20 feet.

B. Variation from Level: For bed joints, lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed ¼ inch in 20 Feet.

3.06 PROTECTION

A. Protect stone work from debris resulting from subsequent construction activity under this contract.

3.05 ADJUSTING AND CLEANING

A. Remove and replace broken, chipped, stained or otherwise damaged stone. In a manner that results in stone masonry matching approved samples and mockups, and showing no evidence of replacement.

B. Remove large mortar particles by hand with wooden paddles and non metallic scrape hoes or chisels.

END OF SECTION 044300



SECTION 075554 - RESIN BASED WATERPOOFING & FLASHING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-I Specification sections, apply to work of this section.
- B. The following specification outlines the requirements for a fully reinforced cold fluid-applied polyurethane liquid resin roofing and waterproofing membrane and flashing system, and all other ancillary waterproofing work including but not limited to installation of insulation, cover boards, overburden, sealants and metal work as specified

1.02 DESCRIPTION OF WORK:

- A. Extent of waterproofing is hereby defined to include: membrane system intended for weather exposure as primary waterproofing intended for weather exposure under an installed extensive landscaped and paved overburden.
 - B. Adhered fully reinforced, cold fluid-applied, polyurethane liquid resin waterproofing membrane system including membrane, penetration flashings, base flashings, and expansion joints.
 - C. Substrate preparation, cleaning, leveling and patching.
 - D. Insulation/cover board/cap sheet installation
 - E. Temporary waterproofing and priming.
 - F. Waterproofing membrane installation.
 - G. Flashing installation and expansion joint installation.
 - H. Protective surfacing.
 - I. Alkalinity protection.
 - J. Preparation for overburden installation.
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- K. Work in this section includes all labor, materials, equipment and services to complete the installation of a proprietary resin based roofing system installed on the existing roof deck.
1. At all areas to receive new roof system consisting of a concrete structural deck work shall include, but is not limited to, the following brief description:
- a. The sound testing of the existing concrete slab to insure that no structural damage has occurred.
 - b. Preparation of the slab for the new membrane installation. The work is to include the removal of all loose material and/or contaminants, the cutting out of all ridges, and other surface projections that could cause puncturing or other damage to the new membrane system, and any resurfacing necessary to create and maintain proper pitch of the slab to the terrace drain(s) and/or scupper(s).
 - c. Airblasting or vacuuming to remove dirt, dust and other loose material. See Special Dust Control Methods and Sequencing Below.
 - d. Installation of proprietary resin sand mix as required to build up low spots/pitch to drain/scuppers.
 - e. Application of polyurethane resin primer.
 - f. Application of new resin and 165 weight polyester fleece membrane.
 - g. Installation of new flashings.
 - h. Termination of roofing to new and existing drains per manufacturer's details.
 - i. Installation of new finish surfacing and sealer.
 - j. Replacement of all roof drains. Tie into existing trench drains.
 - k. Prepare existing cold-joints and through cracks in the underlying concrete deck per manufacturers directing and install continuous minimum 6" wide resin based flashing strip prior to installation of resin based waterproofing at the main field areas.
 - l. Prepare concrete perimeter per manufacturers requirements and install continuous seamless resin-based waterproofing edge treatment strip from the underside drip edge up and over the top of the main field of the concrete deck above. Waterproofing at the main field is to overlap the edge flashing.
 - m. Install resin based waterproofing system to the prepared concrete deck, curbs, penetrations and concrete and CMU core walls per direction of the manufacturer and per applicable details. Typical throughout all raised monument areas. Resin based waterproofing is to turn down the inside face of the raised concrete areas minimum 2'-0" or to the extent possible without disturbing the structural fill and waterproof sheeting membrane above.
 - L. Related sealant work is specified in Section 079200.
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1.03 QUALITY ASSURANCE:

A. Installer:

1. The Contractor shall be certified by the system manufacturer to bid. The Contractor's personnel shall be certified to apply the specified materials/systems. Application personnel shall wear certification badges at all times when mixing or applying proprietary materials.

2. The Contractor shall have a minimum of three (3) years experience in the installation of fluid-applied roofing and waterproofing systems similar complexity to the specified system, and be approved by system manufacturer for warranted membrane installation. Applicator shall submit the following certification for review.

1. Applicator shall submit documentation from the membrane manufacturer to verify contractor's status as an approved applicator for warranted installations.

B. Certifications:

1. Certification that system specified meets all applicable codes and insurance requirements.

2. Applicator firm certification, indicating full compliance with all manufacturer's requirements and technical specifications.

C. Evaluate moisture content of substrate materials. Contractor shall determine substrate moisture content throughout the work and record with Daily Inspection Reports or other form of reporting acceptable to the Owner or designated Representative, and Membrane Manufacturer.

D. Random tests to determine tensile bond strength of membrane to substrate shall be conducted by the Contractor at the job site using an Elcometer Adhesion Tester Model 106 or similar device, or by the performance of a manual pull test. Contractor shall perform tests at the beginning of the Work, and at intervals as required to assure specified adhesion with a minimum of three (3) tests per 5000 square feet. Smaller areas shall receive a minimum of three (3) tests. Test results shall be submitted to the Owner or his designated Representative and the Membrane Manufacturer. Contractor shall immediately notify the Owner or his designated Representative and Membrane Manufacturer in the event bond test results are below specified values.

1. Adequate surface preparation will be indicated by tensile bond strength of membrane to substrate greater than or equal to 220 psi (1.5 N/mm²), as determined by use of an adhesion tester.

2. Adequate surface preparation will be indicated by 135° peel bond strength of membrane to substrate such that cohesive failure of substrate or membrane occurs before adhesive failure of membrane/substrate interface.

3. In the event the bond strengths are less than the minimum specified, additional substrate preparation is required. Repeat testing to verify suitability of substrate preparation.

E. Monitor quantities of installed materials. Monitor application of resin mixture, reinforcing fleece and flashing. Perform Work in accordance with manufacturer's instructions.



F. Regulatory Agencies:

1. Underwriters Laboratory: Products and assemblies in the work of this section shall meet/exceed the construction requirements of UL Class A.
2. Workplace Safety: OSHA Safety and Health Standards (29 CFR 1926/1910) - current edition. National Institute for Occupational Safety and Health (NIOSH). Building Official Council of America (BOCA).

G. Mock-Up: Prepare and clean a three by three foot area of each substrate material type. Mock-up areas shall be used to determine required methods and tools to obtain degree of substrate preparation required by the manufacturer. Conduct tests as required to verify that substrate preparation meets specified requirements. Tests shall include, but are not limited to, tensile bond strength and moisture content of substrate. Submit findings in writing to Owner, Architect and the manufacturer. Mock-up areas shall be maintained for quality control for the entire project.

1. An additional sample or samples shall be emplaced at the monument perimeter edge extending from the underside drip up over the top surface for the approval of the edge flashing and aggregate surfacing and sealing. Sample is to be approved by the Artist and Owner. Successful sample may remain in situ and be incorporated into the completed work. Unsuccessful/unapproved samples must be removed.

1.04 PRE-INSTALLATION MEETING:

A. Convene a pre-installation meeting at the job site (1) week before starting work of this section. Require attendance of parties directly affecting work of this section, including but not limited to, Roofing/Waterproofing Specifier, Owner's Representative, Roofing/Waterproofing Contractor, and Membrane Manufacturer's Representative. Review roofing/waterproofing preparation and installation procedures, coordination and scheduling required with related work, and condition and structural loading limitations of deck/substrate.

1.05 FIELD INSPECTION SERVICES:

A. Manufacturer's technical representative shall provide the following inspections of the membrane application.

1. Jobstart inspection at the beginning of each phase of the project, to review special detailing conditions and substrate preparation.
2. Periodic in-progress inspections throughout duration of the project to evaluate membrane and flashing application.
3. Final punch-list inspection at the completion of each phase of the project prior to installation of any surfacing or overburden materials.
4. Warranty inspection to confirm completion of all punch list items, surfacing, and overburden application.

1.06 SPECIAL PROJECT SEQUENCING AND DUST CONTROL REQUIREMENTS:

A. Utilize approved dust collection equipment during all cutting grinding or similar operations. See below.



1.05 SUBMITTALS:

- A. Product Data: Submit latest edition of Manufacturer's literature including performance data and installation procedures and requirements.
- B. Samples: Submit a 4" square sample of the proposed membrane. Color, texture, thickness and surfacing shall be representative of the proposed system.
- C. Installer Certification: Submit manufacturer's certification advising that the installer is an approved, acceptable applicator for the issuance of the manufacturer's warranty.
- D. Manufacturer's Review: Submit a statement signed by the manufacturer stating that the contract documents have been reviewed by qualified representative of the manufacturer of the roofing system and that they are in agreement that the selected materials are appropriate and compatible for the applications shown
- E. Warranties: Specimen copy of manufacturer's warranty and Contractor's warranty
- F. Shop Drawings: Detailed shop drawings include outline of roof or waterproofing application and size, profile details of flashing conditions and methods for penetration and terminations and technical acceptance from the manufacturer. Submit shop drawings detailing intended pitch modifications. Show door sill, cap flashing and paver heights.
- G. Copies of current Material Safety Data Sheets (MSDS) for all components of the work.
- H. Evaluation of moisture content of substrate materials. Determine substrate moisture content throughout the work and record with Daily Inspection Reports or other form of reporting acceptable to the Owner or Architect and the manufacturer.
- I. Evaluation of tensile bond strength of membrane to substrate. Testing shall be performed with Elcometer Adhesion Tester Model 106 or approved similar device. Record test results with Daily Inspection Reports or other form of reporting acceptable to the Owner or Architect and the manufacturer.

1.05 JOB CONDITIONS:

- A. All components of the system shall be delivered to the site in the manufacturer's original sealed containers/packaging, clearly identified with product type, batch number, size, performance characteristics, storage limitations/restrictions and agency approvals.
 - B. The contractor together with the Owner or Architect shall define a storage area for all components. The area shall be cool, dry, out of direct sunlight, and in accordance with manufacturer's recommendations and relevant regulatory agencies.
 - C. Copies of all current MSDS for all components shall be kept on site. Provide any and all crew members with appropriate safety data information and training as it relates to the specific chemical compound he or she may be expected to work with. Each crew member shall be fully aware of first-aid measures to be undertaken in case of accidents. Comply with requirements of OSHA, NIOSH and/or local governing authority for work place safety.
 - D. Roll goods shall be stored horizontally on platforms sufficiently elevated to prevent contact with water and other contaminants. Do not use rolls which are wet, dirty or have damaged ends.
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- E. Store solvent bearing solutions, resins, additives, inhibitors or adhesives in accordance with the MSDS and/or local fire authority. After partial use of materials replace lids promptly and tightly to prevent contamination.
 - F. Observe EPA, OSHA and all local disposal requirements.
 - G. Materials shall not be stored in quantities that will exceed design loads, damage substrate materials, hinder installation or drainage.
 - H. Application of cold fluid-applied reinforced polyurethane roofing/waterproofing membrane may proceed while air temperature is between 40°F (5°C) and 85°F (30°C) providing the substrate is a minimum of 5°F above the dew point.
 - I. When ambient temperatures are at or expected to fall below 50°F (10°C), or reach 85°F (30°C) or higher, follow Membrane System Manufacturer's recommendations for weather related additives and application procedures.
 - 1. Do not commence with the application of any material during or with the threat of inclement weather.
 - 2. Ensure that substrate materials are dry and free of contaminants. DO NOT commence with the application unless substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the application of the materials.
 - J. Provide barricades, retaining ropes, safety elements (active/passive) and any appropriate signage required by OSHA, NIOSH, and NSC and/or the Owner or Architect.
 - K. Where required by the Owner or Architect, Contractor shall implement odor control and elimination measures prior to and during the application of the roofing materials. Control measures shall be field tested at off-hours and may consist of the following measures:
 - 1. Sealing of air intakes with activated carbon filters. Install filters in accordance with requirements and recommendations of the filter manufacturer. Seal filters at joints and against building exterior walls to prevent leakage of unfiltered air where required due to size of intake opening.
 - 2. Erection and use of moveable enclosure(s) sized to accommodate work area(s) and stationary enclosure for resin mixing station. Enclosure shall be field constructed or pre-manufactured of fire retardant materials in compliance with local code requirements in accordance with requirements of the Owner or his designated Representative. Equipment enclosure(s) with mechanical air intake/exhaust openings and Odor Control Air Cleaners, as required to clean enclosed air volume and to prevent odor migration outside the enclosure. Exhaust opening shall be sealed with activated carbon filter.
 - 3. Placement of odor elimination stations inside and outside of the enclosure(s) as required by field condition, in coordination with the Owner or his designated Representative.
 - 4. Protection of Contractor personnel and occupants of the structure and surrounding buildings as required to comply with requirements of OSHA, NIOSH and/or governing local authority.
- 1.06 MANUFACTURER'S REPRESENTATIVE:
- A. The manufacturer's representative shall provide field instruction and supervision of the installation of the membrane system, as required.
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1.07 SPECIAL PROJECT WARRANTY:

A. Furnish manufacturer's 20 year No Dollar Limit warranty.

B. The Contractor shall supply the Owner with a minimum five-year workmanship warranty. In the event any work related to roofing, waterproofing, or flashings is found to be within five (5) years of acceptance by the manufacturer and Owner, the roofing/waterproofing contractor shall remove and replace such defects at no cost to the Owner. The Contractor shall notify the manufacturer promptly, regarding the type of defect, location of the defect and implemented repair. The Contractor's warranty obligation shall be directly to the Owner and a copy shall be sent to the system manufacturer.

PART 2 - PRODUCTS

2.01 GENERAL:

A. Contact Kemper Systems, Inc., New Jersey Office, 1182 Teaneck Road, Suite 206, Teaneck, NJ 07666. Telephone 201-833-8898, Fax 201-833-8422.

2.02 ROOFING MEMBRANE ASSEMBLY/PRODUCTS:

A. Single ply composite of two-component polyurethane resin and 165 gram weight polyester fleece.

1. Polyurethane resin shall consist of the following components: cream colored formulation resin and dark brown formulation resin by Kemper Systems, Inc.. Kemper 2K PUR.

2. Non-woven, needle-punched polyester fleece, 165 weight by Kemper Systems, Inc. Additional joint fleece as required for butted seam application.

3. Primer: two component, solvent free, high solids epoxy resin for use in improving adhesion of membrane to cementitious, concrete and masonry substrate surfaces. Monitor application rate and adjust depending on substrate absorbency. EP/EP5 primer as appropriate by Kemper Systems, Inc.

4. Primer: two component, solvent free, high solids epoxy resin for use in improving adhesion of membrane to metal substrate surfaces. Monitor application rate and adjust depending on substrate absorbency. D primer by Kemper Systems, Inc.

5. Cold Weather Additive: Additive specifically designed to accelerate the resin reaction time at ambient temperatures below 50°F (10°C). Accelerator to be used with cream resin Component A prior to mixing of multi-component resin, Kemper System America Inc.'s Kemperol A 2K-PUR Accelerator.

6. Aggregate Finish Coating: Polyurethane-based coating suitable for use to both bond and seal aggregate, Kemper System America Inc.'s Kemperdur Deko Transparent.

4. Leveling and Patching Aggregate: Silica sand shall be washed, kiln-dried, and dust-free, suitable for troweling or pourable self-leveling, round grain or angular with the following size specification:

1. For voids less than 1" in depth: #00 (0.3 - 0.6 mm)
2. For voids 1" to 2" in depth: #0 (0.5 - 1.2 mm)

4. Aggregate for building up low spots/voids: 00 Kiln dried silica sand as approved by manufacturer.



5. Alkaline Protection Layer Primer: Where masonry is to be laid over resin based flashing provide two component, solvent free, high solids epoxy resin for use in improving adhesion of membrane to substrate surfaces. Monitor application rate and adjust depending on substrate absorbency. EP with approved oven dried sand by Kemper Systems, Inc.

2.03 MISCELLANEOUS MATERIALS:

A. Tools, accessories and cleaners to be supplied and/or approved by manufacturer prior to product installation.

B. Dust Collection Apparatus: All tools used in the cutting of masonry and the grinding or other abrasive preparation of concrete shall be Compatible with and equipped with Airsweep Dust Extraction System Equipment by Bosch Tool Corporation or approved equal. Dust collection equipment and measures shall be confirmed via Owner Approved mock-up.

C. At planted areas provide full size planting area drains for large areas #2685C cast iron replacement roof drains by Smith Inc. at all drain locations. Drains are to be provided with inside caulk connections, bronze standpipe and polished bronze dome covered with stainless steel mesh, and, under-deck clamps.

D. Repair Mortar for Concrete Substrate: Provide "Euco-Speed" rapid setting patching mortar as manufactured by The Euclid Chemical Company; Cleveland,OH (800) 321-7628.

E. Application Tools, Accessories, and Cleaners: Supplied and/or approved by membrane manufacturer for product installation.

F. Solvent-Based Cleaner for Tools and Membrane Tie-Ins: Methyl Ethyl Ketone (MEK) or acetone.

G. Water-Based Cleaner for Membrane: Simple Green HD.

H. Topcoat Surfacing Aggregate: Silica sand, ceramic-coated quartz, or specialty aggregate shall be washed, kiln-dried, and dust-free with the following size specification.

1. Utility/Fire Rating:	0.5 - 1.2 mm
2. Alkalinity/Adhesion Key:	0.5 - 1.2 mm
3. Aesthetic/Pedestrian Traffic:	0.4 - 1.0 mm

I. Backer Rod: Expanded, closed-cell polyethylene foam designed for use with cold-applied joint sealant.

J. Caulking: Single component, non-sag elastomeric polyurethane sealant meeting ASTM C920, Type S, Grade NS, Class 35 for use in sealing cracks and joints, and making watertight seals where required.

K. Drainage Board (Enkadrain/W 3601): Entangled filament polypropylene core with nonwoven geotextile filtering fabric suitable for all overburden applications, with the following characteristics.

1. Minimum Core Weight:	16 oz/sq.yd
2. Core Thickness:	0.30 in
3. Minimum Flow Rate:	9.7 gpm/ft @ 1000 psf, 1.0 gradient

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall coordinate the installation so that each completed area is made watertight at the end of each day.
- B. Existing waterproofing and flashings shall be removed down to the structural substrate/penetration at all waterproofing and flashing areas. Existing bituminous roofing materials are to be fully removed, no exceptions. Existing resin based flashings are to be field inspected. Deteriorated and/or loose areas are to be removed. Sound existing resin based flashings may remain subject to Manufacturer and Architect observation and approval.
- C. Existing resin based flashing which are sound and may remain in place are to be prepared per manufacturers direction prior to the application of new resin based waterproofing/flashing over top of same.
- D. The Contractor shall be responsible for the protection of equipment and adjacent areas from defacing or contamination.
- E. Any substrate to receive membrane materials shall be clean, dry, free of loose, spalled or weak material, oil, grease, contaminants, abrupt changes in level, waterproofing agents, curing compounds, and free of projections which could damage membrane materials.
- F. Do not start any work until surfaces to be covered are suitable to receive membrane application. Determine moisture content of the structural deck. Eliminate or reduce moisture levels to acceptable levels. Do not apply primer over structural deck/surfaces not acceptable to manufacturer. Adjust work schedule as required to accommodate moisture reduction operations.
- G. Where preparation of substrate materials requires the use of power driven or actuated tools, observe applicable use instructions and safety requirements.
- H. Before installation of any membrane materials, notify manufacturer to inspect substrate condition and issue written acceptance. Any corrections shall be implemented prior to the commencement of the work.
- I. Application of any component of the work by the Contractor shall indicate suitable and acceptable surfaces in accordance with this specification.

3.02 SUBSTRATE PREPARATION

- A. General - Comply with manufacturer's instructions for preparation of substrate to receive membrane system, except where more stringent requirements are indicated.
 - 1. Concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products and previous waterproofing materials.
 - 2. Concrete shall be dry with a maximum moisture content of five (5) percent. Determinations of moisture content shall be performed by the Contractor. Contractor shall be responsible to perform periodic evaluations of moisture content during the work. Moisture evaluation results shall be submitted in writing to the Owner or his designated Representative and the manufacturer for acceptance. Where the substrate moisture content exceeds acceptable levels, or where moisture migration to the area below the membrane application cannot be positively eliminated, Contractor may utilize an approved epoxy primer in lieu of the Kemperol Primer D. The use of epoxy shall be contingent on the written approval by manufacturer's Technical Department.
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3. Concrete shall be abrasively cleaned in accordance with ASTM D4259 to provide a sound substrate free from laitance with an open concrete surface. When using mechanical methods to remove existing waterproofing products or surface deterioration, the surface profile is not to exceed 1/4" (peak to valley).
4. The substrate shall be sound and all spalls repaired prior to placement of the primer coat. Spalls and other deterioration shall be repaired in accordance with the requirements of Section 04500.
5. Areas of minor surface deterioration and low spots shall be repaired/built up to prevent possible ponding of the system, leading to excessive usage of primer and resin. Extent and location of thin surface patching shall require approval of the Architect and manufacturer prior to the application of any system component.
6. Level uneven surfaces with a leveling mixture of primer and approved kiln-dried silica sand in a 1:2 primer to sand ratio by volume. Spread and plane this compound with a squeegee and trowel to achieve a flat surface. Fill cavities with a patching mixture of primer and approved kiln-dried sand in a 1:4 primer to sand ratio by volume. Silica sand must be kept absolutely dry during storage and handling. Any surface to be leveled or filled must first be primed with an appropriate primer.
7. Prevent compounds from entering and clogging drains and conductors, and from spilling or migrating onto surfaces of other work.

B. Metal Preparation:

1. Clean and prepare metal surfaces to near white metal in accordance with SSPC-SP3 (power tool clean) or as required by the manufacturer. Extend preparation a minimum of three (3) inches beyond the termination of the materials.

C. Prior to priming of the surfaces, the Architect and the manufacturer's representative will inspect and approve the prepared substrate.

D. Testing to determine tensile bond strength of membrane to substrate shall be conducted by the Contractor at the job site using an Elcometer Adhesion Tester Model 106 or similar device. Contractor shall perform tests at the beginning of the work a minimum of three tests per 5000SF. Test results shall be submitted to the Architect and the manufacturer. Contractor shall immediately notify the Architect and the manufacturer in the event tensile bond test results are below specified values.

E. Adequate surface preparation will be indicated by tensile bond strength of membrane to substrate greater than or equal to 220psi for pedestrian traffic and 300psi for vehicular traffic. In the event that the tensile bond strengths are lower than the minimum specified, additional substrate preparation is required. Repeat testing to verify suitability of substrate preparation.

3.06 MEMBRANE INSTALLATION:

A. Contractor must refer to the manufacturer's application manual for comprehensive application guidelines.

1. The system shall be applied as listed below:
 - a. Preparation and cleaning of the substrate.
 - b. Application of primer suitable for substrate.
 - c. Repair of low spots with sand resin mix.

- d. Application of the membrane.
 - e. Application of surfacing and sealer.
2. Immediately prior to the application of any component of the system, the substrate shall be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth-wipe or a combination.
 3. Closely follow the recommendation for hot and cold weather application. Monitor surface and ambient temperatures, including the effects of wind chill.
 4. Protect all areas where membrane has been installed. Do not work off installed membrane during application of remaining work before forty-eight hours of curing. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.
 5. Provide and maintain positive ventilation and protection to workers for concealed and/or interior application or applications lacking sufficient natural air movements.
 6. Clean tools in accordance with the requirements of the manufacturer.
- B. Substrate Leveling: Substrate conditions are to be evaluated by the Architect and manufacturer.
1. Perform leveling operations in accordance with these instructions.
 - a. The leveling mixture typically consists of unsaturated polyester resin and approved kiln-dried silica sand in a 1:2 resin to sand ratio by volume. Spread and plane this compound with a squeegee and trowel to achieve a flat surface. Fill cavities with a leveling mixture of polyester resin and approved kiln-dried sand in 1:3/1:3.5 resin to sand ratio by volume.
 - b. Any surface to be leveled must first be primed.
 - c. Silica sand must be kept absolutely dry during storage and handling.
 - d. Do not proceed with membrane installation until leveled surface has passed a ponding test. Block scuppers and drain. Flood and confirm run off.
 2. Preparation of Joints and Cracks: Joints, cracks, and fractures in the structural deck shall be prepared as defined below prior to installation of waterproofing/roofing membrane. Joints, cracks, facades may telegraph through the waterproofing membrane.
 - a. Non-moving cracks: Determine that crack is non-moving. Clean out crack by brushing and oil-free compressed air. Fill crack with polyurethane sealant. Allow for a minimum of twelve hours cure or as required by sealant manufacturer.
 - b. Moving cracks and cold joints: Determine that crack is moving. Clean out crack by brushing and oil-free compressed air. Fill crack with polyurethane sealant. Allow for a minimum of twelve hours cure or as required by sealant manufacturer. Apply resin and six inch (6") strip of membrane (resin and fleece) in strict accordance with roofing system manufacturer's written instructions.
- C. Primer Application:
-

1. Primer consists of Components A and B. Pour entire contents of Component B into container of Component A.
2. Utilize a spiral mixer or a clean mixing paddle for a minimum of two minutes or until swirl-free and bubble-free. Do not aerate. Once mixed, primer has pot life of approximately twenty minutes.
3. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of manufacturer.
4. Apply primer direct in one step utilizing a brush or paint roller. Do not allow ponding.
5. Allow primer to cure for a minimum of twelve (12) hours. Exposure of the primer in excess of five days or premature exposure to moisture may require removal and application of new primer.
6. Do not apply new primer over exposed primer older than five (5) days, primer prematurely exposed to moisture, or primer used as temporary waterproofing, unless approved by the Technical Department of manufacturer in writing.
7. Primer application past the membrane termination requires surfacing with an approved surfacing material.
8. Do not install primer on any substrate containing newly applied and/or active asphalt, coal-tar pitch, creosote or penta-based materials unless approved in writing by Membrane Manufacturer. Some substrates may require additional preparation before applying primer.
9. It is recommended to apply the waterproofing membrane immediately following full curing of the primer in order to obtain the best bond between primer and membrane.

D. Mixing Resin Components:

1. Mix resin Component A (cream formulation) with a spiral agitator until the liquid is a uniform cream color. If the ambient temperature is below 50°F (10°C), then a weather related additive should be combined and mixed into the Component A.
 - a). Accelerator should be added to resin Component A when the ambient temperature is 50°F (10°C) and below. The accelerator should be mixed with the spiral agitator for 2 minutes or until both liquids are thoroughly blended
2. Pour resin Component B into Component A at a 4:1 ratio (by weight) and thoroughly mix the components with a clean spiral agitator. The Resin solution should be a uniform color, with no light or dark streaks present.
3. Mix only that amount of resin components A & B that can be used in 30 minutes.

Three spiral mixers and a separate mixing pail are required for the mixing of resins.

1. Prepare Cream Colored Resin (Component A) first:
 2. Combine the Cream and Brown resins in full units in Bucket A. Thoroughly mix the two resins together without aerating until a uniform color results. If temperatures are above 80(F or below 50(F, utilize Activators and Inhibitors to maintain catalyzing process as required. Always mix only what can be used in a twenty minute period.
-



E. Application of Resin/Fleece Reinforcement:

1. Once mix is ready, apply liberally to the prepared surface with roller using a broad, even stroke.
2. Install fleece using manufacturer's approved butted seam with joint fleece procedures.
3. Roll out dry polyester fleece onto the liquid resin mix, making sure the smooth side is facing up (natural unrolling procedure).
4. Allow fleece to saturate with resin from bottom up prior to pouring additional resin on top of surface.
5. Roll the fleece with a medium nap roller to eliminate air bubbles, wrinkles, etc.
6. Apply additional liquid resin mix on top of fleece until fully saturated and continue to work resin. The correct amount of resin will leave no whiteness in fleece and there will be a slightly fibrous surface texture. However, allow no ponding or excessive build-up of the resin. The coating should be smooth and uniform. Consult manufacturer for rate of application on flat, horizontal, and sloped surfaces.
7. Approximately 2/3 of the total resin should be applied to the substrate below the fleece reinforcement, and 1/3 of the total resin should be applied over the fleece reinforcement.
8. At membrane tie-offs, clean in-place membrane with M.E.K. (methyl ethyl ketone) solvent or acetone when resin has cured. Allow solvents to fully evaporate before application of new resin.
9. Prevent contact between mixed/unmixed resin, new membrane or old (remaining) membrane. If any unmixed resin contacts membrane surface, remove immediately and thoroughly with a clean cloth rag.
10. Alkalinity surface protection consisting of one application of EP primer and one application of approved broadcast mineral aggregate surfacing shall be applied wherever stone, concrete, or masonry elements will be placed directly over the roofing or flashing.

F. Flashings

1. Install membrane flashing system in accordance with the requirements/recommendations of KSI. Provide system with base flashing, penetration flashing, counter flashing, and all other flashings required for a complete watertight system. Install membrane flashing terminated to back up masonry per manufacturer's requirements.
 2. Provide reinforcement fleece with resin at perimeter.
 3. Flashings shall extend a minimum of eight inches above finished membrane level and a minimum of six inches onto horizontal deck surface.
 4. Metal counter flashing shall lap base flashing a minimum of four inches.
 5. Fleece sections shall overlap each other a minimum of two inches.
 6. Prime walls, curbs, etc. with 2-component polyurethane primer. Follow manufacturer's written instructions for primer cure.
 7. Work wet membrane to avoid any blisters, openings, or lifting at corners, junctions, and transitions. Assure full resin saturation of fleece.
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8. Prevent contact between mixed/unmixed resin, new membrane, or old (remaining) membrane. If any unmixed resin contacts membrane surface remove immediately and thoroughly clean with a cloth rag.
- H. Finish
 1. Kiln-Dried Sand Surfacing with Resin
 - a. Where specified, provide and install approved mineral aggregate to achieve traffic surface.
 - b. Broadcast approved mineral aggregate into supplemental application of uncured unsaturated polyester resin applied over clean, uncured membrane. Obtain full and uniform coverage.
 - c. Immediately after broadcasting, back roll with dry roller using pressure on the roller.
 - d. Following minimum 48-hour cure time, remove loose/un-embedded mineral aggregate. Re-broadcast clean mineral aggregate as required to provide full and uniform embedment and coverage of membrane.
 - e. After completion of mineral aggregate broadcasting, avoid any traffic for a minimum of three days. After cure, remove any loose mineral aggregate by blowing with oil-free compressed air. Seal sand surface with proprietary sealer.
 - I. Alkaline Protection Layer.
 - a. At all areas of flashing to be subsequently concealed by new masonry, install primer and aggregate alkaline protection layer per manufacturer's instructions.
 - b. Allow alkaline protection layer to cure prior to new masonry installation.

3.07 PROTECTION:

- A. The Contractor shall protect system from all other contractors and activities during the work and after completion. Any damage to the system shall be repaired by contractor prior to acceptance.

3.08 CLEAN UP

- A. The Contractor shall remove all masking, protection, equipment, materials and debris from the work and storage areas and leave those areas in an undamaged and acceptable condition.

3.09 INSPECTIONS

- A. Inspection by Contractor: Prior to and during application, inspections may be made by a member of management of the Contractor. Contractor Quality Control Inspections shall be in addition to any inspections which may be made by an employee or representative of the Owner or manufacturer. It is solely the responsibility of the contractor to provide a warrantable project.
 - B. Inspection by Manufacturer's Representative
 1. Prior to and during application, inspections shall be made by manufacturer's Representative.
 2. All inspections must be requested by the Contractor in writing with a minimum 48-hour advanced notice. No work is to be proceed until the appropriate inspections have been completed and written acceptance by manufacturer has been received.
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3. The following inspections by the manufacturer's representative designate are required for issuance of warranty:
 - a. Substrate inspection and acceptance.
 - b. Primer inspection
 - c. Membrane inspection
 - d. Final inspection.
4. Contractor shall submit to manufacturer daily membrane samples, daily log reports and certification that installation has been completed in conformance with the standards of manufacturer.
5. Contractor shall correct any application deficiencies in conformance with the standards of manufacturer.

3.10 MEMBRANE PREPARATION FOR SURFACINGS AND COATINGS

- A. Membrane must be clean and dry, and free of all contaminants that may interfere with the adhesion of the surfacing and coating to the membrane surface.
- B. Membrane exposed less than 48 hours prior to application of surfacing and coating materials does not require special surface preparation. It is highly recommended that all surfacing and coating materials be applied to the membrane surface within 48 hours.
- C. Membrane exposed longer than 48 hours will require sanding/scuffing of the surface to remove the hard gloss finish, followed by an MEK or acetone solvent wipe.

3.11 SURFACING AND FINISHES

- A. Where specified, provide and install approved kiln-dried silica sand, or other approved mineral surfacing to achieve an aesthetic and/or non-skid surface.
 - B. Pre-mix single-component and two-component coatings prior to application to achieve an even consistency.
 - C. Broadcast specified and approved sand or aggregate in excess into a bonding coat application of Membrane Manufacturer's approved urethane-based or acrylic-based aggregate coating system applied over clean, cured membrane at the manufacturer's recommended application rate. Aggregate shall be applied to excess to obtain uniform and full coverage.
 - D. Following minimum 24 hour cure time remove loose/un-embedded mineral aggregate by blowing with oil-free compressed air or with a vacuum. Re-broadcast clean mineral aggregate as required to provide full embedment and coverage of membrane.
 - E. Seal aggregate surface with a sealing coat application of Membrane Manufacturer's approved aggregate coating, applied at the manufacturer's recommended application rate. After completion of surfacing, avoid any traffic for a minimum of three (3) days to allow for surfacing to cure.
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3.12 ALKALINITY PROTECTION

- A. Where placement of concrete, mortar or adhesive setting beds are required over sections of the waterproofing membrane or flashing, apply manufacturer's epoxy primer/coating at the manufacturer's recommended coverage rate, with broadcast to excess of kiln-dried silica sand into wet primer/coating.
- B. Protection shall extend a minimum of one (1) foot (0.3m) past the concrete form on all sides.
- C. Provide continuous cleaning with water and brush to eliminate settlement of concrete residues on in-place waterproofing membrane adjacent to area of concrete placement.

3.13 SOLID ADHERED OVERBURDEN APPLICATION

- A. General: Paving stones and tiles shall be installed in accordance with the overburden manufacturer's current published specifications and recommendations for use in an above-membrane plaza, terrace, fountain, or flooring application.
- B. Membrane Preparation: Install adhered overburden to waterproofing membrane that has been provided with alkalinity/adhesion key surfacing. Utilize adhesives/mortars approved by the membrane manufacturer. Tile adhesive shall meet and exceed ANSI requirements for adhesion shear strength.
- C. Install Overburden: Install overburden neatly, level and even. Cracked, broken or otherwise damaged overburden materials must be removed and discarded. Fit overburden neatly around all penetrations and projections, and at the perimeter. Ensure that overburden is properly supported to provide even weight distribution to underlying assembly.

3.12 VEGETATIVE OVERBURDEN APPLICATION

- A. General: Irrigation systems, soil or other growing media, and plantings shall be installed in accordance with the irrigation system manufacturer's current published specifications and recommendations for use in an above-membrane garden application.
- B. Install Overburden: Install overburden neatly, level and even. Dead, broken or otherwise damaged overburden materials must be removed and discarded. Fit overburden neatly around all penetrations and projections, and at the perimeter. Protect plantings from damage and provide with sufficient water until entire installation is complete.

3.13 COMPLETION

- A. Work which does not conform to specified requirements including tolerances, slopes, and finishes shall be corrected and/or replaced. Any deficiencies of membrane application, termination and/or protection as noted during the Final inspection shall be corrected and/or replaced at Contractor's expense. Upon completion of corrected work the contractor must request in writing a Final Inspection by manufacturer's representative.
- B. Site clean up including both interior and exterior building areas that have been affected by construction, shall be restore to pre-construction condition. All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre-construction condition.
- C. All warranties as required in this Section shall be submitted for approval prior to final payment.

END OF SECTION 075554



SECTION 079200 - JOINT SEALERS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK:

A. The extent of sealant work consists of, but is not necessarily limited to the following:

1. Miscellaneous sealant work to provide a watertight condition.

B. Work described in Section 012300 - Alternates - of this specification, shall also comply with the provisions of this section where appropriate:

C. Refer to Bid Form for related Unit Prices.

D. Refer to Section 040120 for related masonry work.

1.03 SYSTEM PERFORMANCES:

A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

1.04 QUALITY ASSURANCE:

A. Installer Qualifications: Engage an Installer who has successfully completed within the last 3 years at least 5 joint sealer applications similar in type and size to that of this project and who will assign mechanics from these earlier applications to this project, of which one will serve as lead mechanic.

B. Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.

1.05 SUBMITTALS:

A. Product Data: Submit manufacturer's technical data for each joint sealer product required, including instructions for joint preparation and joint sealer application.

B. Samples for Initial Selection Purposes: Submit manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available, for each product exposed to view.

C. Test Reports: Submit pre-construction joint sealer-substrate test results including recommendations of joint sealer manufacturer for joint preparation and application of joint sealers applicable to project conditions.



1.06 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver materials to project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multi-component materials.
- B. Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.07 PROJECT CONDITIONS:

- A. Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40°F (4.4°C).
 - 2. When joint substrates are wet due to rain, frost, condensation or other causes.
- B. Joint Width Conditions: Do not proceed with installation of joint sealers when joint widths are less than allowed by joint sealer manufacturer for application indicated.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL:

- A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.
- B. Colors: Provide color of exposed joint sealers indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

2.02 ELASTOMERIC JOINT SEALANTS:

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class, and Uses.
 - B. One-Part Nonsag Urethane Sealant: Type S; Grade NS; Class 25; Uses NT, M, A and, as applicable to joint substrates indicated, O;
 - 1. Products: Subject to compliance with the requirements, provide one of the following:
 - a. "Sonolastic NP I"; as manufactured by BASF Construction Chemicals LLC (800) 433-9517 . Color to be chosen by Owner.
 - b. "Vulkem 116"; as manufactured by Tremco Commercial Sealants and Waterproofing (800) 321-7906. Color to be chosen by Owner.
 - C. For sidewalk expansion joint sealant provide: Sonolastic SL 2 as manufactured by BASF Construction Chemicals LLC (800) 433-9517. Color to be chosen by Owner.
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2.03 JOINT SEALANT BACKING:

- A. General: Provide sealant backings of material and type which are non-staining; 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.
- B. Plastic Foam Joint-Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
1. Products: Subject to approval by sealant manufacturer, provide closed-cell polyethylene foam, non-gassing, such as "Soft Backer Rod" as manufactured by Sonneborn Building Products Div., BASF Building Systems, 889 Valley Park Drive, Shakopee MN 55379. (800) 433-9517.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back (3rd) surface of joint. Provide self-adhesive tape where applicable.

2.04 MISCELLANEOUS MATERIALS:

- A. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from pre-construction joint sealer substrate and field tests.
- B. Cleaners for Nonporous Surfaces: Provide non-staining, chemical cleaner of type acceptable to manufacturer of sealant and sealant backing materials that are not harmful to substrates and adjacent nonporous materials.
- C. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.
- D. Expanding Foam Sealant: For installation as a secondary waterproof barrier, use Backerseal Expanding Foam Sealant by Emseal Joint Systems Ltd., 25 Bridle Lane, Westborough, MA 01581-2603, Tel: (800) 526-8365, Fax: (508) 836-0281.
- E. Expanding Foam Sealant (for below grade wall joints): provide 20H Asphalt Impregnated foam Sealant by Emseal Joint Systems Ltd., 25 Bridle Lane, Westborough, MA 01581-2603, Tel: (800) 526-8365, Fax: (508) 836-0281.

PART 3 - EXECUTION**3.01 INSPECTION:**

- A. Require Installer to inspect joints indicated to receive joint sealers for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Obtain Installer's written report listing any conditions detrimental to performance of joint sealer work. Do not allow joint sealer work to proceed until unsatisfactory conditions have been corrected.
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3.02 PREPARATION:

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:

1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), oil, grease, waterproofing, water repellents, water, surface dirt and frost.

2. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, acid washing or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other non-porous surfaces by chemical cleaners or other means that are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.

4. Joint Priming: Prime all joint substrates. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.

5. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALERS:

A. General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply. All joints shall be primed prior to the installation of sealant.

B. Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications and conditions indicated.

C. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Install joint-fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

2. Do not leave gaps between ends of joint-fillers.

3. Do not stretch, twist, puncture or tear joint-fillers.

4. Remove absorbent joint-fillers that have become wet prior to sealant application and replace with dry material.

5. Install bond breaker tape between sealants and joint-fillers or back of joints where required to prevent third-side adhesion of sealant to back of joint.



6. At the expansion joints install expanding foam sealant in strict accordance with the manufacturer's instructions. Set foam back from the face of the masonry to allow for the installation of a bond breaker and a properly sized sealant joint.

E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

F. Tooling of Non-sag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Concave joint configuration per Figure 8/A in ASTM C 1193, unless otherwise indicated.

3.04 PROTECTION AND CLEANING:

A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and re-seal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

B. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

END OF SECTION 079200

SECTION 083100 – HORIZONTAL ACCESS DOORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK:

A. Work included: Furnishing and installing factory fabricated vault access doors with integral safety fencing.

B. Refer to Section 075554 for related Resin Based Roofing & Flashing work.

C. Refer to Section 079200 for related Joint Sealers work.

D. Refer to Section 321313 for related Concrete Paving work.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM), 100 Bar Harbor Drive, West Conshocken, PA 19428-2959; (610) 832-9585, fax (610) 832-9555. ASTM A 36-93a: Standard Specification for Structural Steel.

B. International Organization for Standardization (ISO), ISO Central Secretariat, 1, ch. de la Voie-Creuse, CP 56, CH-1211 Geneva 20, Switzerland, phone +41 22 749 01 11, fax +41 22 733 34 30 : - ISO 9001:2008 Certified

1.04 SUBMITTALS:

A. Product Data: Provide manufacturer's product data for all materials in this specification.

B. Shop Drawings: Show profiles, accessories, location, and dimensions.

C. Samples: Manufacturer to provide upon request; sized to represent material adequately.

D. Contract Closeout: Vault access door manufacturer shall provide the manufacturer's Warranty prior to the contract closeout

1.04 DELIVERY, STORAGE, AND HANDLING:

A. Deliver materials to project site in original unopened manufacturer's original packaging.

B. Store materials in a dry, protected, well-vented area. The contractor shall thoroughly inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.

C. Remove protective wrapping immediately after installation.



1.05 SUBSTITUTIONS:

A. Proposals for substitution products shall be accepted only from bidding contractors and not less than (10) working days before bid due date. Contractor guarantees that proposed substitution shall meet the performance and quality standards of this specification.

1.07 PROJECT CONDITIONS:

A. Verify that other trades with related work are complete before installing vault access door(s).

B. Mounting surfaces shall be straight and secure; substrates shall be of proper width.

C. Refer to the construction documents, approved shop drawings, and manufacturer's installation instructions.

D. Observe all appropriate OSHA safety guidelines for this work

1.08 WARRANTY/GUARANTEES:

A. Manufacturer's standard warranty: Materials shall be free of defects in material and workmanship for a period of (5) five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge. Electrical motors, special finishes, and other special equipment (if applicable) shall be warranted separately by the manufacturers of those products.

B. Manufacturer's Quality System: Registered to ISO 9001:2008 Quality Standards including in-house engineering for product design activities

PART 2 - PRODUCTS

2.01 MANUFACTURER:

A. The BILCO Company, P.O. Box 1203, New Haven, CT 06505; 1-203-934-6363, Fax: 1-203-933-8478, Web: www.bilco.com.

2.02 ACCESS DOOR:

A. Furnish and install where indicated on plans two (2) vault access doors Type J H20, hot-dip galvanized, sized to match existing to be replaced. Note: Hinge side is to be placed on the outside/West side. The vault access door shall be single leaf. The vault access door shall be pre-assembled from the manufacturer.

B. Performance characteristics.

1. Cover: Shall be reinforced to support AASHTO H-20 wheel load with a maximum deflection of 1/150th of the span. Manufacturer to provide structural calculations stamped by a registered professional engineer upon request. (Note: For installation in an off-street location where not subject to high density, fast moving traffic.)

2. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.

3. Operation of the cover shall not be affected by temperature.

C. Cover: Shall be 1/4" (6.3 mm) steel diamond pattern..



- D. Frame: Channel frame shall be 1/4" (6.3 mm) steel with full anchor flange around the perimeter.
- E. Hinges: Shall be specifically designed for horizontal installation and shall be through bolted to the cover with tamperproof Type 316 stainless steel lock bolts and shall be through bolted to the frame with Type 316 stainless steel bolts and locknuts.
- F. Drain Coupling: Provide a 1-1/2" (38mm) drain coupling located to align with existing scupper/hopper drain below.
- G. Lifting mechanisms: Manufacturer shall provide the required number and size of compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and to act as a check in retarding downward motion of the cover when closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe fastened to a formed 1/4" gusset support plate.
- H. A removable exterior turn/lift handle with a spring loaded ball detent shall be provided to open the cover and the latch release shall be protected by a flush, gasketed, removable screw plug.
- I. Hardware.
 - 1. Hinges: Heavy forged brass hinges, each having a minimum 3/8" (9.5mm) diameter Type 316 stainless steel pin, shall be provided and shall pivot so the cover does not protrude into the channel frame.
 - 2. Cover shall be equipped with a hold open arm that automatically locks the cover in the open position.
 - 3. Cover shall be fitted with the required number and size of compression spring operators. Springs shall have an electro coated acrylic finish.
 - 4. A Type 316 stainless steel snap lock with fixed handle shall be mounted on the underside of the cover.
 - 5. Hardware: Compression spring tubes shall be an anti-corrosive composite, all fasteners shall be Type 316 stainless steel material, and all other hardware shall be Type 316 stainless steel.
 - 5. Post and Chains: Provide integral protective post and chains which may be deployed when the door is opened to protect the opening.
- J. Finishes: Factory finish shall be hot-dipped galvanized steel.

PART 3 - EXECUTION

3.01 INSPECTION:

- A. Verify that the vault access door installation will not disrupt other trades. Verify that the substrate is dry, clean, and free of foreign matter. Report and correct defects prior to any installation.

3.02 INSTALLATION:

- A. Submit product design drawings for review and approval to the architect or specifier before fabrication.
 - B. The installer shall check as-built conditions and verify the manufacturer's vault access door details for accuracy to fit the application prior to fabrication. The installer shall comply with the vault access door manufacturer's installation instructions.
-



C. The installer shall furnish mechanical fasteners consistent with the vault access door manufacturer's instructions. Fasteners shall be type 304 stainless.

D. Refer to section 075554 for related resin based flashing work.

3.04 PROTECTION AND CLEANING:

A. Provide protection to the installed access door during completion of the contract work at the surrounding areas. Remove protection upon completion of all surrounding work. Ensure successful operation of doors after removal of protection.

END OF SECTION 083100

SECTION 099110 - PAINTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-I Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK:

A. Extent of painting work is as herein specified. The work includes, but is not necessarily limited to:

1. Preparation, priming and painting of all structural steel, lintels, and other ferrous metals exposed during masonry work.

2. Preparation, priming and painting of the monument sliding entrance gate.

B. Work described in Section 01030 - Alternates - of this specification, shall also comply with the provisions of this section where appropriate.

1.03 QUALITY ASSURANCE:

A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

B. Coordination of Work: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.

1.04 SUBMITTALS:

A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.

B. Samples: Submit samples for Artist, Owner and Architect's review of color and texture. All paint colors will be as selected by Architect, custom colors are included in scope.

C. Sample color installation for review and approval by Artist at the entrance gate.

1.05 DELIVERY AND STORAGE:

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition, free of foreign materials and residue.



C. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily or solvent laden rags and waste daily. Take all precautions to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of paints.

1.06 JOB CONDITIONS:

A. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45°F (7°C) and 95°F (35°C), unless otherwise permitted by paint manufacturer's printed instructions.

B. Apply water based paints only when the substrate surface and ambient air temperature is between 50 degrees and 90 degrees Fahrenheit.

C. Do not apply paint in snow, rain, fog or mist, or when relative humidity exceeds 85%, or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.

1.07 TESTING AND INTERIM CONTROL

A. The Contractor shall bear the responsibility for independent testing to determine the presence of lead in any painted surface to be prepared, stripped or otherwise prepared. Testing is to be performed by laboratory tests of paint samples,(AAS for lead) in accordance with all pertinent regulations.

B. The Contractor will be required to conform to all pertinent ordinances and regulations in the treatment of the area to be painted and the disposal of the debris resulting from the surface preparation. These regulations include but are not limited to the Lead Safe Work Practices (Safe Work Practices) contained in New York City Local Law 1 of 2004. Guides to conformance with these standards can be obtained from the NYC Department of Health (212) 226-5323. Questions about exterior paint scraping/removal protection requirements can be referred to The NYC Department of Health Lead Abatement Safety Unit (LASU) (212) 676-8186. Disposal of materials collected shall be in accordance all pertinent regulations. Disposal and transportation requirements are contained in New York State Department of Environmental Conservation *Environmental Compliance and Pollution Prevention Guide for Small Quantity Generators*, most recent edition. This manual can be obtained from the NYSDEC at (718) 482-4900.

C. The Contractor will be required to conform to all pertinent ordinances and regulations in the treatment of the area to be painted and the disposal of the debris resulting from the surface preparation including but not limited to Title 40: Protection of Environment – Part 745 of the United States Environments Protection Agency (EPA). Disposal of materials collected shall be in accordance all pertinent regulations. Disposal and transportation requirements are contained in New York State Department of Environmental Conservation *Environmental Compliance and Pollution Prevention Guide for Small Quantity Generators*, most recent edition. This manual can be obtained from the NYSDEC at (718) 482-4900.



PART 2 - PRODUCTS

2.01 MANUFACTURERS:

A. For coating of all new and existing structural steel use:

1. Typoxy Series 27WB, (Inorganic Hybrid Water-Based Epoxy) by Tnemec Company Inc. as a primer/base coat.

2. Endura Shield II 1075 (Aliphatic Acrylic Polyurethane) by Tnemec Company Inc. as a top coat.

3. Where steel will be hidden from view a double coat of Typoxy Series 27WB will be acceptable.

4. For coating of all new galvanized steel after thorough abrading of surface per manufacturer's requirements use:

a. Typoxy Series 27WB, (Inorganic Hybrid Water-Based Epoxy) by Tnemec Company Inc. as a primer/base coat.

b. Endura Shield II 1075 (Aliphatic Acrylic Polyurethane) by Tnemec Company Inc. as a top coat.

B. Tnemec Company Inc. can be reached at 11 Upton Drive, Wilmington, MA 01227 - Philip J. Gonnella independent representative, phone: (800) 533-3003, ext 8401, Fax: (800) 988-9824, email: pgonnella@rightergroup.com

H. All colors shall be as selected by Artist and Owner from the Manufacturer's custom or standard colors.

2.02 MATERIALS:

A. Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

B. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.

C. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

PART 3 - EXECUTION

3.01 INSPECTION:

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.
- B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.
- D. Maximum Moisture Content of Substrate: When measure with an electronic moisture meter as follows:

Wood: 15 percent

3.02 SURFACE PREPARATION:

- A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.
 - 1. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.
 - 2. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate pH indicator tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Confirm the use of neutralizing agents with the Architect prior to neutralizing alkali conditions.
 - 3. Porous Materials: Test all porous substrates with an accurate electronic moisture meter. Do not paint over surfaces where moisture content exceeds 8% or that permitted in manufacturer's printed directions.
 - B. Metals:
 - 1. Existing Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent cleaning. After solvent cleaning proceed with mechanical cleaning in accordance with The Steel Structures Painting Council Surface Preparation Specification SSPC-SP3.
 - 2. Re-examine cleaned condition of all welded work to assure the complete removal of all fluxes, slag and fume deposits. Do not proceed with coating until all such detrimental deposits have been completely removed.
 - 3. Sequence primer application immediately after cleaning, subject to the Architect's inspection requirements to prevent rust back conditions. Reclean any area where rust back occurs after initial mechanical cleaning.
 - 4. Clean all shop primed surfaces to be thoroughly free of dirt, grease and any other bond inhibiting contaminant. Clean any abraded, scratched or otherwise exposed portions of metal per SSPC-SP3 and reprime all such areas. Sand rough surfaces smooth prior to coating application.
-



5. Clean all galvanized metal surfaces to be painted with an approved galvanizing cleaner. and thoroughly wash with water. Smooth galvanized surfaces shall be abraded with approved # 80-100 grit abrasive paper prior to cleaning and priming. Do not proceed with primer application until galvanized surfaces are thoroughly dry. Prepare all cut ends of galvanized members or other areas of exposed metal per SSPC-SP3 and prime with a compatible primer prior to priming the remainder of the galvanized surface.

3.03 MATERIALS PREPARATION:

A. Mix and prepare painting materials in accordance with manufacturer's directions. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3.04 APPLICATION:

A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied. Apply coatings with brush or roller as approved by the coatings manufacturer. Spray application is to be performed only on approval of the Architect based on approved sample panels.

B. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

C. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

D. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as recommended by coating manufacturer.

E. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, roller spatter or other surface imperfections will not be acceptable.

F. Coats: Apply minimum two (2) coats at all locations. The Contractor may apply two coats of the base/primer paint in lieu of primer and top coat at all concealed steel locations.

3.06 CLEAN-UP AND PROTECTION:

A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and trays at end of each work day.

B. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

C. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.



- D. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
- E. At completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION 099110



SECTION 311000 - SITE CLEARING

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. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Surveying existing grades in plant beds
4. Stripping and stockpiling Planting Soil
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and temporarily removing irrigation.
7. Temporary erosion- and sedimentation-control measures.

- B. Related Sections:

1. Section 312000 "Earth Moving"

1.3 DEFINITIONS

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile 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.
- C. Planting Soil: The soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.
- D. Plant-Protection Zone: Area at the perimeter of the planting beds where vegetation is to remain during construction. This vegetation to be protected during construction, and indicated on Drawings.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.



- F. Wet Soils: Soil that is considered wet will easily be deformed by hand pressure, maintain their shape and free water will be visible within the pore spaces. The water content at this soil condition is considered field capacity or wetter.

1.4 MATERIAL OWNERSHIP

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

1.5 ACTION SUBMITTALS

- A. Contractor to submit in writing method to protect all soils to remain include product data, installation method and schedule.

1.6 INFORMATIONAL SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - 1. Use sufficiently detailed photographs or videotape.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.7 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project site as arranged by Construction Manager and BPCA Representative.

1.8 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
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- B. Planting Soils to be Salvaged: Carefully remove items indicated to be salvaged and store in approved area.
- C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.
- D. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. 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.
- E. Do not direct vehicle or equipment exhaust towards protection zones.
- F. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.
- G. Soil Stripping, Handling, and Stockpiling: Perform only when the planting soil is dry or slightly moist. Do not handle existing soil or subgrade is frozen, muddy, or excessively wet.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Not Applicable

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
 - B. Locate and clearly identify trees, shrubs, and other vegetation to remain. Place orange construction fence around perimeter to prevent access to protected plants to remain.
 - C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner, at no additional cost to the Owner.
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3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas at the approval of the Owner Representative disturbed during removal.

3.3 PLANT PROTECTION

- A. General: Protect plants remaining on-site according to the drawings.
- B. Repair or replace shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Landscape Architect or Battery Park City Parks Conservancy.

3.4 EXISTING UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
 - 1. Arrange with utility companies to shut off indicated utilities.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner and Owners Representative written permission.

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, shrubs, and other vegetation to permit installation of new construction.
 - 1. Do not remove shrubs, and other vegetation indicated to remain or to be relocated.
 - 2. Completely remove stumps and roots, obstructions, and below exposed subgrade.
 - 3. Use only hand methods for ALL work on or near the site.
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3.6 TOPSOIL STRIPPING

- A. Remove all plants prior to providing an existing survey indicating the exact top of soil grades. Once this survey is complete the salvaging process of the Planting Soil may begin.
- B. Strip Planting Soil by soil type; Soil Type A – Edge Planting Soil, Soil Type B – Furrow Planting Soil to the existing drainage layer in a manner to prevent intermingling with other waste materials. Stripped Planting Soil shall not be handled when wet or frozen, shall be stored and protected during construction.
- C. Salvaged Planting Soil shall be properly identified based on the bed location it was removed from and clearly marked during storage. Salvaged Planting Soil shall be staged off site in an approved method and location to the Landscape Architect and BPCPC. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
 - 1. Limit height of Planting Soil stockpiles to 72 inches
 - 2. Do not stockpile Planting Soil within protection zones.
 - 3. All Planting Soil to be salvaged to be reused after all restoration work is completed.
- D. When stockpiling Planting Soil onsite do so away from edge of excavations without intermixing with other materials.

3.7 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate restoration work.
- B. Remove slabs, paving, and aggregate base as indicated.
 - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
 - 2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

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

END OF SECTION 311000



SECTION 312000 - EARTH MOVING

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. Preparing subgrades for pavements, grasses and plants.
2. Subbase course for concrete pavements.

- B. Related Sections:

1. Section 321316 "Exposed Aggregate Concrete" for granular course if placed over vapor retarder and beneath the slab-on-grade.
2. Section 311000 "Site Clearing" for site stripping, grubbing, stripping and stockpiling Planting Soil, and removal of above- and below-grade improvements and utilities.
3. Section 329300 "Plants" for finish grading in planting areas and tree and shrub pit excavation and planting.

1.3 UNIT PRICES

- A. Work of this Section is affected by unit prices for earth moving specified in Section 012300 "Alternates & Unit Prices."

1.4 DEFINITIONS

- A. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- C. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.



1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

- E. Fill: Soil materials used to raise existing grades.
- F. Planting Soil: Existing soil profile from root zone to base of structure to be removed and stored for reuse.
- G. Structures: Footings, foundations, retaining walls, slabs or other man-made stationary features constructed above or below the ground surface.
- H. Subbase Course: Aggregate layer placed between the subgrade and base course aggregate layer placed between the subgrade and a cement concrete pavement.
- I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- J. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of the following manufactured products required:
 1. Controlled low-strength material, including design mixture.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earth moving operations. Submit before earth moving begins.

1.7 QUALITY ASSURANCE

- A. Preexcavation Conference: Conduct conference at Project site. Owner, BPCPC and design team to be present.
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1.8 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - 1. Do not proceed with work on adjoining property until directed by Architect.
- C. Do not commence earth moving operations until plant-protection measures specified in on the drawings are in place.
- D. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. 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 walls and plants unless otherwise indicated.
- E. Do not direct vehicle or equipment exhaust towards protection zones.
- F. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Planting Soils: As per Specification Section 329113 Soil Preparation.
 - B. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.
 - C. Sand: As per Specification Section 329113 Soil Preparation.
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PART 3 - EXECUTION

3.1 PREPARATION

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

3.2 EXPLOSIVES

- A. Explosives: Do not use explosives.

3.3 EXCAVATION, GENERAL

- A. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect..
 - 1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
- B. Excavations at Edges of Plant-Protection Zones:
 - 1. Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

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

3.5 UNAUTHORIZED EXCAVATION

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

3.6 STORAGE OF SOIL MATERIALS

- A. Stockpiling Planting Soils in bulk is permitted. From root zone to limit of removals for planting soils, do not remove when soil is wet or frozen. Do not stock pile higher than 6 feet. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 1. Stockpile Planting Soil materials off structure and at a preapproved location. All Planting Soils shall be maintained to avoid any detrimental conditions rendering the soil unusable at time of reinstallation. See Section 311000 Site Clearing

3.7 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
 2. Removing concrete formwork.
 3. Removing trash and debris.
 4. Removing temporary shoring and bracing, and sheeting.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.8 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 1. Provide a smooth transition between adjacent existing grades and new grades.
 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from walls and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 1. Turf or Unpaved Areas: Plus or minus 1 inch
 2. Walks and Pavement: Plus or minus 1 inch

3.9 SUBSURFACE DRAINAGE

1. Contractor to document existing subsurface drainage during removals. Map all drainage material removed which include but may not be limited to drain line location, type, size,
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impermeable PVC layer and document for the re-installation “like in kind’ upon completion of the waterproofing per architectural plans.

3.10 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

- A. See Specification Section 321316 Exposed Aggregate Concrete

3.11 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
 2. Determine that fill material and maximum lift thickness comply with requirements.
 3. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.
 - B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
 - C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
 - D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.
 - E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 1. Paved Areas: At each compacted fill and backfill layer, at least one test for every 1000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
 2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length, but no fewer than two tests.
 - F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.
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3.12 PROTECTION

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

3.13 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.
- B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Architect.
 - 1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000



SECTION 321313 – CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the work of this Section and are hereby made a part of this Section.
- B. Examine all Drawings and other Sections of the Specifications for requirements therein affecting the work of this trade.

1.2 SCOPE OF WORK

- A. The work of this Section includes, but is not limited to, the following:
 - 1. Portland Cement Concrete Walks.

1.3 RELATED SECTIONS

- A. The following items of related work are specified and included in other Sections of the Specifications:
 - 1. Section 321316 – Exposed Aggregate Concrete.
 - 2. Section 329113 – Soil Preparation

1.4 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, expansive hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.5 REFERENCES

- A. Standards: The following referenced standards and standard specifications, referred to thereafter by designation only, form a part of this Section:
 - 1. ACI: American Concrete Institute.
 - 2. American Society for Testing and Materials (ASTM) C33: Concrete Aggregates.
 - 3. ASTM C94: Ready Mix Concrete.
 - 4. ASTM C150: Portland Cement.
 - 5. ASTM C260: Air-entraining admixtures for Concrete.
 - 6. ANSI: American National Standards Institute.



7. AASHTO: American Associations of Highway Transportation Officials.
8. FS: Federal Specifications.
9. Standard Specifications: New York State Department of Transportation, Standard Specifications Construction and Materials, 1995 Edition, and addenda.
 - a. In the case of conflict between the Standard Specifications and the requirements of this Section, the more stringent requirements shall apply.

1.6 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions of the site before submitting his bid, and shall be fully responsible for carrying out all site work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed.
- B. Plans, surveys, measurements and dimensions under which the work is to be performed are believed to be correct to the best of the Architect's and Owner's knowledge, but the Contractor shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found therein.

1.7 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
 - B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance with requirements indicated, based on comprehensive testing of current materials.
 - C. Material Certificates: Signed by manufacturers certifying that each of the materials complies with requirements:
 1. Cementitious materials and aggregates.
 2. Steel reinforcement and reinforcement accessories.
 3. Admixtures.
 4. Curing compounds.
 5. Applied finish materials.
 6. Bonding agent or adhesive.
 7. Expansion Joints.
 8. Certifications cited in this Section in paragraph 1.08, Quality Assurance.
 - D. Design Mixes: For each concrete pavement mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
 - E. Sample Panels: Upon approval of all materials, the Contractor shall construct sample panels on site in the minimum size indicated below. Each sample panel shall be large enough to display typical
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characteristics of each item and type of work. Construct Sample panels concurrently to aid in review of all materials. The Artist must approve the visual characteristics, quality of workmanship, and installation methods before final work is started. If the original sample is not approved, the Contractor shall provide additional samples, as required, at no cost to the Owner until an approved sample is obtained. The approved sample shall become the standard for the entire job. Sample panel shall not be constructed on a location becoming part of the final work, unless otherwise noted, and shall remain undisturbed until all work is completed. Sample panels shall be constructed at the same time and erected in a location approved by the Owner. Contractor shall completely remove any panels not set in place as part of the final work from site upon final acceptance of work.

1. Cement concrete walk, 4' x 8' minimum.

1.8 QUALITY ASSURANCE

- A. **Installer Qualifications:** An experienced installer who has completed pavement work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
 - B. **Workmanship:** The Contractor is responsible for correction of concrete work that does not conform to the specified requirements, including strength, tolerances, grading and finishes.
 - C. **Manufacturer Qualifications:** Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
 1. Manufacturer must be certified according to the National Ready Mix Concrete Association's Plant Certification Program.
 - D. **Source Limitations:** Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.
 - E. **ACI Publications:** Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.
 - F. **Concrete Testing Service:** Owner shall engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixes.
 - G. **Tests for Concrete Materials:** Materials and installed work may require testing and retesting, as directed by the Owner, at any time during the process of the work. Allow free access to material stockpiles and facilities at all times. Tests, not specifically indicated to be done at the Owner's expense, including the retesting of rejected materials and installed work, shall be done at the Contractor's expense.
 - H. **Concrete Quality Control Testing During Construction:**
 1. An independent testing laboratory will be retained by the Owner to perform all quality control tests and to submit test reports to the Architect and Construction Manager.
 - a. The independent firm will perform inspections, tests, and other services specified and as required by the Architect.
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- b. Reports will be submitted by the independent firm to the Architect, and Owner indicating observations and results of tests and indicating compliance or noncompliance with contract documents.
 - c. The Contractor shall cooperate with the independent testing firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1) Notify Owner and independent firm 48 hours prior to expected time for operations requiring services.
 - 2) Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
 - d. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instruction by the Owner. Payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the Contract Sum/Price.
- I. Layout and Grading: After staking out the work, and before beginning final construction, obtain the Architect's and Artist's approval for layout and grades.
- 1. The Architect and Artist reserves the right to make adjustments to layout and grade without the Contractor submitting claims for extra compensation.
 - 2. The Contractor shall not proceed with the work of this Section without obtaining the Artist's written acceptance of layout and grading.

1.9 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Product Delivery, Storage, and Handling: In accordance with the provisions of Division 1.
- B. Cement: Store in weather tight enclosures and protect against dampness, contamination, and warehouse set.
- C. Aggregates
 - 1. Stockpile to prevent excessive segregation or contamination with other materials or other sizes of aggregates.
 - 2. Use only one supply source for each aggregate stockpile.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Allowable Concrete Temperatures.
 - 1. Cold weather: Maximum and Minimum, ACI 301.
 - 2. Hot weather: Maximum 90 degrees F, ACI 301.

1.11 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

- A. All concrete paving shall meet requirements of Division 32 "Concrete".
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1.12 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 BASE COURSE

- A. Compacted gravel used for pavement base shall be in accordance with Section 312000 Earth Moving

2.2 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces. Forms to be of suitable size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removed.
 1. Use flexible spring steel forms or laminated boards or curved forms for all curves.
 2. Where possible, use recycled forms for initial placement and recycle forms used as work proceeds.

2.3 REINFORCING

- A. Welded Wire Mesh: ASTM A185, welded plain cold-drawn steel wire fabric. Furnish in flat sheets, not rolls, unless otherwise acceptable to the Architect.
- B. Reinforcement Bars: ASTM A615, Grade 60, deformed steel bars.
- C. Reinforcing materials shall have a minimum recovered content as defined in Division 1 Section 01475.

2.4 CONCRETE MATERIALS

- A. General: Use the same brand and type of cementitious material from the same manufacturer throughout the Project.
 - B. Portland Cement Concrete: Materials and mixing for all concrete work, unless otherwise specified, shall conform to ACI 301.
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2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
- C. Color Additives for Integrally Colored Concrete: Provide color additive to achieve the specified color
 - 1. Color additives shall contain pure, concentrated mineral pigments specially processed for mixing into concrete and complying with ASTM C979.
 - 2. Do not use calcium chloride admixtures.

2.6 CURING MATERIALS

- A. Water: Potable.
- B. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- C. Clear Solvent-Borne Liquid-Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

2.7 BONDING AGENT

- A. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.8 RELATED MATERIALS

- A. Expansion Joint material shall be Homex 300 Expansion Joint Filler, 1/2" thickness as manufactured by the Homasote Company, West Trenton, New Jersey, 800.257.9491.
- B. Joint Dowel Bars: ASTM A615, Grade 60, epoxy coated steel bars. Cut bars true to length with ends square and free of burrs.

2.9 CONCRETE MIXES

- A. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete determined by laboratory trial mixes.
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- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the trial batch method.
 - 1. Do not use Owner's field quality-control testing agency as the independent testing agency.
- C. Proportion mixes to provide normal-weight concrete consisting of Portland cement, aggregate, water-reducing admixture, air-entraining admixture, and water to produce the following properties:
 - 1. Seven day compressive strength of moist-cured laboratory samples: 2400 psi
 - 2. Twenty-eight day compressive strength of moist-cured laboratory samples: 4000 psi.
 - 3. Air content: 6.5%, plus or minus 1.0%.
 - 4. Maximum Water – Cementitious Ratio: 0.44
 - 5. Slump range: 40-65 mm.
- D. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement according to ACI 301 requirements for concrete exposed to deicing chemicals.

2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Preparation of subgrade shall be in accordance with Section 312000 Earth Moving
- B. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.
- C. Remove loose material from compacted subbase surface immediately before placing concrete.
- D. Confirm in writing that the Architect has accepted the layout and grades for walkways.
- E. Review layout and location of construction, expansion and contraction joints with the Architect. Confirm in writing that the Architect has accepted the layout of all joints.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
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- B. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage.
- C. All concrete edges for all pavement, foundations, curbs and other below grade work shall be formed or contained to prevent over pouring of concrete. Excess concrete shall be removed as directed by the Architect.

3.3 JOINTS

- A. General: Construct construction, expansion, and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
 - 1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.
 - B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour, unless pavement terminates at isolation joints.
 - 1. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
 - 2. Provide tie bars at sides of pavement strips where indicated.
 - 3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 4. Review location of construction joints with the Architect.
 - C. Expansion Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
 - 1. Locate expansion joints as shown on the Drawings. Strictly adhere to patterning and layout and review patterning with Architect when formwork is in place but before concrete is placed. If pattern shown cannot be achieved, or is unclear, consult with Architect before placing concrete. Do not proceed with concrete placement without approval from Architect on patterning. Do not proceed in uncertainty.
 - 2. Extend expansion joint the full width and depth of joint. Set top of expansion joint flush with finish grade.
 - 3. Chemically fasten one side of expansion joint materials to one side of materials requiring separation. Fasten with “Liquid Nail”, or equivalent, using formula appropriate to materials being fastened.
 - 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - D. Edging: Tool edges of pavement and joints in concrete after initial floating with an edging tool to the following radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.
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1. Radius: 1/4 inch.

3.4 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
 - B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.
 - C. Moisten subbase to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.
 - D. Comply with requirements and with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
 - E. Do not add water to concrete during delivery, at Project site, or during placement without approval from the Architect and Owner's testing agency.
 - F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
 - G. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete according to recommendations in ACI 309R.
 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
 - H. Screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.
 - I. 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 air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 2. Do not use frozen materials or materials containing ice or snow.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
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- J. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F. 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. Cover reinforcement steel with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, reinforcement steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.5 CONCRETE FINISHING

- A. General: Wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.
- B. See Section 321316 for all Exposed Aggregate Concrete walks.

3.6 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and follow recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
1. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.7 PAVEMENT TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
1. Elevation: 1/8 inch.
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2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-foot-long, unlevelled straightedge not to exceed 1/8 inch.
4. Joint Spacing: 3 inches.
5. Contraction Joint Depth: Plus 1/4 inch, no minus.
6. Joint Width: Plus 1/16 inch, no minus.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article.
 - B. Testing Services: Testing shall be performed according to the following requirements:
 1. Sampling Fresh Concrete: Representative samples of fresh concrete shall be obtained according to ASTM C 172, except modified for slump to comply with ASTM C 94.
 2. Slump: ASTM C 143; one test at point of placement for each compressive-strength test, but not less than one test for each day's pour of each type of concrete. Additional tests will be required when concrete consistency changes.
 3. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each set of compressive-strength specimens.
 4. Compression Test Specimens: ASTM C 31/C 31M; one set of four standard cylinders for each compressive-strength test, unless otherwise indicated. Cylinders shall be molded and stored for laboratory-cured test specimens unless field-cured test specimens are required.
 5. Compressive-Strength Tests: ASTM C 39; one set for each day's pour of each concrete class exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. One specimen shall be tested at 7 days and two specimens at 28 days; one specimen shall be retained in reserve for later testing if required.
 6. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, current operations shall be evaluated and corrective procedures shall be provided for protecting and curing in-place concrete.
 7. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive compressive-strength test results equal or exceed specified compressive strength and no individual compressive-strength test result falls below specified compressive strength by more than 500 psi.
 - C. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing agency, concrete type and class, location of concrete batch in pavement, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
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- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as the sole basis for approval or rejection.
- E. Additional Tests: Testing agency shall make additional tests of the concrete when test results indicate slump, air entrainment, concrete strengths, or other requirements have not been met, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

3.9 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section.
 - 1. Damaged concrete shall be removed to a full joint and replaced. Partial patching within the sidewalk shall not be accepted. Architect shall determine extent of removal and replacement.
- B. Drill test cores where directed by Architect when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland cement concrete bonded to pavement with epoxy adhesive.
- C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.
- E. Collect and transport all salvageable and recyclable scrap material in accordance with requirements of Division 1 “Construction Waste Management and Recycling” Section.

END OF SECTION 321313



SECTION 321316- EXPOSED AGGREGATE CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 REFERENCES

- A. General provisions of Contract, including General and Supplementary Conditions and Division 1 General Requirements, apply to work specified in this Section.

1.02 SUMMARY OF WORK

- A. The work of this Section consists of all paving and related items as indicated on the Drawings and/or as specified herein and includes, but is not limited to the following:
 1. Preparation of subbase for all pavements.
 2. Preparation of compacted gravel base course for all pavements.
 3. Preparation of a concrete base course.
 4. Exposed Aggregate Paving topping course.

1.03 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. The following items of related work are specified and included in other Sections of the Specifications:
 1. Section 311000 - Site Clearing.
 2. Section 321313 –Concrete Paving
 3. Section 329300 – Plants.
 4. Section 329113 – Soil Preparation

1.04 SUBMITTALS

- A. Comply with Division 1 requirements.
- B. Issue submittals in accordance with Section 013300 Shop Drawings, Product Data and Samples
- C. Product Information: Provide manufacturer's data showing installation and limitations in use. Supply Certificates of Compliance for all materials required for fabrication and installation, certifying that each material item complies with, or exceeds, specific requirements. Work includes but is not limited to:
 1. Expansion Joint Material.
 2. Liquid Nail Adhesive.
 3. Concrete Products.
 4. Color System for Cement.
- D. Samples: Prior to ordering the below listed materials, submit representative samples to Architect for selection and approval as follows. Do not order materials until Architect's approval has been obtained. Delivered materials shall closely match the approved samples. Submit duplicate



samples of each material listed below showing full range of color variation, finish and texture that can be expected in the permanent work:

1. Exposed Aggregate Concrete Paving, Stone Mix.
 2. Expansion Joint Material.
 3. Cement Color.
- E. Paving sample panels - construct sample panels as specified herein. The quality of workmanship, joint treatment and cleanliness of paving sample panel shall be approved by the Architect and Artist before permanent paving is started. If the original sample is not approved, the Contractor shall provide additional samples, as required, at no cost to the Owner until an approved sample is obtained. The approved sample shall become the standard for the entire job. Panel shall not be constructed on a location becoming part of the final paving and shall remain undisturbed until all paving is completed. Remove panel upon completion of paving.
1. Exposed Aggregate Paving, 3 separate panels at 4'x 8' each. Provide a sample for each cement color listed in Part 2, paragraph 2.01, D. of this Section. Include Expansion and Control Joints in each sample panel.
- F. Material Certificates: provide copies of materials certificates signed by material producers and Contractor, certifying that each material item complies with, or exceeds, specific requirements.
- G. Concrete Mix Design- Submit certified mix designs at least three weeks prior to the beginning of work in accordance with ACI 301 for each class of concrete. Include the following information:
1. Results of testing or test data used to establish mix proportions.
 2. Test to verify total chloride in content.
 3. Certificates of compliance for:
 - a. Contractors design laboratory and ready mix concrete suppliers certificate of plant inspection.
 - b. Cement.
 - c. Aggregates, each type.
 - d. Admixtures.
 - e. Air entrainment.
 - f. Curing compounds.
 - g. Form Coating.
 4. Reinforcement: submit certified mill test reports for metal reinforcement and welded wire fabric.
 5. Submit methods for cold and warm weather concreting.

1.05 QUALITY ASSURANCE

- A. Refer to Section 012500, Products and Substitution, for general provisions covering material delivery, storage, and installation, and product substitutions.
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- B. Standards: The following referenced standards and standard specifications, referred to thereafter by designation only, form a part of this Section. Materials and methods of construction shall comply with the following standards:
1. Standard Specifications: New York State Department of Transportation, Standard Specifications Construction and Materials, 1995 Edition, and addenda.
 - a. In the case of conflict between the Standard Specifications and the requirements of this Section, the more stringent requirements shall apply.
 2. ASTM: American Society for Testing and Materials.
 3. AASHTO: American Association of State Highway and Transportation Officials.
 4. ANSI: American National Standards Institute.
 5. PCA: Portland Cement Association.
 6. ACI: American Concrete Institute.
- C. Layout and Grading: After staking out the work, and before beginning final construction, obtain the Architect's and Artist's approval for layout and grades. Contractor shall make adjustments as determined by the Architect. Architect may make adjustments to grades and layout as is required to meet existing and proposed conditions without additional cost to the contract price.

1.06 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions of the site before submitting his bid, and shall be fully responsible for carrying out all site work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed.
- B. Plans, surveys, measurements and dimensions under which the work is to be performed are believed to be correct to the best of the Architect's knowledge, but the Contractor shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found therein.

1.07 SCHEDULING

- A. The Contractor shall submit to the Architect, for approval by the Owner, a progress schedule as specified in Section 012900 Schedules, Reports Payments

1.08 JOB CONDITIONS

- A. Site Information: Data on indicated grades, utilities and other existing conditions are not intended as representations or warranties of accuracy.
- B. Existing utilities: Locate existing utilities in areas of work. If utilities are to remain in place, provide adequate means of protection during installation of site improvements.
- C. Protection: The Contractor shall use all means necessary to protect the materials of this Section before, during, and after installation. In the event of damage, make all repairs and replacements
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necessary to the approval of the Architect and at no additional cost to the Owner. All work shall be executed in a manner so as to prevent any damage to existing wall, rails, paving, and plant materials.

- D. Protection of existing planting soils: Planting soils next to paved areas will be in place. The Contractor shall take extreme measures to protect the planting soil at all times and shall adhere to the following procedures and precautions:
1. The storage and driving of machinery and equipment over planting soils is expressly prohibited. Prevent workers from walking on the surface of the planting soils.
 2. No materials shall be stored or placed on the planting soils at any time.
 3. Protect planting soils to prevent the intermingling of concrete materials before, during and after concrete placement. Review methods of protection with the Construction Manager before beginning work.
 4. Where planting soils are damaged, contaminated, over compacted, or otherwise harmed, remove those soils and replace with the approved planting soils. The Architect and Client shall be the sole authorities on determining the need for plant soil replacement.

PART 2 - PRODUCTS

2.01 EXPOSED AGGREGATE PAVING

- A. Compacted Subgrade and Gravel Base Course: In accordance with Section 312000.
- B. Concrete Base Course: In accordance with Section 321313.
- C. Portland Cement for (Top) Surface Matrix Mix: Conforming to 321313.
- D. Color pigment shall be “Mix-Ready” as approved by Architect and Artist as manufactured by Davis Colors, 7101 Muirkirk Road, Baltimore, MD 20705, Tel: 800.638.4444. Web: www.daviscolors.com.
- E. For the sample panel provide one sample of each of the following color pigment ratios:
1. 2.5 pounds/cubic yard.
 2. 5.0 pounds/cubic yard.
 3. 7.5 pounds/cubic yard.
- F. Aggregate for (Top) Surface Matrix Mix: “” as approved by Architect and Artist, including acrylic bonding agents, as supplied by Triad Associates, 100 Downing Avenue, Haverhill, MA, (978) 373-4223. Aggregate to match Architect’s sample. Size of aggregate shall range between 1/4” and 3/4”. Aggregate shall be blended on a 1:1 ratio.
- G. Sand: Clean, hard, durable grains, free from foreign substances, uniformly graded with coarse particles predominating. Color shall be compatible with the Aggregate Surface Matrix Mix. Sand shall be supplied by Highland Sand and Gravel, Highland Mills, NY, Tel: 845.694-7024.
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- H. Water: Potable.
- I. Air entraining agent: Conforming to ASTM C-260. Concrete shall contain 4 to 6 percent air entrained air.
- J. Welded Wire mesh conforming to: ASTM – A185. Size: 5.6 x 5.6, 12 x 12, as supplied by Triad Associates, 100 Downing Avenue, Haverhill, MA, (978) 373-4223.
- K. Bonding Agent: VOC compliant, high solids acrylic latex emulsion admixture, non-oxidizing, white pigment, dries clear.
- L. Expansion Joint Material shall be Homex 300 Expansion Joint Filler, ½” thickness as manufactured by the Homasote Company, West Trenton, New Jersey, 800.257.9491
- M. Joints: Saw cut to the depth shown on the Drawings. Strictly adherer to the pattern shown on the Drawings. Review layout of control joints with the Architect and Artist before proceeding with work.
- N. Forms: Conforming to Division 3.

PART 3 - EXECUTION

3.01 SUBGRADE AND AGGREGATE BASE PREPARATION

- A. Compacted subgrade and base preparation shall be in accordance with Section 312000.
- B. Install compacted subgrade and aggregate bases to the lines and grades shown on the Drawings.
- C. Install the concrete base course in accordance with Section 321313 except as water dissipates from surface, aluminum rake leveled concrete surface for proper mechanical bonding between the base concrete and surface matrix mix.
- D. The installer shall examine previous work, related work, and conditions under which this work is to be performed and notify the General Contractor and Owner, in writing, of all deficiencies and conditions detrimental to the proper completion of the Work. Beginning work means the installer accepts substrates, subgrades, previous work, and conditions.

3.02 INSTALLATION AND SURFACE PREPARATION

- A. The installer shall examine previous work, related work, and conditions under which this work is to be performed and notify the Contractor in writing of all deficiencies and conditions detrimental to the proper completion of this work. Beginning work means installer accepts substrates, subgrades, previous work, and conditions.
 - B. Remove loose material from compacted subbase surface immediately before placing concrete.
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- C. Proof roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.
- D. Notify Contractor of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.

3.03 EXPOSED AGGREGATE CONCRETE PAVING

- A. Install concrete base course to the lines and grades shown on the Drawings and in conformance with Section 321313.
- B. Construct exposed aggregate paving true to line, elevation, pitch and section. All paving shall pitch to drain. Concrete pavement shall be brought to true plane surfaces with a finished tolerance of 1/4" total in ten feet when measured with a ten-foot straight edge.
- C. Set forms to provide the proper depth of compacted concrete as detailed on the Drawings, firmly stake in place, tops set at the exact finish grade. Form release agents shall conform to Section 321313.
- D. Install expansion joints flush with the finish grade of the exposed aggregate concrete. Install expansion joints around buildings, and other vertical structures adjacent to the concrete. Obtain Architect's approval for placement of expansion joints prior to placing concrete.
- E. Place top course concrete between expansion joints. Spread concrete thoroughly along forms and expansion joints. Tamp and screed to a dense mix. Strike off and bull float concrete surface 1/2" minimum below top grade of form to permit application of approved (top) Surface Matrix Mix.
- F. Concrete paving shall have an exposed aggregate finish by means of broadcasting and brooming of cement to expose stone. Broadcast stone size separately. Exposed aggregate surface shall match the approved sample panels.
- G. Cure surfaces by covering with polyethylene, or other suitable material approved by the Architect. Keep moist for 12 hours minimum after which covering shall be removed. As covering is removed, water is added to top surface as each procedure starts.
- H. No concrete shall be placed when the ambient air temperature is below 40 degrees Fahrenheit, or when expected to drop to below 40 degrees Fahrenheit within 24 hours after placing concrete. Maintain mix at a minimum of 50 degrees Fahrenheit.
- I. Protect Paving by not allowing use for a minimum of five days after installation is complete.

3.04 JOINTS

- A. General: Construct construction, expansion, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
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1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour, unless pavement terminates at isolation joints.
 1. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
 2. Provide tie bars at sides of pavement strips where indicated.
 3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 4. Review location of construction joints with the Architect.
- C. Expansion Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
 1. Locate expansion joints as shown on the Drawings. Strictly adhere to patterning and layout and review patterning with Architect when formwork is in place but before concrete is placed. If pattern shown cannot be achieved, or is unclear, consult with Architect before placing concrete. Do not proceed with concrete placement without approval from Architect on patterning. Do not proceed in uncertainty.
 2. Extend expansion joint the full width and depth of joint. Set top of expansion joint flush with finish grade.
 3. Chemically fasten one side of expansion joint materials to one side of materials requiring separation. Fasten with “Liquid Nail”, or equivalent, using formula appropriate to materials being fastened.
 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
- D. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to the following radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.
 1. Radius: 1/4 inch.

3.05 PROTECTION

- A. All rules and regulations governing respective utilities shall be observed in executing all work under this Section. All work shall be executed in such a manner as to prevent any damage to soils, curbs, paving, walls, stone work, utility lines, structures, plant materials and adjoining property.
- B. For protection of soils, refer to Part 1 in this Section.

3.06 FINAL CORRECTION

- A. The Architect reserves the right to inspect the work to determine if adjustments are necessary in grade, alignment or layout. The Contractor shall make such adjustments without further compensation.
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3.07 CLEAN-UP

- A. The Contractor shall remove all debris, construction equipment and scrap material from all areas within the limit of work prior to the final inspection and acceptance.
- B. The Contractor shall clean all stains from the surface of paving. Paving which cannot be cleaned shall be replaced. Architect shall be sole judge of whether staining is apparent and necessitates remediation.

END OF SECTION 321316



SECTION 329113 - SOIL PREPARATION

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 planting soils including layered soil assemblies specified by composition of the mixes AND the reinstallation of the existing soils to be salvaged and amended prior to reinstallation.
- B. Related Requirements:
 - 1. Section 311000 "Site Clearing"
 - 2. Section 329300 "Plants"

1.3 UNIT PRICES

- A. Work of this Section is affected by unit prices specified in Section 012300 "Alternates & Unit Prices".

1.4 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Compaction: Compaction of the soil fabric is any force applied to the soil that reduces porosity and where 90 percent of all compaction can be accomplished with only three application of force under optimum soil moisture conditions.
- C. Dry Soil: The condition of the soil at or below the wilting point of plant available water in which the soil is subject to blowing.
- D. Finish Grade: Elevation of finished surface of planting soil.
- E. Frozen Soil: The point at which the soil water has frozen and the soil has become very hard and cloddy. Ice crystals can be seen in the pore spaces of the soil.
- F. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- G. Moist Soil: the condition of the soil in where it can be formed into a ball and maintain its shape. Deformation of the soil is difficult with hand pressure. Free water is not visible and is usually considered the point between the wilting point and filed capacity of the soil.



- H. 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.
- I. Planting Area: Areas to be planted.
- J. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- K. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.
- L. Saturated: All the pore space within a soil is filled with water and the remaining water is under gravitational forces to drain through the profile.
- M. Scarification: The loosening of the surface of a soil lifts by mechanical or manual means to alleviate compaction of the soil surface. Depth of scarification is dependent on material and extent of compaction.
- N. 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.
- O. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- P. 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.
- Q. Wet Soils: Soil that is considered wet will easily be deformed by hand pressure, maintain their shape and free water will be visible within the pore spaces. The water content at this soil condition is considered field capacity or wetter.

1.5 CRITICAL PATH BLENDING

- A. The Contractor shall submit required soil submittal and their associated specified test results six months prior to the scheduled soil and plant installation.
 - B. The Soil Blending contractor shall be engaged at least six months prior to schedule soil installation to allow for sufficient time for material searches and initial planting blend approvals.
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1.6 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: The contractor shall examine previous work, related work and conditions under which this work is to be performed and shall notify the Landscape Architects in writing of all deficiencies and conditions detrimental to the proper completion of this work. Beginning work means the contractor accepts substrates, pervious work and conditions. The Contractor shall not place any planting soil until all work in adjacent areas is complete and approved by the Landscape Architect.

1.7 ACTION SUBMITTALS

- A. Product Data: Submit 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.
- B. Locations: Submit locations of material sources. Submit location of mixing sites.
1. Soil Mix supplier shall have a minimum of five years experience in supplying custom planting soil mixes.
 2. Submit supplier name, address, telephone and fax numbers and contract name.
 3. Submit certification that accepted supplier is able to provide sufficient quantities of materials and mixes for the entire project.
 4. Landscape Architect shall have the right to reject any soil supplier.
- C. Test Reports – Soil Analysis: The Contractor shall submit representative samples of all soil materials and organic material components which are intended to be used for planting soil mixes and final mixes, to a Soil and Plant Testing Laboratory acceptable to the Battery Park City Parks Conservancy. All reports shall be sent to the Landscape Architect for approval. Samples of all soil materials to be brought to the site must be approved before delivery. Deficiencies in the soils shall be corrected organically (peatmoss is not acceptable) by the Contractor, as directed by the Landscape Architect after review of the testing agency report. Testing reports shall include the following:
1. Date issued.
 2. Project Title and names of Contractor and material supplier.
 3. Testing laboratory name, address and telephone number, and name(s), as applicable, of each field and laboratory inspector.
 4. Date, place, and time of sampling or test, with record of temperature and weather conditions.
 5. Location of material source.
 6. Type(s) of test.
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7. Results of tests including identification of deviations from acceptable ranges.
 8. Particle size analysis to include sand sieve analysis shall be performed and compared to the USDA Soil Classification System per ASTM D422 (hydrometer test) or ASTM F1632 (pipette test). The silt and clay content shall be determined on soil passing the #270 sieve and shall be reported separately.
 9. Percent of organic shall be determined by an Ash Burn Test or Walkley/Black Test, ASTM F1647.
 10. Saturated hydraulic conductivity per any of the test methods stated in ASTM F1815.
 11. Chemical analysis shall be undertaken for Nitrate, Ammonium, Nitrite, Phosphorous, Potassium, Calcium, Magnesium, Iron, Manganese, Zinc, Copper, Soluble Salts, Cation Exchange Capacity, and acidity (pH).
 12. Soil analysis tests shall show recommendations for soil additives, including organic and inorganic soil amendments, necessary to accomplish particular planting objectives noted.
 13. All tests shall be performed in accordance with the current standards of the Association of Official Agriculture Chemists.
 14. Certified reports on analysis from producers of composted organic materials are required, particularly when sources are changed. The analysis performed shall include pH, density, salinity, total organic nitrogen, C:N Ratio, Solvita Maturity Index, moisture, sodium, potassium, calcium, magnesium, and phosphorous.
 15. Soil Components and Soil Mix Sampling requirements: At middle height of wind row/pile, remove sample two feet into the pile. Place sample in clean container. Repeat gathering methods for five to ten times at equidistant spacing on both sides of the pile. Mix gathered samples with clean utensils. Remove approximately 500g of composite samples and place that final sample by overnight courier to the testing laboratory. Submit sample with completed testing laboratory submission form.
 16. Biological Tests for organisms in compost and mixes:
 - a. Contact the testing laboratory to review testing and sampling requirements before sending samples.
 - b. Sampling requirements: At middle height of wind row, remove sample two feet into the pile. Place sample in clean container. Repeat gathering methods for five to ten times at equidistant spacing on both sides of the compost pile. Mix gathered samples with clean utensils. Remove approximately 500g of composite samples and place that final sample by overnight courier to the testing laboratory. Submit sample with completed testing laboratory submission form.
 - c. Maintain clear and concise records for testing and sampling procedures.
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17. Testing Agencies: The following firms are acceptable testing agencies for the various components.
- a. Compost testing:
 - a. Woods End Research Laboratory, PO Box 297, Mt. Vernon, ME 04352, phone 800-451-0337, fax 207-293-2488.
 - b. Physical soil analysis including particle size analysis and hydraulic conductivity
 - a. Hummel & Company Inc., 35 King Street Trumansburg, NY 14886 Phone 607-387-5694
 - c. Soil chemical analysis:
 - a. University of Massachusetts West Experiment Station, Amherst, MA 01003, phone 413-545-2311, fax 413-545-1931.
 - d. Compost/Biological Testing:
 - a. Soil Foodweb New York, 17 Clinton Street, Center Moriches, NY 11934, tel. 631-750-1553, fax 631-750-1554.
- D. All approved samples to be submitted to Landscape Architect:
1. Leaf mold, each source, 5 lb. packaged.
 2. Sand, each source, 5 lb. packaged.
 3. Loam, each source, 5 lb. packaged.
 4. Base component material, each source, 5 lb. packaged.
 5. Yard Waste Compost, each source, 5 lb. packaged.
 6. Each mix type specified 5 lb. packaged.
- E. Statement(s) of Qualifications: Submit within 45 days of notice to proceed to confirm qualifications as specified herein.
- F. Equipment Data: Submit descriptive information with wheel load data for each proposed item of equipment to be used for execution of earthwork of this Contract. Equipment Data will be evaluated for conformance to site restriction of use.
- G. Schedule and Protection Plan: Submit a detailed plan for scheduling and sequencing of all contract work and for protection of soil mixes and other completed work including coordination with contractors requiring access through the site. Indicate with schedules and plans the utilization of finished work protection measures (wooden protection boards or other approved methods) over the work area of construction operations concurrent with all construction operations until substantial completion.
- H. Schedule for performing percolation tests.
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1.8 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

1.9 TESTING REQUIREMENTS

- A. General: Perform all tests on components and soil blends according to requirements in this article.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if 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. Do not blend soil mixes, move or handle materials when they are wet or frozen.
4. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Jute Netting: Erosion Control fabric blanket, made from 100% natural jute fibers. Blanket weave has spaces of approximately 1/4" x 1/4".

1. "U" shaped steel staples for anchors. 6"

- B. General- Salvaged Planting Soils

1. Existing Planting Soils shall be removed, labeled and maintained off site during construction. Prior to reinstallation, and as early as weather permits, soils shall be tested for organic content and quantitative biological testing for 5-7% organic content. If these soils do not meet that
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criterion they shall be amended with the specified organic matter resulting in a 5-7% organic content. In addition, they shall be tested for quantitative biological as specified herein.

C. General – Newly Blended Soils

1. Newly blended soil quantities to be determined by quantities calculated during removal with appropriate “fluff” factor.
2. All soil mix material shall fulfill the requirements for new soil mixes as specified.
3. Samples of individual components of soil mixes and also blended soil mixes shall be submitted by the Contractor for testing and analysis to the approved testing laboratory. Include verification testing of on-site sub soils. Comply with specific materials requirements specified.
 - a. No base component or soil components for soil mixes shall be used until certified test reports by an approved agricultural chemist have been received and approved by the Landscape Architect.
 - b. As necessary, make any and all soil mix amendments and resubmit tests reports indicating amendments until approved.
4. The Landscape Architect, Construction Manager or BPCA/BPCPC may request additional testing by Contractor for confirmation of mix quality and/or soil mix amendments at any time until completion.
5. Base Component Material shall be sand that meets the requirements outlined below mixed by volume with loam material that meets the requirements outlined below. Base component materials shall not be site salvaged and must be off-site borrow material.
6. Test sand and loam components individually as components and together to form the Base Component mixed materials, for compliance with material specifications. These test criteria and results, when approved, shall establish the standard to which all subsequent Base Component Material tests must conform.
7. Organic matter (leaf mold or yard waste compost) shall be tested prior to mixing Base Component Material with organic matter. Have one (1) composite organic matter sample tested from each 50 c.y. of material intended for use in soil mixes of planting work.
8. Testing requirements for components and mixes:
 - a. Organic matter as a component
 - b. Sand as a component
 - c. Loam as a component
 - d. Sand + Loam for Base Component
 - e. Base Component + Organic for various Soil Mixes

D. **Organic** Matter: Organic matter for amending planting media shall be a stable, material produced from the aerobic decomposition and curing of leaf/yard wastes. The compost shall meet the following criteria

1. Organic matter content of no less than 40% as determined by ASTM 2974
 2. Moisture content of 35 to 70% as determined by ASTM D2974.
 3. Carbon to nitrogen ratio of 15:1 to 30:1
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4. Soluble salts not exceeding 4 dSm⁻¹
5. Solvita Maturity Index 6 to 8
6. 95 – 100% passing a 3/8” screen
7. pH 6 to 7.5
8. Biological Organisms: The compost shall have the following levels of organisms (direct microscopy).
 - 15 to 25 or more µg active bacteria /g dry weight (dw) compost
 - 100 µg (fungal compost) to 300 or more µg (bacterial compost) total bacteria /g dw compost
 - 15 to 25 µg or more active fungi /g dw compost
 - 100 to 300 µg total fungal biomass /g dw compost
 - 10,000 or more flagellates
 - 10,000 or more amoebae
 - 50 - 100 ciliates.
 - 20 – 30 Total nematodes (No root feeding nematodes)
9. Nutrient cycling capacity will be a minimum of 200 lbs/available nitrogen per acre due to microbial presence and activity.

E. **Sand** for Base Component Material shall meet the following requirements:

1. Texture:

<u>Sand Fraction</u>	<u>Size (mm)</u>	<u>Sieve Size</u>	<u>% Passing</u>
Gravel	> 2.0	#10	95 – 100%
Very coarse sand	1.0 – 2.0	#18	90 – 100%
Coarse sand	0.5 – 1.0	#35	65 – 75%
Medium sand	0.25 – 0.5	#60	15 – 20%
Fine sand	0.1 – 0.25	#140	0 – 4%
Very fine sand	0.05 – 0.1	#270	0 – 2%

2. Chemical Analysis:

- 1) Soil reaction (pH) - 5.0 – 6.5 ± 0.5
- 2) Soluble salt content (Conductivity) - < 1.5 dSm⁻¹

3. Material shall have a saturated hydraulic conductivity rate of no less than 30 inches per hour, per ASTM 1815.



F. **Loam** for Base Component Material shall meet the following requirements:

- a. Soil Texture per ASTM D422 or ASTM F1632, as determined on material passing a 2 mm screen:

Main Fractions	Size (mm)	Percent
Sand	0.05-2.0	83 - 87
Silt	0.002-0.05	7 - 10
Clay	<0.002	4 - 8

In addition, maximum size shall be ½”, the total gravel (> 2 mm) shall be less than 10% of the total material, and the sand passing the 2 mm screen shall have the following particle size distribution:

Sand Fraction	Size (mm)	Sieve Size	% Passing
Very coarse	1.0 – 2.0	#18	87-90
Coarse	0.5 – 1.0	#35	65-71
Medium	0.25 – 0.5	#60	34-42
Fine	0.10 – 0.25	#140	17-23
Very fine	0.05 – 0.10	#270	14-18

- b. Chemical Analysis:

- 1) Organic matter content (%) oven dry weight of soil shall be within the range of 4 to 10%.
- 2) Soil reaction (pH) - 6.0 ± 0.5
- 3) Soluble salt content (Conductivity) - < 1.5 dSm⁻¹

- 1. Before base sand-loam mix (base component) is used for mixing with organic amendments, handle and pile the mix in the following manner:

- a. Mix the base sand with base loam in a ratio of 3 parts sand to 1 part loam. Adjustments to the ratio may have to be made to meet the specifications for the base component. Homogenize to make a uniform mix, free of subsoil lenses and other irregularities.
- b. Aerate the base component to make a friable planting medium.
- c. Screen out all clay lumps, stones, roots, and other debris.



2. Material Requirements, Base Component Mix: The final mix of sand and loam materials shall substantially conform to the following:

a. Soil Texture per ASTM D422 or ASTM F1632, as determined on material passing a 2 mm screen:

<u>Main Fractions</u>	<u>Size (mm)</u>	<u>Percent</u>
Sand	0.05-2.0	95.0
Silt	0.002-0.05	3.0
Clay	<0.002	<u>2.0</u>

In addition, maximum size shall be ½”, the total gravel (> 2 mm) shall be less than 5% of the total material, and the sand passing the 2 mm screen shall have the

following particle size distribution:

<u>Sand Fraction</u>	<u>Size (mm)</u>	<u>Sieve Size</u>	<u>% Passing</u>
Very coarse sand	1.00	#18	92-95
Coarse sand	0.50	#35	67-73
Medium sand	0.25	#60	20-26
Fine sand	0.10	#140	5-9
Very fine sand	0.05	#270	5

b. Nutrient Analysis:

1. Ammonium (NH4) and Nitrate (NO3): below 100 ppm
2. Phosphorous
3. Potassium
4. Calcium (CA), Magnesium (Mg): ratio of 7 part Ca to 1 part Mg
5. Iron (Fe) 1 to 4 ppm
6. Manganese (Mn) 3 to 20 ppm
7. Zinc (Zn) 0.1 to 70 ppm
8. Copper (Cu) 0.3 to 8 ppm



Chemical Analysis:

1. Organic matter content (%) oven dry weight of soil: 1- 4%
 2. Soil reaction (pH): 6 - 7
 3. Soluble salt content (Conductivity) - $< 1.5 \text{ dSm}^{-1}$
- c. Saturated hydraulic conductivity of no less than 15 inches per hour per ASTM 1815.

2.2 PLANTING SOILS MIXES

- A. Adequate quantities of mixed planting soil materials shall be provided to attain, after compaction and natural settlement, all design finish grades.
 - B. Uniformly mix ingredients using a mechanical soil blender designed for such purpose as specified for each Mix Type (Base Component Material, compost, and other ingredients deemed to be necessary as a result of testing). Wind rowing/tilling on an approved hard surface area may also be used as an alternative. Organic matter shall be maintained moist, not wet during mixing.
1. Mixing of Amendments: Add organic amendment in proportions as specified and as confirmed by testing. Other amendments shall not be added unless approved to extent and quantity by Battery Park City Parks Conservancy and additional tests have been conducted to verify type and quantity of amendment is acceptable.
- C. Testing of Plant Mixes:
1. Perform initial tests to confirm compliance with base material and mix specifications. These test results, when approved, will establish the standard to which all other test results must conform.
 2. Follow-up Testing: Have one (1) composite sample delivery and upon arrival to the site from each 500 c.y. or as required by the Landscape Architect for use in each type plant mix to include the following:
 - a. Particle size analysis: Use sieve sizes as specified for Base Component Material.
 - b. Organic matter content as per mix specified.
 - c. Nutrient Analysis:
 - 1) Have nutrient levels (pH, ammonium nitrogen, nitrate nitrogen, nitrite nitrogen, phosphorus, potassium, magnesium, calcium, magnesium, zinc, iron, copper, and manganese) tested, and request testing laboratory recommendations for additional fertilizer requirements at all plant areas if nutrient levels are below average. Soluble salts shall also be tested.
 - 2) Contractor shall not use amendments to correct nutrient deficiencies.

- d. Biological Organisms: The mixes shall have a minimum of the following levels of organisms (direct microscopy). Refer to Article 1.08 C for testing and sampling requirements. Natural nutrient cycling will be a minimum of 150 lbs per acre, available Nitrogen from microbial activity. Mix shall have microbiological populations as listed below. Acceptance or rejection of mixes based on these test values will be determined by the Landscape Architect.

Plant Material	Active Bacterial Biomass (ug/g)	Total Bacterial Biomass (ug/g)	Active Fungal Biomass (ug/g)	Total Fungal Biomass (ug/g)	Hyphal Diameter (ug/g)	Protozoa Numbers/g			Total Beneficial Nematode Numbers (#/g)
						Flagellates Ciliates	Amoebae		
Deciduous Trees and Shrubs	40-60	400-800	30-45	400-900	3.0	10,000	10,000	50-100	20-30

- D. Soil Mix Types: Provide the following planting soil mix types at the locations indicated on plan. Percentages of components, unless otherwise noted, will be established upon completion of individual test results for components of the various mixes. The controlling factor will be the percent (%) organic matter as specified for each mix. Note that percent (%) by volume of components will be, in large part, determined by the compost. Specifically the bulk density of the compost will directly impact the organic matter readings that have been specified for each mix.

1. Raised Beds-Upper Root Zone:

- a. Organic Component shall be mixed with the Base Component (sand-loam) mix at a rate necessary to provide an organic matter content of 4.8-6% by weight, as determined by ASTM F1647. pH shall be 6.5 to 7.0. Cation Exchange Capacity shall be between 10 and 15. Natural nutrient cycling will be a minimum of 150 lbs per acre, available Nitrogen from microbial activity.

2. Raised Beds-Lower Root Zone:

- a. Organic Component shall be mixed with the Base Component (sand-loam) mix at a rate necessary to provide an organic matter content of 5.0-6% by weight, as determined by ASTM F1647. pH shall be 6.5 to 7.0. Cation Exchange Capacity shall be between 10 and 15. Natural nutrient cycling will be a minimum of 150 lbs per acre, available Nitrogen from microbial activity.

3. Furrow- Root Zone:

- a. Organic Component shall be mixed with the Base Component (sand-loam) mix at a rate necessary to provide an organic matter content of 6.0-6.5% by weight, as determined by ASTM F1647. pH shall be 6.5 to 7.0. Cation Exchange Capacity shall be between 10 and 15. Natural nutrient cycling will be a minimum of 150 lbs per acre, available Nitrogen from microbial activity.



4. Raised Beds & Furrow-Drainage Zones:

a. Texture:

<u>Sand Fraction</u>	<u>Size (mm)</u>	<u>Sieve Size</u>	<u>% Passing</u>
Gravel	> 2.0	#10	93 – 100%
Very coarse sand	1.0 – 2.0	#18	85 – 90%
Coarse sand	0.5 – 1.0	#35	45 – 60%
Medium sand	0.25 – 0.5	#60	12 – 15%
Fine sand	0.1 – 0.25	#140	0 – 6%
Very fine sand	0.05 – 0.1	#270	0 – 5%

b. Chemical Analysis:

1. Soil reaction (pH) – 6.0- 6.5 ± 0.5
2. Soluble salt content (Conductivity) - < 1.5 dSm⁻¹

c. Material shall have a saturated hydraulic conductivity rate of no less than 30 inches per hour, per ASTM 1815.

2.3 SOIL AMENDMENTS

- A. Ground Limestone: Ground Limestone as a soil amendment material will only be used pending results of analysis.
1. Provide a Ground Agricultural Limestone with a minimum of 88% of calcium and magnesium carbonates
 2. Ground Limestone material shall have a total 100% passing the 10 mesh sieve, minimum of 90% passing the 20 mesh sieve and a minimum of 60% passing the 100 mesh sieve.

PART 3 EXECUTION

3.1 GENERAL

- A. Place planting soil and fertilizers according to requirements in other Specification Sections.
- B. 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 planting soil. If contamination by foreign or deleterious material or liquid is present in soil, remove the soil and contamination as directed by Landscape Architect and replace with new planting soil to the extend directed by the Landscape Architect or BPCPC.
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- C. Proceed with placement only after unsatisfactory conditions have been corrected.

3.2 PLACING MANUFACTURED PLANTING SOIL OVER EXPOSED SUBGRADE

- A. General: When placing either the Salvaged Planting Soils or the Newly Blended Soils DO NOT apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet
- B. Salvaged Planting Soils: Prior to placing Salvaged Planting Soils test for organic matter and quantitative biological as stated here in. The top 8” of Salvaged Planting Soils shall be amended as per these test results and placed after scarifying the installed Salvaged Planting Soils
- C. Newly Blended Soils: Apply manufactured soil on-site in its final, blended condition.
- D. New Blended Soils Application: Place planting soil layers in the depths and as shown on the drawings to total depth not less than required to meet finish grades after natural settlement. Do not handle, spread soil or subgrade if frozen, muddy, or excessively wet.
 - 1. Lifts: Apply planting soil in lifts not exceeding 6 inches.
- E. Compaction for Planters: Compact each lift of planting soil to 85 percent of maximum Standard Proctor density according to ASTM D 698.
- F. Finish Grading for Planters: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Landscape Architect to approve final grades prior to planting.

3.3 FIELD QUALITY CONTROL

- G. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
 - H. Perform the following tests and inspections:
 - 1. Compaction: Test planting-soil compaction after placing each soil profile using a densitometer or soil-compaction meter calibrated to a reference test value based on laboratory testing according to ASTM D 698. Space tests at no less than one for each furrow of in-place soil or part thereof.
 - 2. Insitu Verification Testing: Contractor shall provide biological, pH, organic and soil texture test reports from labs used for approval of mixes for every 500 square feet of furrow.
 - I. Soil will be considered defective if it does not pass tests.
 - J. Label each sample and test report with the date, location keyed to a site plan or other location system, visible conditions when and where sample was taken, and sampling depth.
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3.4 PROTECTION

- K. Protection Zone: Protection Zones for the installation of salvaged soils and the specified blended soils of this specification are indicated on the drawings.
- L. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
 - Storage of construction materials, debris, or excavated material.
 - Parking vehicles or equipment.
 - Vehicle traffic.
 - Foot traffic.
 - Erection of sheds or structures.
 - Impoundment of water.
 - Excavation or other digging unless otherwise indicated.
- M. If planting soil or subgrade is over compacted, disturbed, or contaminated by foreign or deleterious materials or liquids, remove the planting soil and contamination; restore the subgrade as directed by Landscape Architect and replace contaminated planting soil with new planting soil.

3.5 CLEANING

- N. Protect areas adjacent to planting-soil preparation and placement areas from contamination. Keep adjacent paving and construction clean and work area in an orderly condition.
- O. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.
- c. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION 329113



SECTION 329300 - PLANTS

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. Shrubs
 - 2. Goundcover, Perennial, Herbaceous Plants and Bulbs
 - 3. Mulch, fertilizer and other soil amendment applications to suit plant type during and after planting.
 - 4. Protecting completed work.
 - 5. Warranty
 - 6. Coordination with other trades
 - 7. Clean up
- B. Related Requirements:
 - 1. Section 311000 Site Clearing – for salvaged planting soil to be reused
 - 2. Section 329113 Soils Preparation

1.3 UNIT PRICES

- A. Work of this Section is affected by unit prices specified in Section 012300 "Alternates & Unit Prices."
- B. Unit prices apply to authorized work covered by quantity allowances.
- C. Unit prices apply to additions to and deletions from the Work as authorized by Change Orders.

1.4 REFERENCES

- A. ANLA: American Nursery and Landscape Association (Formerly: AAN-American Association of Nurserymen)
- B. ANSI: American National Standards Institute
- C. AOAC: Association of Official Agricultural Chemists
- D. ASTM: American Society for Testing Materials.



1.5 APPLICABLE STANDARDS

- A. The references listed herein shall be in the standards used for performance of the Work: All standards shall include the latest additions and amendments as of the date of advertisement for bids.
1. American National Standards for Tree Care Operations, ANSI A300. American National Standards Institute, 11 West 42nd Street New York, NY 10036.
 2. American Standard for Nursery Stock, ANSI Z60.1 American Nursery and Landscape Associating, 1250 Eye Street NW Suite 500 Washington DC 20005
 3. Horticultural Standards, American Nursery & Landscape Association.
 4. Hortus Third, The Staff of the L.H.Bailey Hortorium. 1976. MacMillan Publishing Co, New York
 5. Standardized Plant Names, American Joint Committee on Horticultural Nomenclature, 1942 edition
 6. American Society for Testing Material (ASTM)
 7. International Society of Arboriculture.

1.6 DEFINITIONS

- A. Backfill: The earth 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 a 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. 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.
- D. Finish Grade: Elevation of finished surface of planting soil.
- E. 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. Some sources classify herbicides separately from pesticides.
- F. 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.
- G. Planting Area: Areas to be planted.
- H. Planting Soil for Soil Profiles: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
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- I. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.
- J. 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.

1.7 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1.

1.8 ACTION SUBMITTALS

- A. Submittals shall conform to Section 013300-Shop Drawings, Product Data and Samples
- B. Product Data: For each type of product.
 - 1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
 - 2. Plant Photographs: Include color photographs in **digital** format of each required species and size of plant material as it will be furnished to Project. These photos shall be submitted a minimum of 10 working days prior to the tagging trip they are to be tagged. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 15 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. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.
- C. Samples for Verification: For each of the following:
 - 1. Shrubs: Landscape Architect and BPCPC will accompany landscape contractor for tagging all plant material.
 - 2. Milled Leaf Mulch: 1-quart (1-L) volume 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.

1.9 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For 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.
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- B. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following. Submit inspection certificates required by authorities having jurisdiction. Supply Certificates of Compliance for all materials required for fabrication and installation, certifying that each material item complies with, or exceed, specified requirements
 - 1. Manufacturer's certified analysis of standard products including but not limited to:
 - a. Soil amendments
 - b. Mulch, maturity certification
 - 2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.
- D. Sample Warranty: For special warranty.

1.10 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before expiration of required maintenance periods.

1.11 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of plants. Submit resumes for Landscape Project Manager, Foreman/Site Supervisor showing the following:
 - 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.
 - 3. Installer's Field Supervision: Require Installer to maintain an experienced English speaking, full-time supervisor on Project site when work is in progress.
 - 4. Pesticide Applicator: State licensed, commercial.
 - B. Provide quality, size, genus, species, and variety of plants indicated. Provide only healthy, vigorous stock, grown in a recognized nursery acceptable to the Landscape Architect and BPCPC and free from disease, insects, eggs, larvae and other defects. Provide plants in strict compliance with the recommendations of the following:
 - 1. ANSI Z 60.1 American Standard for Nursery Stock, latest edition
 - 2. American Association of Nurserymen, Horticultural standards
 - 3. American Joint Committee on Horticultural Nomenclature, Standardized Plant Names, 1942 edition
 - 4. International Society of Arboriculture
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5. Selection of plants purchased under allowances is made by Landscape Architect, who tags plants at their place of growth before they are prepared for transplanting.
 6. Landscape Architect, Battery Park City Parks Conservancy staff member or Resident Engineer retains right to reject any plant at any time due to transportation damage, disease, loose rootball or lack of correct maintenance practices while plants are being maintained on site.
- C. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.
1. Shrubs: Measure with branches 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..
- D. Pruning: Unless otherwise noted, pruning of plants before, during or after installation shall be prohibited except to remove dead or broken branches and limbs. Confer with Landscape Architect before any pruning. Plants pruned without permission from the Landscape Architect are subject to rejection and replacement.
- E. Inspection: the Landscape Architect will inspect plant materials at place of growth before planting for compliance with requirement for genus, species, variety, size and quality. Landscape Architect retains right to inspect plant materials further for size and condition of balls and root systems, insects, injuries, and latent defect and to reject unsatisfactory or defective material at any time during progress of work even if previously inspected and approved. Remove and replace rejected plants immediately from Project site at no change to the Owner.
1. Selection: All plants shall be tagged in the nursery by the Landscape Architect prior to digging of plants. The Landscape Architect shall place seals on selected plant at the nursery. Seals shall remain on plants until acceptance of work.
- 1.12 DELIVERY, STORAGE, AND HANDLING
- A. 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 if 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.
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- C. Do not prune shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
- D. Handle planting stock by supporting the rootball or container
- E. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.
- F. 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 shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.
- G. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist. Plants shall not be stored on asphalt or any other pavement without a minimum of 3" mulch layer over pavement.
 - 1. Set balled stock on ground and cover ball with soil, mulch, sawdust, or other acceptable material.
 - 2. Do not remove container-grown stock from containers before time of planting.
 - 3. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

1.13 FIELD CONDITIONS

- A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.
 - B. Digging Season: Plants shall be delivered freshly dug. Plants dug the previous season shall not be accepted. When it is anticipated that planting will occur outside of the digging seasons, storage shall conform to the requirements of this Specification.
 - 1. Spring Dig: Plants shall be dug as early as determined by nursery owner and no later than bud break.
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- C. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
Trees and Shrubs

	Spring Season	Fall Season
Perennials and Grasses	April 30 to June 15	Sept. 15 to Nov 1
Deciduous (container)	March 15 to June 15	Sept. 15 to Nov1
Deciduous (Balled and burlapped)		March 15 to June 15 Sept. 15 to Nov1
Bulbs	Plant in fall as recommended by supplier	

- D. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.

1.14 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period. Provide written warranty agreeing to remove and replace work that exhibits defect in materials or workmanship for the specified periods. "Defects" is defined to include, but is not limited to death, unsatisfactory growth, disease, insect infestation, abnormal foliage density, abnormal size abnormal color failure to thrive and other unsatisfactory characteristics.

1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
 - b. Structural failures including plantings falling or blowing over.
 - c. Faulty performance of tree stabilization and tree grates
2. Warranty Periods: From date of Substantial Completion.
 - a. Shrubs: 12 months.
 - b. Ground Covers, Perennials, Ornamental Grasses and Other Plants: 12 months.
3. Include the following remedial actions as a minimum:
 - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
 - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
 - c. A limit of one replacement of each plant is required except for losses or replacements due to failure to comply with requirements.



PART 2 - PRODUCTS

2.1 PLANT MATERIAL-GENERAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Planting Schedule indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
 - 1. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
- B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Landscape Architect, with a proportionate increase in size of roots or balls.
- C. Hardiness: Provide plant stock certified to have been grown within hardiness Zones 2 through 6 as established by the Arnold Arboretum, Jamaica Plain Massachusetts. Plants without this certification will be rejected.
- D. Root-Ball Depth: Furnish shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- E. Root-Ball Handling: All plants balled and burlapped shall be moved with the root systems as solid units with balls of earth firmly wrapped with untreated biodegradable eight ounce burlap. Firmly held in place by stout cord and drum lacing. The diameter and depth of the rootballs of earth must be sufficient to encompass the fibrous and root feeding system necessary for the healthy development of the plant. NO plant shall be accepted with the ball of earth surrounding its roots has been badly cracked or broken preparatory to or during the process of planting or after the burlap, stave, ropes or platform required connection with its transplanting have been removed. The plants and balls shall remain intact during all operations. Burlap for containing rootballs shall be untreated, made from biodegradable natural fibers. Inspect root crown for girdling roots. Plants with girdling roots will be rejected.
 - 1. Root flare of all plants shall be clearly visible prior to planting. Carefully avoid damage to roots while removing soil overburden from the rootball. Adventitious roots shall be removed with sharp pruners.
 - a. Root flares more than 2" below grade at source shall be cause for rejection. The Landscape Architect may request a larger diameter rootball to compensate for a buried root flare, as the soil overburden shall be removed prior to planting which effectively reduces the size of the root ball. This will be at no additional cost to the Owner.



- F. Container Stock: Container stock shall have a full container of well-developed root system. Plants loose in the container are not acceptable. The surface of the root zone shall be free of circling or kinked roots. When removed from the container, the rootball shall be free from numerous circling roots. Large matted roots at the side or bottom of the container will not be accepted. Container grown plants may be accepted for balled and burlapped material if approved by Landscape Architect.
- G. Labeling: Label each plant of each variety, and size, with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant.
- H. Select stock for uniform height and spread, and number the labels to assure symmetry in planting.
- I. Handling of Plants: Plants delivered by truck and plants requiring overnight storage on site shall be properly wrapped and covered to prevent wind-drying and desiccation of branches, leaves and buds; plant balls shall be firmly bound, unbroken, reasonably moist to indicate watering prior to delivery and during storage, and tree trunks shall be free from fresh scare and damage in handling.

2.2 MULCH

- A. Milled Leaf Mulch: Provide partially decomposed, minimum six-month-aged, finely shredded leaf mulch that is free of weeds, excessive fine particles and stringy material. Provide leaf mulch approved by Landscape Architect.

2.3 MISCELLANEOUS PRODUCTS

- A. 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.
- B. Burlap: Untreated biodegradable eight ounce burlap.
- C. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.
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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. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance and covered completely to be protected from the wind.
 3. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 4. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. 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 Landscape Architect and replace with new planting soil to the extent directed by the Landscape Architect or BPCPC.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Preinstallation Examination Required: The contractor shall examine previous work, related work and conditions under which this work is to be performed and notify Landscape Architect in writing of all deficiencies and conditions detrimental to the proper completion of this work. Beginning work means contractor accepts substrates, previous work and conditions. The contractor shall not place any plants or planting soil mixtures until all work in adjacent areas is complete and accepted by the Landscape Architect.
- D. Planting Soil Mixture Preparation: Refer to Section 311000 Site Clearing for salvaged and maintaining Planting Soil Section 329113 and Soil Preparation-for Planting Soil to makeup volumes lost during storage
- E. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 Soil Preparation.
- F. Placing Planting Soil: according to Section 329113 Soil Preparation.
- G. Lay out individual shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Landscape Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.
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- H. Mark herbaceous groupings as shown on Planting Plans for approval of Landscape Architect and BPCPC. Final layout of all herbaceous plants will be as per the design Landscape Architect and BPCPC. Contractor shall understand groupings on the Planting Plans may change as per field conditions. No additional cost to the Owner will be allowed for these adjustments.
- I. Application of Mycorrhizal Fungi: At time directed by Landscape Architect, broadcast dry product uniformly over prepared soil at application rate as indicated by biological test results performed as per Section 329113 Soil Preparation.

3.3 PLANTING

- A. Roots: Do not plant if roots are girdling. Landscape Architect, BPCPC or Resident Engineer retains the right to reject all plants with this condition.
 - B. Balled and Burlapped Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
 - 1. Remove all burlap prior to backfilling pits.
 - 2. Backfill: Planting soil as per drawings.
 - 3. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap and rope from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
 - 4. 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.
 - 5. Continue backfilling process. Water again after placing and tamping final layer of soil.
 - C. Container-Grown Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
 - 1. Backfill: Planting soil
 - 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.
 - D. Planting Bulbs: Plant bulbs concurrently with ground cover if season of planting permits. The design Landscape Architect and BPCPC shall approve layout of bulbs. Plant bulbs to proper depth for species, place shoots upright. Provide 1 teaspoon of Bonemeal per bulb mixed in the planting hole.
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3.4 PLANTING TREES AND SHRUBS

- A. Planting Bed Preparation for Shrubs: Create continuous plant bed in planters; do not place plants in pits. Plant soil mixture will be used to back fill the planters
 - 1. Plant Installation: All Planting Soil salvaged and marked for relocation to original location shall be placed in depths needed to meet proposed grades. Prior to planting, salvaged soils shall be tested for organic content and quantitative biology as per Section 329113 Soil Preparation.
 - 2. Any newly blended soils required in addition to the salvaged soils shall be placed as per Section 329113 Soil Preparation.
 - 3. Inspection: At time of 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.
 - 4. Staking and Layout: Stake trees and obtain Landscape Architect's acceptance of location and finish grade elevation before planting.
 - 5. Ball Pedestals: Provide a rootball pedestal immediately beneath the ball or root mass so that tree or plant will not settle and will have the relationship to finish grade described below.
 - 6. Obstructions: If obstruction or other conditions detrimental to healthy plant growth are encountered, notify Landscape Architect immediately and request additional instruction. At the Landscape Architect's direction and at no additional cost to Owner, plants shall be relocated to avoid the obstruction.
 - 7. Keep excavations covered or otherwise protected when unattended by Installer's personnel.
- B. Backfill Soil: Subsoil and topsoil removed from excavations may not be used as backfill soil unless otherwise indicated.
- C. Obstructions: Notify Landscape Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
 - 1. Hardpan Layer: Drill 6-inch diameter holes, 24 inches apart, into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material.
- D. Drainage: Notify Landscape 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.

3.5 SHRUB AND VINE PRUNING

- A. Remove only dead, dying, or broken branches according to standard professional horticultural and arboricultural practices Do not prune for shape.
 - B. Do not apply pruning paint to wounds.
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3.6 GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.
- B. Use planting soil as indicated on drawings for backfill.
- C. Dig holes large enough to allow spreading of roots.
- D. For rooted cutting plants supplied in flats, plant each in a manner that minimally disturbs the root system but to a depth not less than two nodes.
- E. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- F. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- G. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.7 PLANTING AREA MULCHING

- A. Mulch backfilled surfaces of planting areas and other areas indicated.
 - 1. Organic Mulch in Planting Areas: Apply 2-inch average thickness of organic mulch over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 6 inches of trunks or stems.

3.8 PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Of particular importance is weeding and mulching. Contractor to review project for weeding needs weekly through the maintenance period.
 - B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
 - C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
-



3.9 PESTICIDE APPLICATION

- A. Apply biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with BPCPC'S operations and others in proximity to the Work. Notify BPCPC before each application is performed.
- B. Pre-Emergent Herbicides (Selective and Nonselective): Apply to tree, shrub, and ground-cover areas according to manufacturer's written recommendations. Do not apply to seeded areas. Apply only with the knowledge and direction of BPCPC.
- C. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations. Apply only with the knowledge and direction of BPCPC.

3.10 REPAIR AND REPLACEMENT

- A. General: Repair or replace plants that are damaged by construction operations, in a manner approved by Landscape Architect and BPCPC.
 - 1. Protect all soils to remain during all waterproofing and pavement installations.
 - 2. Submit details and products to be used during all construction operations and those of proposed repairs or remediation.
 - 3. Perform repairs within 24 hours, if approved.
 - 4. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Landscape Architect.
- B. Remove and replace plants that are more than **25** percent dead or in an unhealthy condition immediately or are damaged during construction operations that Landscape Architect determines are incapable of restoring to normal growth pattern.
 - 1. Provide any replacements at same size and form.
 - 2. Species of Replacement Trees: Same species being replaced

3.11 CLEANING AND PROTECTION

- A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
 - B. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.
 - C. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.
-



- D. After installation and at the direction of the Landscape Architect remove nursery tags, nursery stakes, tie tape, and other debris from plant material, planting areas, and Project site.
- E. At time of Substantial Completion, verify that watering devices are in good working order and leave them in place. Replace improperly functioning devices.

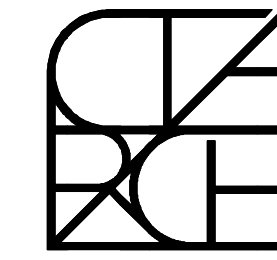
3.12 MAINTENANCE SERVICE

- A. Maintenance: Provide maintenance by skilled employees of landscape installer. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:
 - 1. Maintenance Period: 12 months after Substantial Completion

END OF SECTION 329300

IRISH HUNGER MEMORIAL RESTORATION

VESEY GREEN NEW YORK, NY 10004



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GENERAL NOTES

- SCOPE OF WORK: *MASONRY RESTORATION, WATERPROOFING INSTALLATION.*
- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE, FIRE DEPARTMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, AND THE BEST TRADE PRACTICES.
- BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FILE ALL REQUIRED CERTIFICATES OF INSURANCE WITH THE DEPARTMENT OF BUILDINGS, OBTAIN ALL REQUIRED PERMITS, AND PAY ALL FEES REQUIRED BY GOVERNING NEW YORK CITY AGENCIES.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD PRIOR TO COMMENCING WORK, AND SHALL REPORT ANY DISCREPANCIES BETWEEN DRAWINGS AND FIELD CONDITIONS TO THE ARCHITECT.
- MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER CONSTRUCTION OF ANY PART OF THE WORK SHALL BE INCLUDED AS IF THEY WERE INDICATED IN THE DRAWINGS.
- THE CONTRACTOR SHALL COORDINATE ALL WORK PROCEDURES WITH REQUIREMENTS OF LOCAL AUTHORITIES AND BATTERY PARK CITY AUTHORITY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL CONDITIONS AND MATERIALS WITHIN THE PROPOSED CONSTRUCTION AREA. THE CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE SHORING AND BRACING FOR ALL STRUCTURAL OR REMOVAL TASKS. THE CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR ANY DAMAGE OR INJURIES CAUSED BY OR DURING THE EXECUTION OF THE WORK.
- THE CONTRACTOR SHALL LAY OUT HIS OWN WORK, AND SHALL PROVIDE ALL DIMENSIONS REQUIRED FOR OTHER TRADES: PLUMBING, ELECTRICAL, ETC.
- PLUMBING AND ELECTRICAL WORK SHALL BE PERFORMED BY PERSONS LICENSED IN THEIR TRADES, WHO SHALL ARRANGE FOR AND OBTAIN INSPECTIONS AND REQUIRED SIGN-OFFS.
- THE CONTRACTOR SHALL DO ALL CUTTING, PATCHING, REPAIRING AS REQUIRED TO PERFORM ALL OF THE WORK INDICATED ON THE DRAWINGS, AND ALL OTHER WORK THAT MAY BE REQUIRED TO COMPLETE THE JOB.
- ALL PIPING AND WIRING SHALL BE REMOVED TO A POINT OF CONCEALMENT AND SHALL BE PROPERLY CAPPED OR PLUGGED.
- THE ARCHITECT HAS NOT BEEN RETAINED TO PROVIDE SUPERVISION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SIDEWALK SHED AND SCAFFOLDING AS REQUIRED FOR PROTECTION OF THE PUBLIC.

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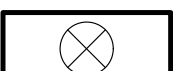

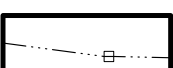
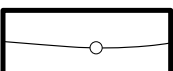


SAFETY PLAN

- GENERAL: ALL WORK TO BE DONE IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE, CHAPTER 33, NYC FIRE CODE, AND REGULATIONS OF ALL OTHER AGENCIES HAVING JURISDICTION.
- FIRE SAFETY:
 - ALL BUILDING MATERIALS STORED AT CONSTRUCTION AREA, AND/OR IN ANY AREA OF THE BUILDING ARE TO BE SECURED IN A LOCKED AREA. ACCESS TO SUCH AREAS TO BE CONTROLLED BY OWNER AND/OR GENERAL CONTRACTOR.
 - ALL MATERIALS TO BE STORED IN AN ORDERLY FASHION.
 - ALL FLAMMABLE MATERIALS TO BE KEPT TIGHTLY SEALED IN THEIR RESPECTIVE MANUFACTURERS' CONTAINERS. SUCH MATERIALS ARE TO BE KEPT AWAY FROM HEAT.
 - ALL FLAMMABLE MATERIALS TO BE USED AND STORED IN AN ADEQUATELY VENTILATED SPACE.
 - ALL ELECTRICAL POWER TO BE SHUT-OFF WHERE THERE IS EXPOSED CONDUIT.
 - ALL ELECTRICAL POWER IN THE CONSTRUCTION AREA TO BE SHUT OFF AFTER WORKING HOURS.
 - CONTRACTOR, AT ALL TIMES, TO MAKE SURE THERE IS NO LEAKAGE OF NATURAL GAS IN BUILDING, OR ANY FLAMMABLE GAS USED IN CONSTRUCTION.
- DUST CONTROL: (PLAN TO BE SUBMITTED AND APPROVED BY BPCA)
 - DEBRIS, DIRT, AND DUST TO BE KEPT TO A MINIMUM, AND BE CONFINED TO IMMEDIATE CONSTRUCTION AREA.
 - CONTRACTOR TO ISOLATE CONSTRUCTION AREA FROM OCCUPIED BUILDING AREAS BY MEANS OF 8'-0" HIGH CHAIN LINK CONSTRUCTION FENCE WITH PRIVACY SCREEN MESH.
 - DEBRIS, DIRT, AND DUST TO BE CLEANED UP AND CLEARED FROM SITE DAILY TO AVOID ANY EXCESSIVE ACCUMULATION.
 - CONTRACTOR SHALL COMPLY WITH ALL CITY, STATE AND LOCAL REGULATIONS REGARDING LEAD AND ASBESTOS.
- NOISE AFTER HOURS:
 - CONSTRUCTION OPERATIONS WILL BE CONFINED TO NORMAL WORKING HOURS: 8 A.M. TO 5 P.M., MONDAYS THROUGH FRIDAYS, EXCEPT LEGAL HOLIDAYS.
 - CONTRACTOR TO OBTAIN THE WRITTEN CONSENT OF ALL PARTIES AFFECTED BY HIS WORKING DURING OTHER THAN REGULAR HOURS.
- STRUCTURAL:
 - CONTRACTOR TO PROVIDE ADEQUATE TEMPORARY BRACING AND SHORING WHEREVER ANY STRUCTURAL WORK IS INVOLVED.
 - ALL DEMOLITION OPERATIONS, REPAIR OPERATIONS, AND ALTERATION OPERATIONS TO BE DONE IN ACCORDANCE WITH NEW YORK CITY BUILDING CODE, CHAPTER 33, SECTION BC 3305 AND 3306.

ALTERNATES

- ALTERNATE 1**
PROVISION OF A FULL COVERAGE HEATED WEATHER ENCLOSURE TO ENCAPSULATE THE MONUMENT FOR THE DURATION OF THE WORK ALLOWING WORK TO PROCEED IN ALL WEATHERS.
- ALTERNATE 2**
INSTALLATION OF HEAVY-DUTY SIDEWALK SHED AT THE STREET ELEVATION AREAS FOR ALTERNATE 1 WORK IN COMPLIANCE WITH SECTION 27-1021 OF THE BUILDING CODE OF THE CITY OF NEW YORK FOR THE DURATION OF THE PROJECT, INCLUDING COMPLETE COVERAGE OF THE BRIDGE DECK WITH MOTION DETECTOR(S) WITH ACTIVATION SENSOR/MONITOR TO BE PROVIDED AT A REMOTE LOCATION TO BE CONFIRMED.

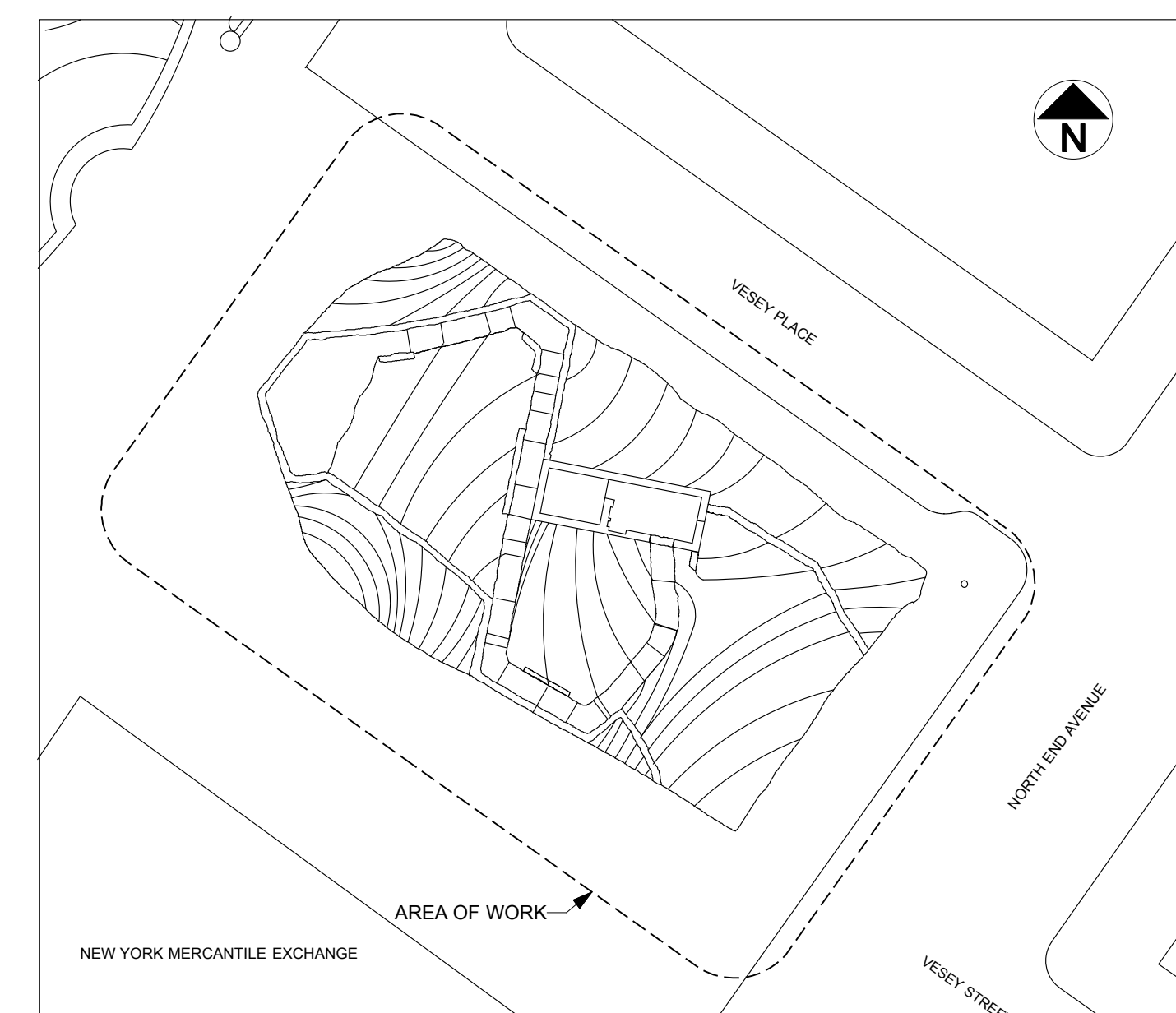
LEGEND

-  REMOVE AND REPLACE ALL EXISTING PLANTER DRAINS INCLUDING ASSOCIATED PIPING TO NEAREST ELBOW BENEATH. INSTALL NEW FULL SIZE PROMENADE DRAIN WITH EXTENSION COLLAR DRAIN WITH INTERIOR LEAD CAULK CONNECTION INCLUDING ASSOCIATED DRAIN STRAINER ASSEMBLY PER ASSOCIATED DETAIL.
-  EXISTING DRAIN/CATCH BASIN TO REMAIN. CONFIRM/COORDINATE FUNCTION WITH OWNERS.
-  INSTALL NEW PAVING ON NEW COMPACTED FILL PER APPROVED SAMPLES. EDGES AND EXTENT OF THE MONUMENT PAVING ARE SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS.
-  FLASH ATTACHMENT BRACKETS FOR THE PREVIOUSLY REMOVED PERIMETER TETHER RAIL SYSTEM. REINSTALL PREVIOUSLY REMOVED, CATALOGUED AND STORED POSTS. INSTALL NEW CABLES, TURNBUCKLES AND TENSIONING DEVICES.
-  REINSTALL PREVIOUSLY REMOVED WOOD FENCE POSTS SET IN METAL SLEEVES IN THE SOIL. PROVIDE NEW WIRE FENCE ATTACHED TO POSTS. PRECISE CONFIGURATION AND LOCATIONS TO BE CONFIRMED WITH THE ARTIST AND OWNERS. REPLACE WOOD POSTS AS NECESSARY PER APPLICABLE ALLOWANCE.
-  EXISTING CMU/CONCRETE CORE WALLS ARE TO REMAIN. REMOVE AND REBUILD LOOSE OR DAMAGED PORTIONS VIF. NEW AND OR REPLACED SECTIONS ARE TO BE FULLY GROUTED AND DOWELLED TO THE EXISTING SECTIONS TO REMAIN.
-  RESIN BASED WATERPROOFING IS TO TURN DOWN THE INSIDE FACE OF THE RAISED CONCRETE AREAS MINIMUM 2'-0" OR TO THE EXTENT POSSIBLE WITHOUT DISTURBING THE STRUCTURAL FILL AND WATERPROOF SHEETING MEMBRANE ABOVE.

PLOT PLAN

BLOCK #: 16
LOT #: 3
ZONING DISTRICT: BPC
ZONING MAP #: 12b

NOT TO SCALE

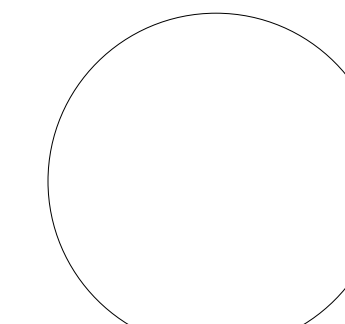


PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:

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SEAL & SIGNATURE:	DATE:	16 JULY 2015
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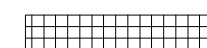


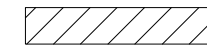
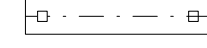
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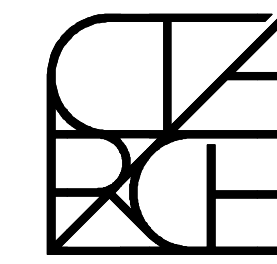
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LEGEND

-  CAREFULLY REMOVE, CATALOG AND STORE OFF-SITE FOR REINSTALLATION, IRISH FIELD STONE FREESTANDING WALLS AND WALL CLADDING FROM SUPPORTING CONCRETE AND/OR CMU CORES TO REMAIN AT ALL WALLS IN THE MONUMENT AREAS INDICATED. CONTRACTOR TO SUBMIT PLANS FOR DOCUMENTING, CATALOGING AND REINSTALLATION OF STONES. NOTE ALL STONE IS TO BE REINSTALLED AT THE REPAIRED AND WATERPROOFED SUBSTRATES AND CORE WALLS. REMOVE EXISTING WALL TIES AND BACKING PLATES/FASTENERS EXPOSED BY REMOVAL OF THE FIELD STONE CLADDING. SHELF ANGLE SECTIONS ATTACHED TO THE CMU/CONCRETE CORE WALLS ARE TO REMAIN AND ARE TO BE PROTECTED IN PLACE FOR REUSE.
-  REMOVE PLANT MATERIALS AT THE AREAS INDICATED PER INSTRUCTION/DIRECTION OF LANDSCAPE ARCHITECTS. COORDINATE REMOVALS WITH/THROUGH OWNER/BPCPC TO ALLOW THEM THE OPPORTUNITY TO REMOVE SELECT PLANTINGS FOR STORAGE OFF-SITE BY OTHERS. REFER TO LANDSCAPE PLANS DM-101 & DM-150. EXCAVATE ALL SOILS FROM THE WORK AREAS PER DIRECTION OF THE LANDSCAPE ARCHITECT, TO BE STORED OFF-SITE AT AN APPROVED FACILITY, FOR REPLACEMENT BACK ON THE MONUMENT UPON COMPLETION OF THE WATERPROOFING AND REPAIR OF THE UNDERLYING SUBSTRATES. REMOVE EXISTING WATERPROOFING ASSEMBLY FROM THE EXPOSED RAISED CONCRETE AREAS AND CMU/CONCRETE CORE WALLS. NOTE EXISTING RESIN BASED WATERPROOFING FIRMLY ADHERED AT SOLID CORE WALL LOCATIONS MAY REMAIN SUBJECT TO FIELD INSPECTION BY ARCHITECT AND MANUFACTURER. NOTE: CONTRACTOR IS TO CONFIRM FULL FUNCTION OF DRAINAGE BEFORE, DURING CONSTRUCTION AND AFTER SUBSTANTIAL COMPLETION.
-  REMOVE EXISTING CONCRETE PAVING FOR REPLACEMENT INCLUDING ALL FILL LAYERS BENEATH ON THE ELEVATED CONCRETE AREAS TO ALLOW ACCESS TO AND WATERPROOFING OF THE UNDERLYING CONCRETE SUBSTRATES.
-  REMOVE EXISTING CONCRETE PAVING FOR REPLACEMENT IN THIS AREA, FILL BENEATH TO REMAIN.
-  TEMPORARILY REMOVE CATALOG AND STORE EXISTING POSTS AND CABLES FROM THE PERIMETER TETHER RAIL SYSTEM. ATTACHMENT BRACKETS ARE TO BE PROTECTED IN PLACE FOR APPLICATION OF WATERPROOFING SYSTEM AND REINSTALLATION OF THE TETHER RAIL SYSTEM.



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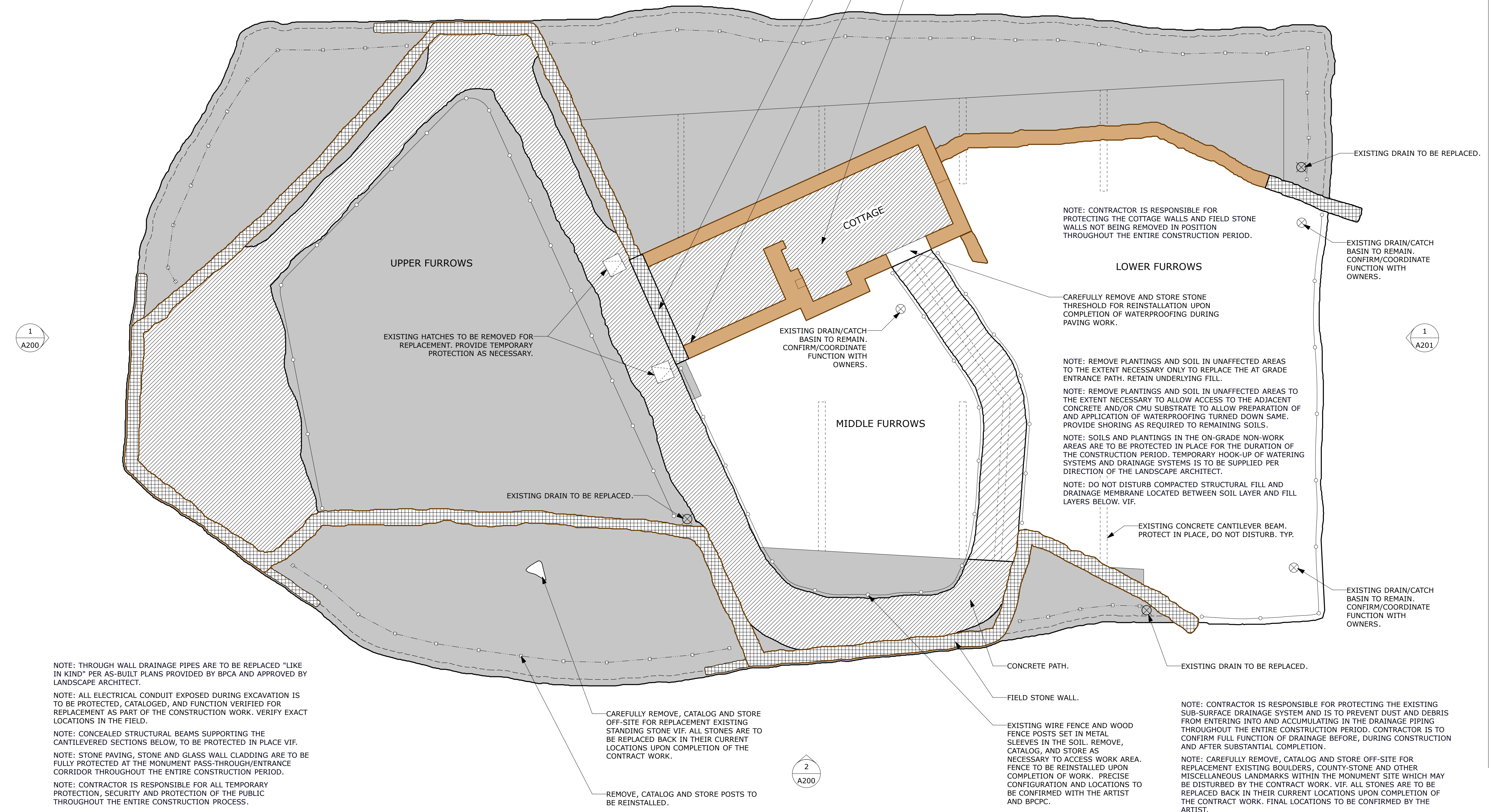
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PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

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DEMOLITION PLAN

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1 DEMOLITION PLAN
Scale: 1/8" = 1'-0"

LEGEND

PREPARE EXPOSED CONCRETE AND CMU SURFACES TO RECEIVE NEW RESIN BASED WATERPROOFING PER MANUFACTURERS INSTRUCTIONS INCLUDING PREPARATION OF EXISTING RESIN-BASED WATERPROOFED AREAS TO REMAIN PER FIELD DIRECTION.
 SOUND-TEST THE CONCRETE DECK EXPOSED BY THE DEMOLITION AND PATCH REPAIR AS REQUIRED PRIOR TO APPLICATION OF WATERPROOFING PER MANUFACTURERS REQUIREMENTS.
 PREPARE EXISTING COLD-JOINTS AND THROUGH CRACKS IN THE UNDERLYING CONCRETE DECK PER MANUFACTURERS REQUIREMENTS AND INSTALL CONTINUOUS MINIMUM 6" WIDE RESIN BASED FLASHING STRIP PRIOR TO INSTALLATION OF RESIN BASED WATERPROOFING AT THE MAIN FIELD AREAS.
 INSTALL RESIN BASED WATERPROOFING SYSTEM TO THE PREPARED CONCRETE DECK, CURBS, PENETRATIONS AND CONCRETE AND CMU CORE WALLS PER MANUFACTURER REQUIREMENTS AND PER APPLICABLE DETAILS. TYPICAL THROUGHOUT ALL RAISED MONUMENT AREAS.
 INSTALL NEW DRAINAGE MAT ABOVE THE WATERPROOFED DECK AREAS THROUGHOUT.
 REINSTALL SOIL PREVIOUSLY REMOVED AND STORED OFF-SITE PER DIRECTION OF LANDSCAPE ARCHITECTS. REFER TO LANDSCAPE ARCHITECT DRAWINGS FOR GRADING, SPRINKLER AND DRAINAGE SYSTEMS.
 CONTRACTOR TO PERFORM WATER/FLOOD TESTING AT ALL COMPLETED PORTIONS OF WATERPROOFING MEMBRANE INSTALLATION PRIOR TO THE INSTALLATION OF OVERBURDEN.

EXISTING CMU/CONCRETE CORE WALLS ARE TO REMAIN. REMOVE AND REBUILD LOOSE OR DAMAGED PORTIONS VIF. NEW AND OR REPLACED SECTIONS ARE TO BE FULLY GROUTED AND DOWELLED TO THE EXISTING SECTIONS TO REMAIN.
 REBUILD THE COTTAGE AND FIELDSTONE WALLS ABOVE THE COTTAGE ENTRANCE OVERLOOK REUSING THE STONE PREVIOUSLY REMOVED, CATALOGUED, AND STORED. REBUILDING IS TO INCORPORATE THE INSTALLATION OF WALL TIES/WALL-TIE SYSTEM.
 INSTALL WALL TIES/WALL-TIE SYSTEM ON THE PREPARED CORE/SUBSTRATE WALLS AT A MINIMUM RATE OF 1-TIE PER 2 SQUARE FEET OF EXPOSED SURFACE AREA. NOTE ALL PENETRATIONS AND ATTACHMENTS FOR THE WALL TIES ARE TO BE FULLY WRAPPED AND WATERPROOFED WITH RESIN-BASED FLASHING PRIOR TO REBUILDING THE WALL FACINGS.
 NOTE: REBUILD THE FIELDSTONE WALLS THROUGHOUT THE MONUMENT PER APPROVED SAMPLE PANELS REUSING THE FIELDSTONE PREVIOUSLY REMOVED, CATALOGUED, AND STORED. REBUILDING IS TO INCORPORATE THE INSTALLATION OF WALL TIES/WALL TIE SYSTEM AT THE RATE OF MINIMUM 1-TIE PER 2 SQUARE FEET OF EXPOSED SURFACE AREA.

NOTE: REFER TO LANDSCAPE ARCHITECT DRAWINGS FOR DETAILS OF THE WATERING SYSTEM AND ASSOCIATED VALVES ETC. TO BE INSTALLED.
 NOTE: REFER TO LANDSCAPE ARCHITECT PLANS FOR DETAILS OF PLANTINGS AND LANDSCAPING.
 NOTE: ALL STONE REBUILDING IS SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS. CONTRACTOR MUST PROVIDE A MINIMUM OF TWO FULL SIZE MOCK-UPS, 6'-0"± IN LENGTH. MOCKUPS INCLUDE COTTAGE WALLS AND FIELD WALLS. MOCKUPS MAY BE APPLIED TO THE MONUMENT DIRECTLY AND IF SUCCESSFUL MAY BE FULLY INCORPORATED INTO THE COMPLETED WORK.
 NOTE: REINSTALL PREVIOUSLY REMOVED, CATALOGUED AND STORED EXISTING BOULDERS, COUNTY-STONE AND OTHER MISCELLANEOUS LANDMARKS WITHIN THE MONUMENT SITE BACK IN THEIR PREVIOUS LOCATIONS UPON COMPLETION OF THE CONTRACT WORK. FINAL LOCATIONS TO BE CONFIRMED BY THE ARTIST.

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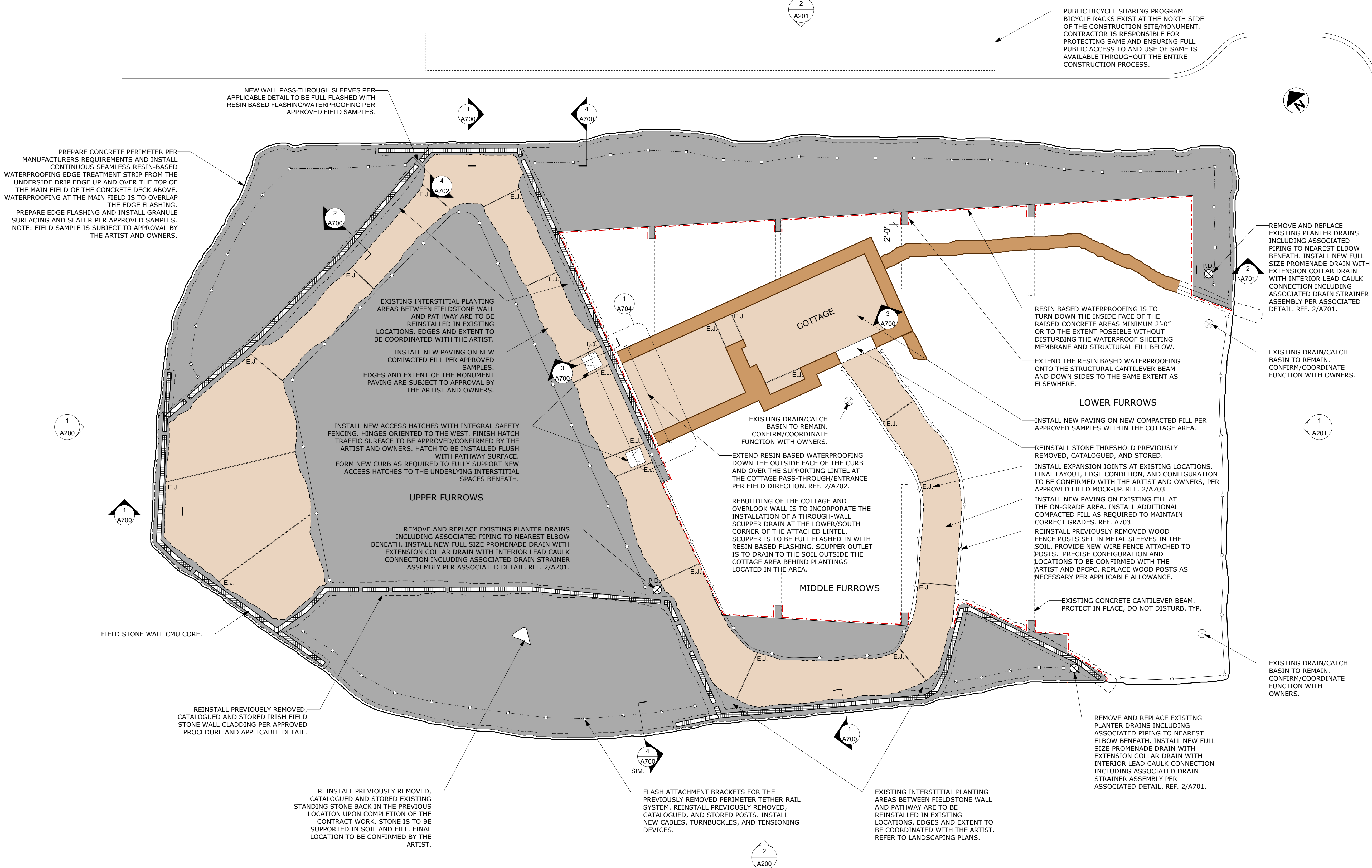
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PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
WATERPROOFING PLAN

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A-100.00		
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RIVER TERRACE



1 WATERPROOFING PLAN
 Scale: 1/8" = 1'-0"

NOTE: CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY PROTECTION, SECURITY AND PROTECTION OF THE PUBLIC THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.

NOTE: PLAZA AREA INCLUDING STONE/LIMESTONE PAVING IS N.C. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF SAME THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.

NOTE: PUBLIC BICYCLE SHARING PROGRAM BICYCLE RACKS EXIST AT THE NORTH SIDE OF THE CONSTRUCTION SITE/MONUMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING SAME AND ENSURING FULL PUBLIC ACCESS TO AND USE OF SAME IS AVAILABLE THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.

NOTE: CLEAN ALL WATER STAINING/EFFLORESCENCE AT MONUMENT BASE CURTAIN WALL AND CANTILEVER SLAB UNDERSIDE THROUGHOUT PER SPECIFICATION AND APPROVED PROCEDURE.

NOTE: CONTRACTOR TO PERFORM WATER/FLOOD TESTING AT ALL COMPLETED PORTIONS OF WATERPROOFING MEMBRANE INSTALLATION PRIOR TO THE INSTALLATION OF OVERBURDEN.

FLASH ATTACHMENT BRACKET FOR THE PREVIOUSLY REMOVED PERIMETER TETHER RAIL SYSTEM. REINSTALL PREVIOUSLY REMOVED, CATALOGUED AND STORED POSTS. INSTALL NEW CABLES, TURNBUCKLES AND TENSIONING DEVICES.

PREPARE CONCRETE PERIMETER PER MANUFACTURERS REQUIREMENTS AND INSTALL CONTINUOUS SEAMLESS RESIN-BASED WATERPROOFING EDGE TREATMENT STRIP FROM THE UNDERSIDE DRIP EDGE UP AND OVER THE TOP OF THE MAIN FIELD OF THE CONCRETE DECK ABOVE. WATERPROOFING AT THE MAIN FIELD IS TO OVERLAP THE EDGE FLASHING.

NOTE: PREPARE EDGE FLASHING AND INSTALL GRANULE SURFACING AND SEALER PER APPROVED SAMPLES. NOTE FIELD SAMPLE IS SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS.

CAREFULLY REMOVE, CATALOG AND STORE OFF-SITE FOR REPLACEMENT, IRISH FIELD STONE FREESTANDING WALLS AND WALL CLADDING FROM SUPPORTING CONCRETE AND/OR CMU CORES AT ALL WALLS IN THE MONUMENT AREAS INDICATED. NOTE ALL STONE IS TO BE REINSTALLED AT THE REPAIRED AND WATERPROOFED SUBSTRATES AND CORE WALLS.

NOTE: ALL STONE REBUILDING IS SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS PER FULL SIZE AND APPROVED MOCK-UPS INCLUDING COTTAGE WALLS AND FIELD WALLS. MOCKUPS MAY BE APPLIED TO THE MONUMENT DIRECTLY AND IF SUCCESSFUL MAY BE FULLY INCORPORATED INTO THE COMPLETED WORK.

SOUND-TEST EXPOSED CONCRETE UNDERSIDE. PATCH PER APPROPRIATE DETAIL/CONTRACT ALLOWANCE.

SLIDING GATE AT MONUMENT ENTRANCE. PREPARE PRIME AND PAINT. FINISH COLOR TO BE APPROVED BY ARTIST AND OWNER.

1 WEST ELEVATION
 Scale: 1/8" = 1'-0"

CLIENT
 Hugh L. Carey
 Battery Park City Authority
 200 Liberty Street, 24th Floor
 New York, New York 10282

ARTIST
 Brian Tolle
 18 East 8th Street, #1C
 New York, New York 10003

LANDSCAPE
 SiteWorks Landscape Architecture
 150 West 28th Street, 8th Floor
 New York, New York 10001

STRUCTURAL
 GACE Consulting Engineers PC
 31 West 27th Street
 New York, New York 10001

MEP
 Collado Engineering
 116 South Broadway
 Tarrytown, New York 10591

DATE	REVISION	NO.



Battery Park City Parks

Andrew M. Cuomo
 Governor, State of New York

Dennis Mehiel
 Chairman of the Board
 Chief Executive Officer

Frank J. Branchini
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Donald Capoccia
 Board Member

Martha J. Gallo
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Lester Petracca
 Board Member

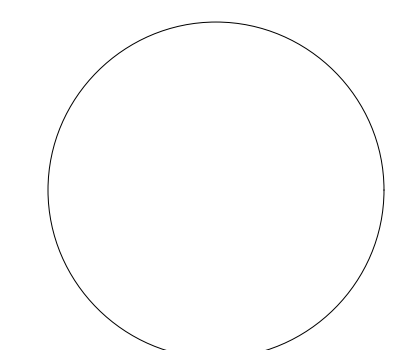
Hector Batista
 Board Member

Shari C. Hyman
 President
 Chief Operating Officer

PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
WEST & SOUTH ELEVATIONS

SEAL & SIGNATURE:



DATE: 16 JULY 2015
 PROJECT No: 14215
 DRAWING BY: PG
 CHECKED BY: FS
 DWG No:

A-200.00

CADD FILE No: 14215-A-200.00 | 4 of 23

FLASH ATTACHMENT BRACKET FOR THE PREVIOUSLY REMOVED PERIMETER TETHER RAIL SYSTEM. REINSTALL PREVIOUSLY REMOVED, CATALOGUED AND STORED POSTS. INSTALL NEW CABLES, TURNBUCKLES AND TENSIONING DEVICES.

PREPARE CONCRETE PERIMETER PER MANUFACTURERS REQUIREMENTS AND INSTALL CONTINUOUS SEAMLESS RESIN-BASED WATERPROOFING EDGE TREATMENT STRIP FROM THE UNDERSIDE DRIP EDGE UP AND OVER THE TOP OF THE MAIN FIELD OF THE CONCRETE DECK ABOVE. WATERPROOFING AT THE MAIN FIELD IS TO OVERLAP THE EDGE FLASHING.

NOTE: PREPARE EDGE FLASHING AND INSTALL GRANULE SURFACING AND SEALER PER APPROVED SAMPLES. NOTE FIELD SAMPLE IS SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS.

CAREFULLY REMOVE, CATALOG AND STORE OFF-SITE FOR REPLACEMENT, IRISH FIELD STONE FREESTANDING WALLS AND WALL CLADDING FROM SUPPORTING CONCRETE AND/OR CMU CORES AT ALL WALLS IN THE MONUMENT AREAS INDICATED. NOTE ALL STONE IS TO BE REINSTALLED AT THE REPAIRED AND WATERPROOFED SUBSTRATES AND CORE WALLS.

NOTE: ALL STONE REBUILDING IS SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS PER FULL SIZE AND APPROVED MOCK-UPS INCLUDING COTTAGE WALLS AND FIELD WALLS. MOCKUPS MAY BE APPLIED TO THE MONUMENT DIRECTLY AND IF SUCCESSFUL MAY BE FULLY INCORPORATED INTO THE COMPLETED WORK.

CLEAN ALL WATER STAINING/EFFLORESCENCE AT MONUMENT BASE CURTAIN WALL AND CANTILEVER SLAB UNDERSIDE THROUGHOUT PER SPECIFICATION AND APPROVED PROCEDURE.

SOUND-TEST EXPOSED CONCRETE UNDERSIDE. PATCH PER APPROPRIATE DETAIL/CONTRACT ALLOWANCE.

2 SOUTH ELEVATION
 Scale: 1/8" = 1'-0"

CLIENT: Hugh L. Carey
 Battery Park City Authority
 200 Liberty Street, 24th Floor
 New York, New York 10282

ARTIST: Brian Tolle
 18 East 8th Street, #1C
 New York, New York 10003

LANDSCAPE: SiteWorks Landscape Architecture
 150 West 28th Street, 8th Floor
 New York, New York 10001

STRUCTURAL: GACE Consulting Engineers PC
 31 West 27th Street
 New York, New York 10001

MEP: Collado Engineering
 116 South Broadway
 Tarrytown, New York 10591

DATE	REVISION	NO.
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NOTE: CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY PROTECTION, SECURITY AND PROTECTION OF THE PUBLIC THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.

NOTE: PLAZA AREA INCLUDING STONE/LIMESTONE PAVING IS NIC. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF SAME THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.

NOTE: PUBLIC BICYCLE SHARING PROGRAM BICYCLE RACKS EXIST AT THE NORTH SIDE OF THE CONSTRUCTION SITE/MONUMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING SAME AND ENSURING FULL PUBLIC ACCESS TO AND USE OF SAME IS AVAILABLE THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.

NOTE: CLEAN ALL WATER STAINING/EFFLORESCENCE AT MONUMENT BASE CURTAIN WALL AND CANTILEVER SLAB UNDERSIDE THROUGHOUT PER SPECIFICATION AND APPROVED PROCEDURE.

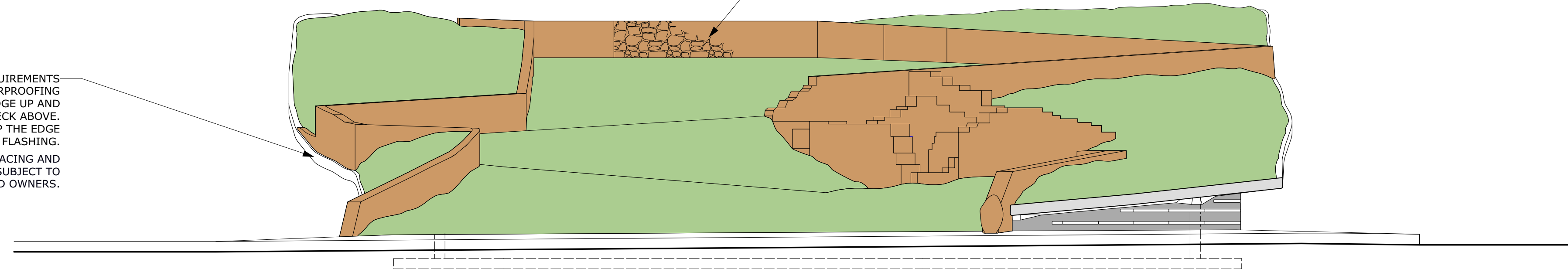
NOTE: CONTRACTOR TO PERFORM WATER/FLOOD TESTING AT ALL COMPLETED PORTIONS OF WATERPROOFING MEMBRANE INSTALLATION PRIOR TO THE INSTALLATION OF OVERBURDEN.

PREPARE CONCRETE PERIMETER PER MANUFACTURERS REQUIREMENTS AND INSTALL CONTINUOUS SEAMLESS RESIN-BASED WATERPROOFING EDGE TREATMENT STRIP FROM THE UNDERSIDE DRIP EDGE UP AND OVER THE TOP OF THE MAIN FIELD OF THE CONCRETE DECK ABOVE. WATERPROOFING AT THE MAIN FIELD IS TO OVERLAP THE EDGE FLASHING.

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CAREFULLY REMOVE, CATALOG AND STORE OFF-SITE FOR REPLACEMENT, IRISH FIELD STONE FREESTANDING WALLS AND WALL CLADDING FROM SUPPORTING CONCRETE AND/OR CMU CORES AT ALL WALLS IN THE MONUMENT AREAS INDICATED. NOTE ALL STONE IS TO BE REINSTALLED AT THE REPAIRED AND WATERPROOFED SUBSTRATES AND CORE WALLS.

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1 EAST ELEVATION
 Scale: 1/8" = 1'-0"

CAREFULLY REMOVE, CATALOG AND STORE OFF-SITE FOR REPLACEMENT, IRISH FIELD STONE FREESTANDING WALLS AND WALL CLADDING FROM SUPPORTING CONCRETE AND/OR CMU CORES AT ALL WALLS IN THE MONUMENT AREAS INDICATED. NOTE ALL STONE IS TO BE REINSTALLED AT THE REPAIRED AND WATERPROOFED SUBSTRATES AND CORE WALLS.

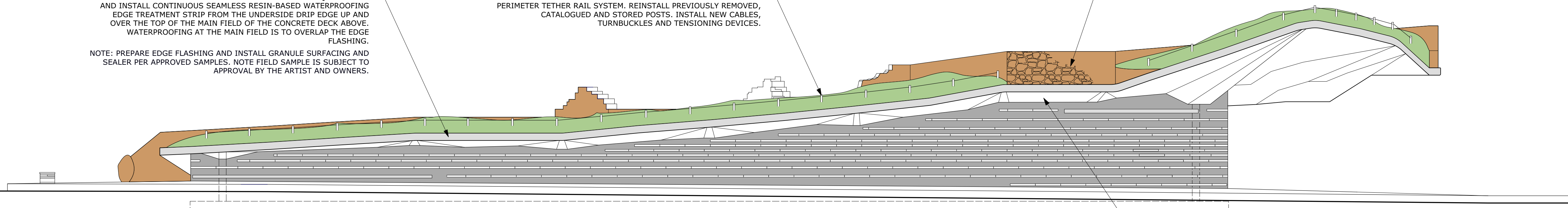
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FLASH ATTACHMENT BRACKET FOR THE PREVIOUSLY REMOVED PERIMETER TETHER RAIL SYSTEM. REINSTALL PREVIOUSLY REMOVED, CATALOGUED AND STORED POSTS. INSTALL NEW CABLES, TURNBUCKLES AND TENSIONING DEVICES.

SOUND-TEST EXPOSED CONCRETE UNDERSIDE. PATCH PER APPROPRIATE DETAIL/CONTRACT ALLOWANCE.



2 NORTH ELEVATION
 Scale: 1/8" = 1'-0"



Battery Park City Parks

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 Governor, State of New York

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Hector Batista
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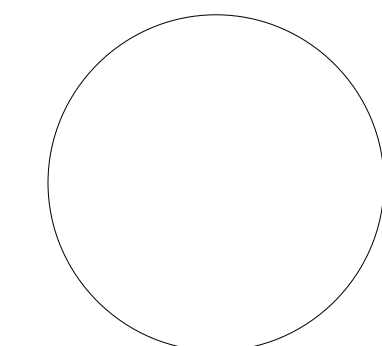
Shari C. Hyman
 President
 Chief Operating Officer

PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:

EAST & NORTH ELEVATIONS

SEAL & SIGNATURE:



DATE: 16 JULY 2015
 PROJECT No: 14215
 DRAWING BY: PG
 CHECKED BY: FS
 DWG No:

A-201.00

CADD FILE No: 14215-A-201.00 | 5 of 23

NOTE: ALL STONE REBUILDING IS SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS. CONTRACTOR MUST PROVIDE A MINIMUM OF TWO FULL SIZE MOCK-UPS, 6'-0"± IN LENGTH. MOCKUPS INCLUDE COTTAGE WALLS AND FIELD WALLS. MOCKUPS MAY BE APPLIED TO THE MONUMENT DIRECTLY AND IF SUCCESSFUL MAY BE FULLY INCORPORATED INTO THE COMPLETED WORK.

NOTE: STONE PAVING, STONE AND GLASS WALL CLADDING AND FLOORING ARE TO BE FULLY PROTECTED AT THE MONUMENT PASS-THROUGH/ENTRANCE CORRIDOR THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.

NOTE: CLEAN ALL WATER STAINING/EFFLORESCENCE AT MONUMENT BASE CURTAIN WALL AND CANTILEVER SLAB UNDERSIDE THROUGHOUT PER SPECIFICATION AND APPROVED PROCEDURE.

NOTE: CONTRACTOR TO PERFORM WATER/FLOOD TESTING AT ALL COMPLETED PORTIONS OF WATERPROOFING MEMBRANE INSTALLATION PRIOR TO THE INSTALLATION OF OVERBURDEN.

INSTALL WALL TIES/WALL-TIE SYSTEM ON THE PREPARED CORE/SUBSTRATE WALLS AT A MINIMUM RATE OF ONE TIE PER 2 SQUARE FEET OF EXPOSED SURFACE AREA. NOTE ALL PENETRATIONS AND ATTACHMENTS FOR THE WALL TIES ARE TO BE FULLY WRAPPED AND WATERPROOFED WITH RESIN-BASED FLASHING PRIOR TO REBUILDING THE WALL FACINGS.

PREPARE EXPOSED CONCRETE AND CMU SURFACES TO RECEIVE NEW RESIN BASED WATERPROOFING PER MANUFACTURERS INSTRUCTIONS INCLUDING PREPARATION OF EXISTING RESIN-BASED WATERPROOFED AREAS TO REMAIN PER FIELD DIRECTION.

INSTALL NEW PAVING ON NEW COMPACTED FILL PER APPROVED SAMPLES. EDGES AND EXTENT OF THE MONUMENT PAVING ARE SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS.

REBUILD THE COTTAGE AND FIELDSTONE WALLS ABOVE THE COTTAGE ENTRANCE OVERLOOK REUSING THE STONE PREVIOUSLY REMOVED, CATALOGUED AND STORED. REBUILDING IS TO INCORPORATE THE INSTALLATION OF WALL TIES/WALL TIE SYSTEM AT THE RATE OF MINIMUM ONE TIE PER 2 SQUARE FEET OF EXPOSED SURFACE AREA.

CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE COTTAGE WALLS AND FIELD STONE WALLS NOT BEING REMOVED IN POSITION THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.

REBUILDING OF THE COTTAGE AND OVERLOOK WALL IS TO INCORPORATE THE INSTALLATION OF A THROUGH-WALL SCUPPER DRAIN AT THE LOWER/SOUTH CORNER OF THE ATTACHED LINTEL. SCUPPER IS TO BE FULL FLASHED IN WITH RESIN BASED FLASHING. SCUPPER OUTLET IS TO DRAIN TO THE SOIL OUTSIDE THE COTTAGE AREA BEHIND PLANTINGS LOCATED IN THE AREA.

SOUND-TEST EXPOSED CONCRETE UNDERSIDE. PATCH PER APPROPRIATE DETAIL FROM CONTRACT ALLOWANCE.

CAREFULLY REMOVE PORTIONS OF THE STONE CLADDING AT THE PASS-THROUGH ENTRANCE CORRIDOR TO THE MONUMENT AS REQUIRED TO INSTALL VENTILATION LOUVERS. INSTALL NEW METAL LOUVER TO MATCH EXISTING ELSEWHERE PER APPROVED SAMPLE.

EXISTING TRENCH-DRAIN TO REMAIN, TO BE CORE-DRILLED AT INTERIOR FLANGE AT FOUR EQUIDISTANT LOCATIONS PER FIELD DIRECTION TO ALLOW INSTALLATION OF THROUGH DRAINAGE FLASHING. UPON COMPLETION OF WORK REINSTALL EXISTING GRATING AT THE TRENCH DRAIN LOCATION. PREPARE, PRIME, AND PAINT, THE EXPOSED GRATING FRAME.

NEW PAVING ON NEW COMPACTED FILL PER APPROVED SAMPLES WITHIN THE COTTAGE AREA. NOTE: PROVIDE 1 1/2" GAP AT COTTAGE PAVING PERIMETER. CONFIRM LOCATIONS/EXTENT WITH ARTIST. REF. 3/A704

EXISTING WATERPROOF SHEETING MEMBRANE. DO NOT DISTURB.

STRUCTURAL FILL. DO NOT DISTURB.

EXISTING FOUNDATION DRAINAGE SYSTEM. DO NOT DISTURB.

NORTH END AVENUE

ENTRANCE RAMP

COTTAGE

UPPER FURROWS

1/2
A704

1 ENTRANCE RAMP - SOUTH ELEVATION
 Scale: 1/8" = 1'-0"



Battery Park City Parks

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 Governor, State of New York

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Hector Batista
 Board Member

Shari C. Hyman
 President
 Chief Operating Officer

PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
ENTRANCE RAMP ELEVATIONS

SEAL & SIGNATURE:	DATE: 16 JULY 2015
	PROJECT No: 14215
	DRAWING BY: PG
	CHECKED BY: FS
	DWG No: A-202.00
CADD FILE No: 14215-A-202.00	6 of 23

2 ENTRANCE RAMP - NORTH ELEVATION
 Scale: 1/8" = 1'-0"

CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE COTTAGE WALLS AND FIELD STONE WALLS NOT BEING REMOVED IN POSITION THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.

REBUILD THE COTTAGE AND FIELDSTONE WALLS ABOVE THE COTTAGE ENTRANCE OVERLOOK REUSING THE STONE PREVIOUSLY REMOVED, CATALOGUED AND STORED. REBUILDING IS TO INCORPORATE THE INSTALLATION OF WALL TIES/WALL TIE SYSTEM AT THE RATE OF MINIMUM ONE TIE PER 2 SQUARE FEET OF EXPOSED SURFACE AREA.

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PREPARE EXPOSED CONCRETE AND CMU SURFACES TO RECEIVE NEW RESIN BASED WATERPROOFING PER MANUFACTURERS INSTRUCTIONS INCLUDING PREPARATION OF EXISTING RESIN-BASED WATERPROOFED AREAS TO REMAIN PER FIELD DIRECTION.

INSTALL NEW PAVING ON NEW COMPACTED FILL PER APPROVED SAMPLES. EDGES AND EXTENT OF THE MONUMENT PAVING ARE SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS.

SOUND-TEST EXPOSED CONCRETE UNDERSIDE. PATCH PER APPROPRIATE DETAIL FROM CONTRACT ALLOWANCE.

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STRUCTURAL FILL. DO NOT DISTURB.

EXISTING FOUNDATION DRAINAGE SYSTEM. DO NOT DISTURB.

NEW PAVING ON NEW COMPACTED FILL PER APPROVED SAMPLES WITHIN THE COTTAGE AREA. NOTE: PROVIDE 1 1/2" GAP AT COTTAGE PAVING PERIMETER. CONFIRM LOCATIONS/EXTENT WITH ARTIST. REF. 3/A704

CAREFULLY REMOVE PORTIONS OF THE STONE CLADDING AT THE PASS-THROUGH ENTRANCE CORRIDOR TO THE MONUMENT AS REQUIRED TO INSTALL VENTILATION LOUVERS. INSTALL NEW METAL LOUVER TO MATCH EXISTING ELSEWHERE PER APPROVED SAMPLE.

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SLIDING GATE AT MONUMENT ENTRANCE. PREPARE PRIME AND PAINT. FINISH COLOR TO BE APPROVED BY ARTIST AND OWNER.

NORTH END AVENUE

COTTAGE

ENTRANCE RAMP

1/2
A704

UPPER FURROWS

CLIENT
 Hugh L. Carey
 Battery Park City Authority
 200 Liberty Street, 24th Floor
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DATE	REVISION	NO.



Battery Park City Parks

- Andrew M. Cuomo**
Governor, State of New York
- Dennis Mehiel**
Chairman of the Board
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President
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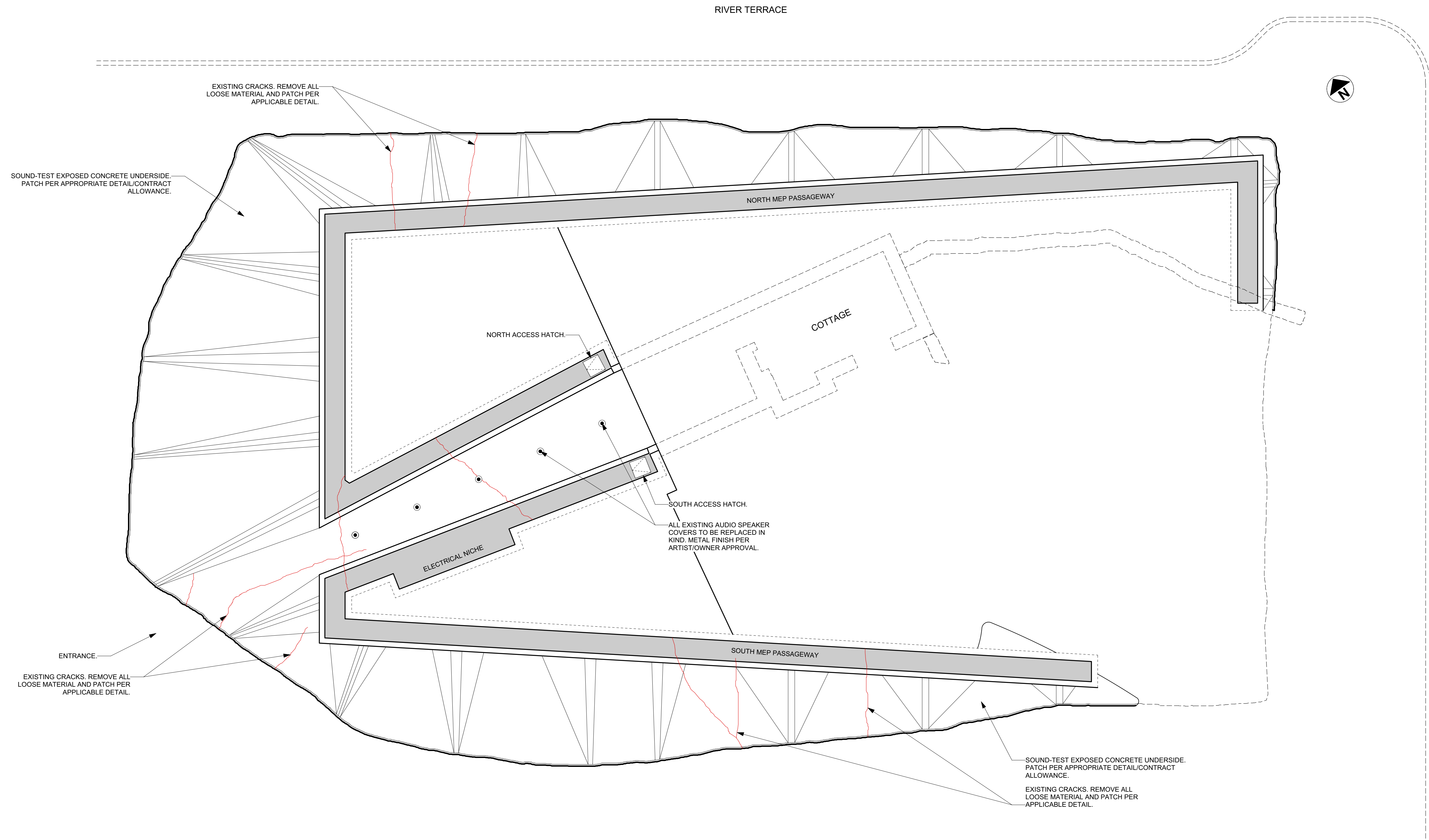
PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
REFLECTED CEILING PLAN

SEAL & SIGNATURE:	DATE:	16 JULY 2015
	PROJECT No:	14215
	DRAWING BY:	PG
	CHECKED BY:	FS
	DWG No:	
A-300.00		
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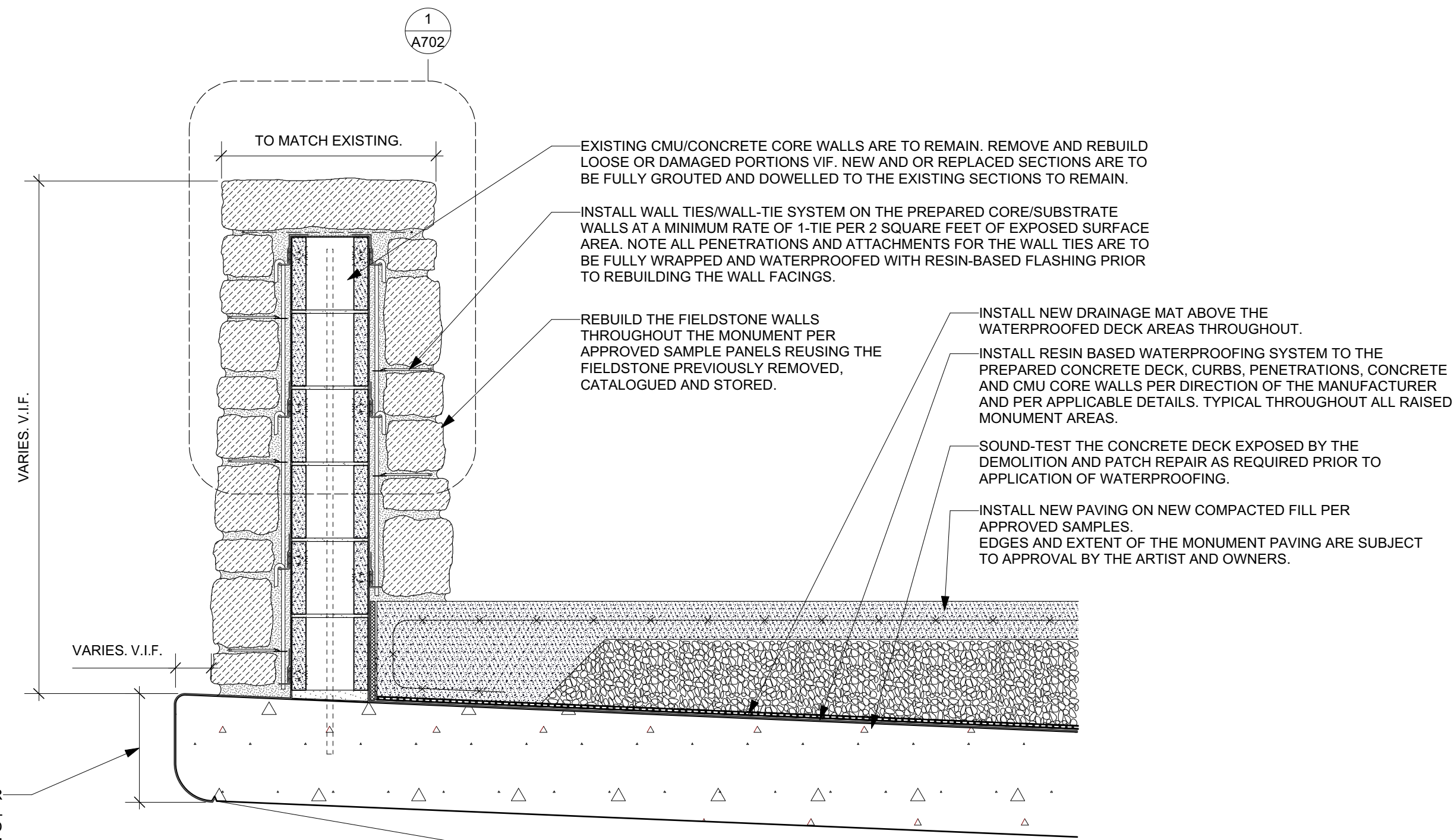
NOTE: CLEAN ALL WATER STAINING/EFFLORESCENCE AT MONUMENT BASE CURTAIN WALL AND CANTILEVER SLAB UNDERSIDE THROUGHOUT PER SPECIFICATION AND APPROVED PROCEDURE.

NOTE: REFER TO ELECTRICAL DRAWINGS FOR SCOPE OF WORK AT MEP PASSAGEWAY INTERIORS.



1 REFLECTED CEILING PLAN
 Scale: 1/8" = 1'-0"

NOTE: ALL STONE REBUILDING IS SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS. CONTRACTOR MUST PROVIDE A MINIMUM OF TWO FULL SIZE MOCK-UPS, 6'-0" IN LENGTH. MOCKUPS INCLUDE COTTAGE WALLS AND FIELD WALLS. MOCKUPS MAY BE APPLIED TO THE MONUMENT DIRECTLY AND IF SUCCESSFUL MAY BE FULLY INCORPORATED INTO THE COMPLETED WORK.



1 FIELDSTONE WALL - CANTIEVER EDGE / PATH
Scale: 1" = 1'-0"

PREPARE CONCRETE PERIMETER PER MANUFACTURERS REQUIREMENTS AND INSTALL CONTINUOUS SEAMLESS RESIN-BASED WATERPROOFING EDGE TREATMENT STRIP FROM THE UNDERSIDE DRIP EDGE UP AND OVER THE TOP OF THE MAIN FIELD OF THE CONCRETE DECK ABOVE. WATERPROOFING AT THE MAIN FIELD IS TO OVERLAP THE EDGE FLASHING. PREPARE EDGE FLASHING AND INSTALL GRANULE SURFACING AND SEALER PER APPROVED SAMPLES. NOTE FIELD SAMPLE IS SUBJECT TO APPROVAL BY THE ARTIST AND OWNERS.

INSTALL NEW ACCESS HATCHES. FINISH HATCH TRAFFIC SURFACE TO BE APPROVED/CONFIRMED BY THE ARTIST AND OWNERS. HATCH TO BE INSTALLED FLUSH WITH PATHWAY SURFACE.

INSTALL NEW POURABLE SEALANT JOINT TO BE FLUSH WITH PATHWAY SURFACE.

INSTALL NEW FIBER PAD AND BOND BREAKER TAPE AT HATCH FRAME PERIMETER.

FORM NEW CURB AS REQUIRED TO FULLY SUPPORT NEW ACCESS HATCHES TO THE UNDERLYING INTERSTITIAL SPACES BENEATH.

TIE RESIN BASED WATERPROOFING MEMBRANE INTO NEW HATCH FRAMES. PREPARE SURFACES PER MANUFACTURERS REQUIREMENTS.

EXISTING ACCESS LADDER TO REMAIN.

3 ACCESS HATCH / FIELDSTONE WALL
Scale: 1" = 1'-0"

EXISTING CMU/CONCRETE CORE WALLS ARE TO REMAIN. REMOVE AND REBUILD LOOSE OR DAMAGED PORTIONS V.I.F. NEW AND OR REPLACED SECTIONS ARE TO BE FULLY GROUTED AND DOWELLED TO THE EXISTING SECTIONS TO REMAIN.

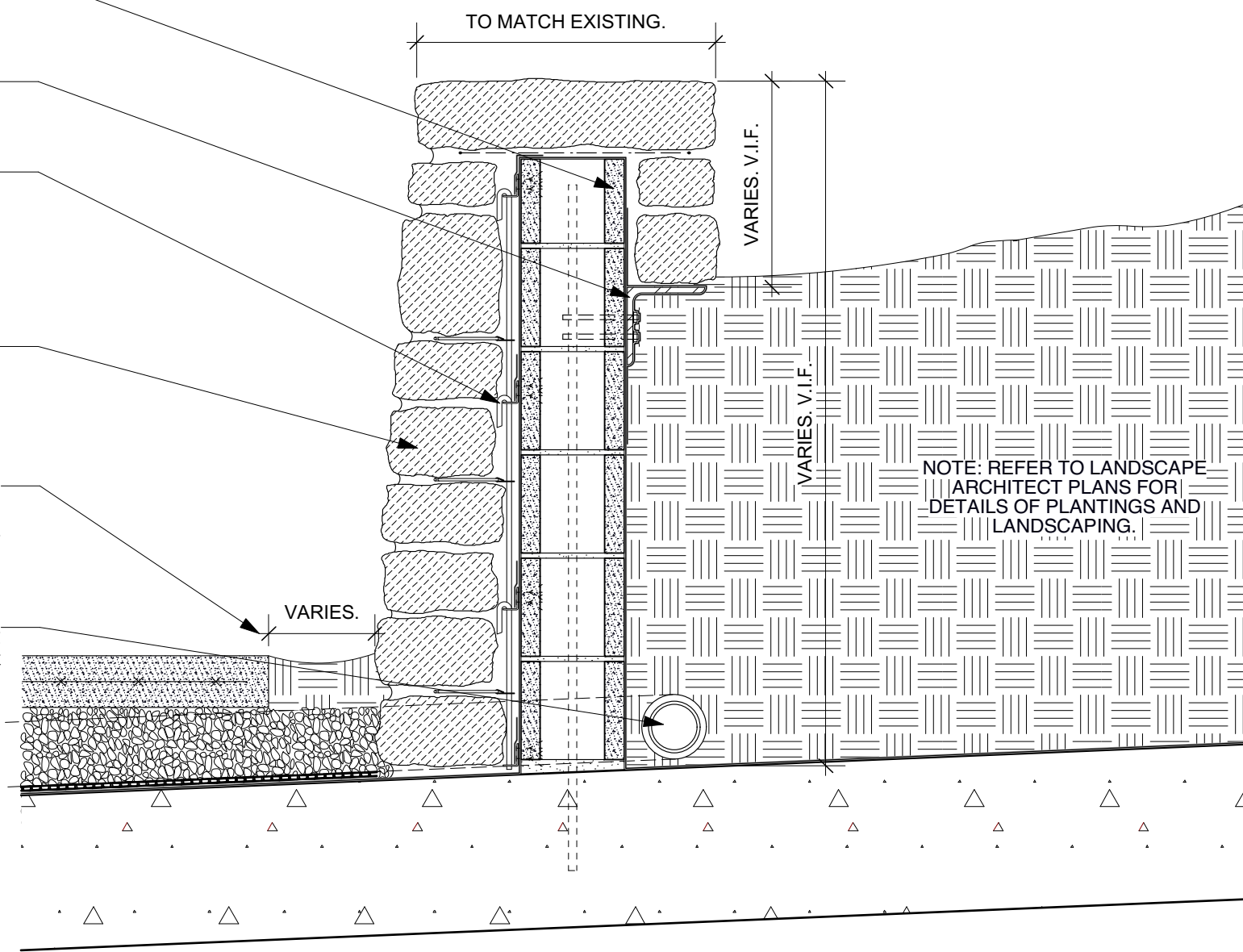
SHELF ANGLE SECTIONS ATTACHED TO THE CMU/CONCRETE CORE WALLS ARE TO REMAIN AND ARE TO BE PROTECTED IN PLACE FOR REUSE.

INSTALL WALL TIES/WALL-TIE SYSTEM ON THE PREPARED CORE/SUBSTRATE WALLS AT A MINIMUM RATE OF 1-TIE PER 2 SQUARE FEET OF EXPOSED SURFACE AREA. NOTE ALL PENETRATIONS AND ATTACHMENTS FOR THE WALL TIES ARE TO BE FULLY WRAPPED AND WATERPROOFED WITH RESIN-BASED FLASHING PRIOR TO REBUILDING THE WALL FACINGS.

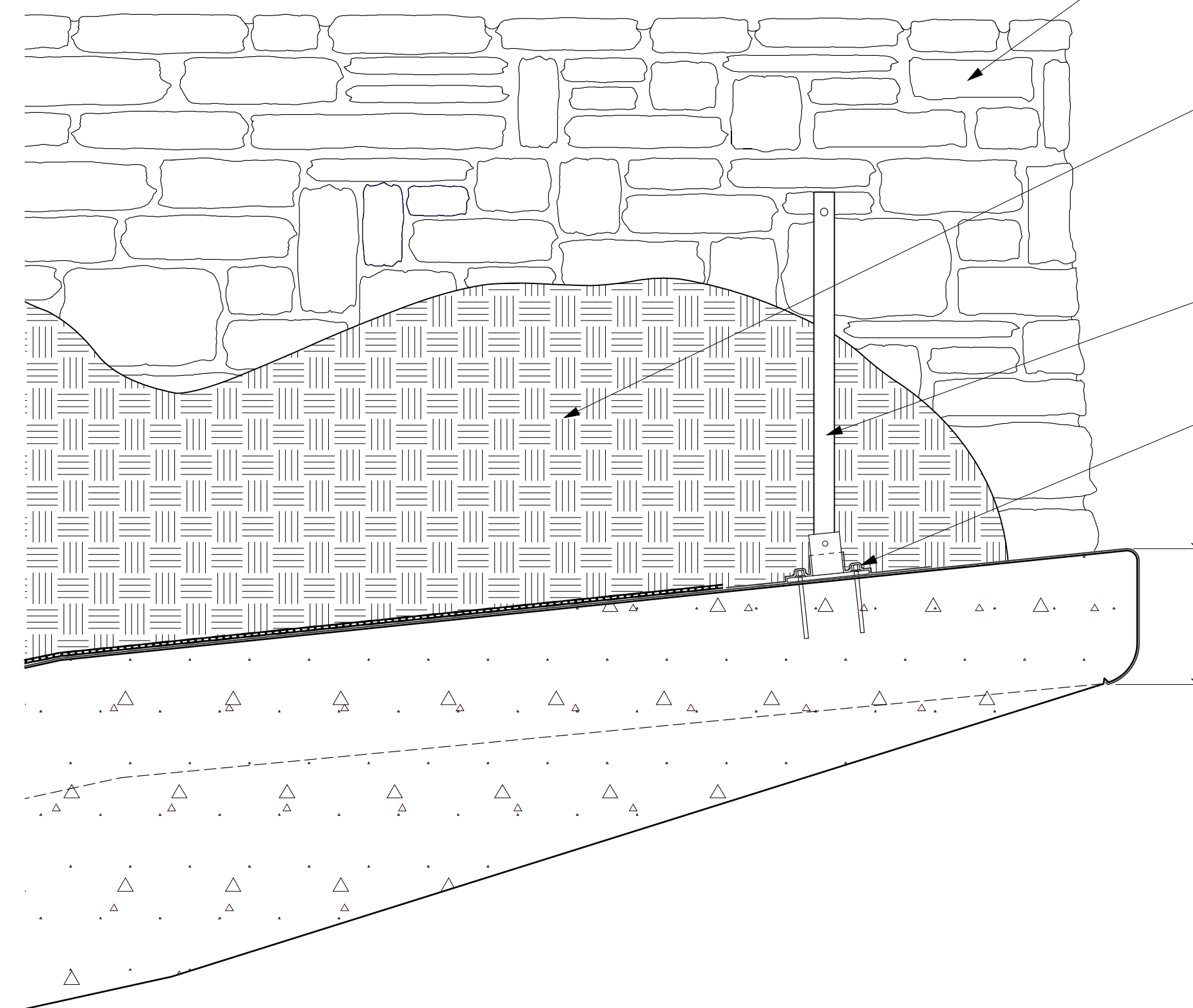
REBUILD THE FIELDSTONE WALLS THROUGHOUT THE MONUMENT PER APPROVED SAMPLE PANELS REUSING THE FIELDSTONE PREVIOUSLY REMOVED, CATALOGUED AND STORED.

EXISTING INTERSTITIAL PLANTING AREAS BETWEEN FIELDSTONE WALL AND PATHWAY ARE TO BE REINSTALLED IN EXISTING LOCATIONS. EDGES AND EXTENT TO BE COORDINATED WITH THE ARTIST.

EXISTING DRAINAGE SYSTEM TO BE REPLACED. SEE LANDSCAPE DRAWINGS FOR SCOPE REGARDING DRAINAGE SYSTEM. REFER TO DRAINAGE AS-BUILT PLANS PROVIDED BY BPCA FOR LAYOUT OF EXISTING DRAINAGE PIPING.



2 FIELDSTONE RETAINING WALL - PATH / PLANTER
Scale: 1" = 1'-0"



4 PLANTER - CANTIEVER EDGE
Scale: 1" = 1'-0"

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PROJECT:
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VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:

FIELDSTONE WALL
DETAILS

SEAL & SIGNATURE:	DATE: 16 JULY 2015
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A-700.00	
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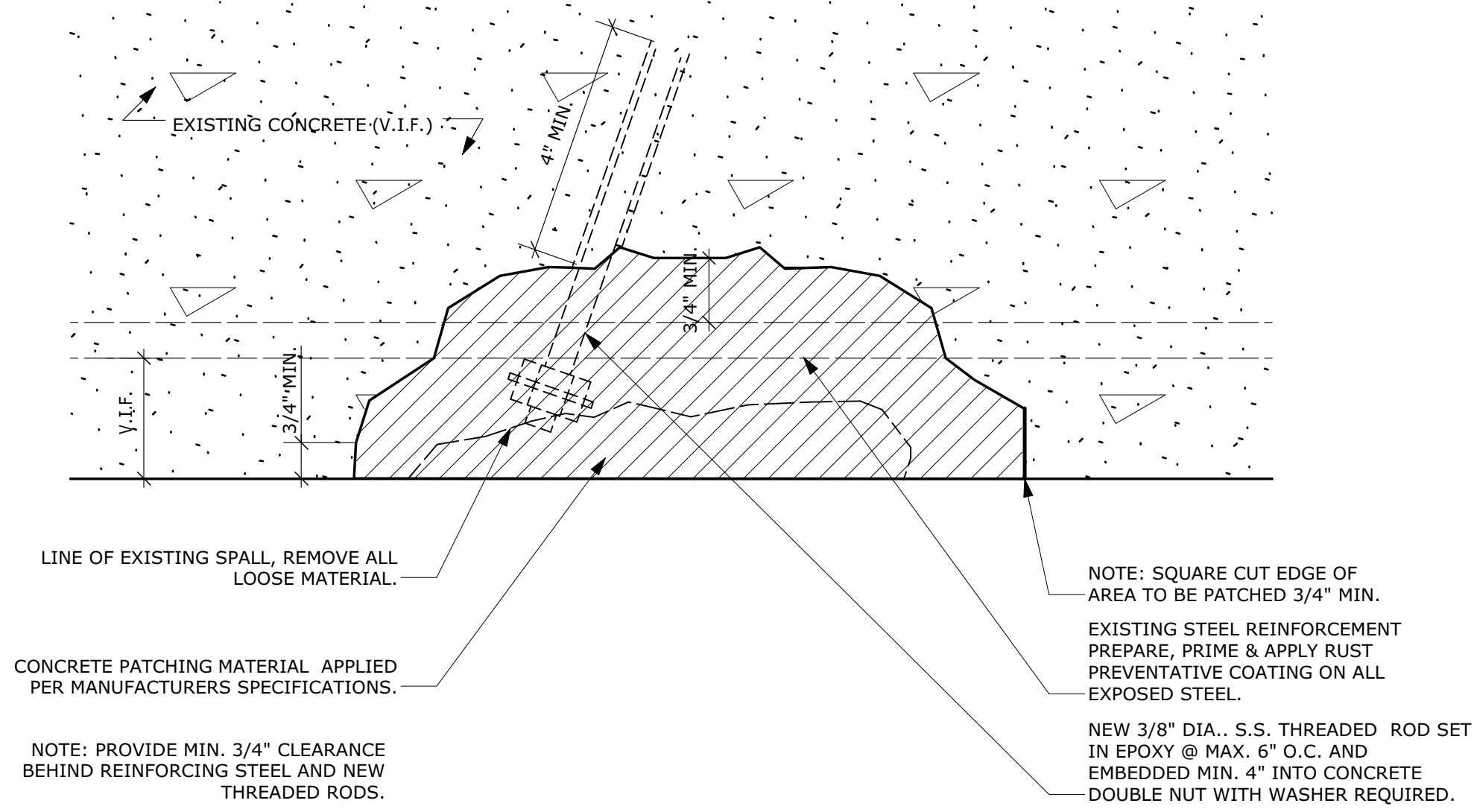
ARTIST
 Brian Tolle
 18 East 8th Street, #1C
 New York, New York 10003

LANDSCAPE
 SiteWorks Landscape Architecture
 150 West 28th Street, 8th Floor
 New York, New York 10001

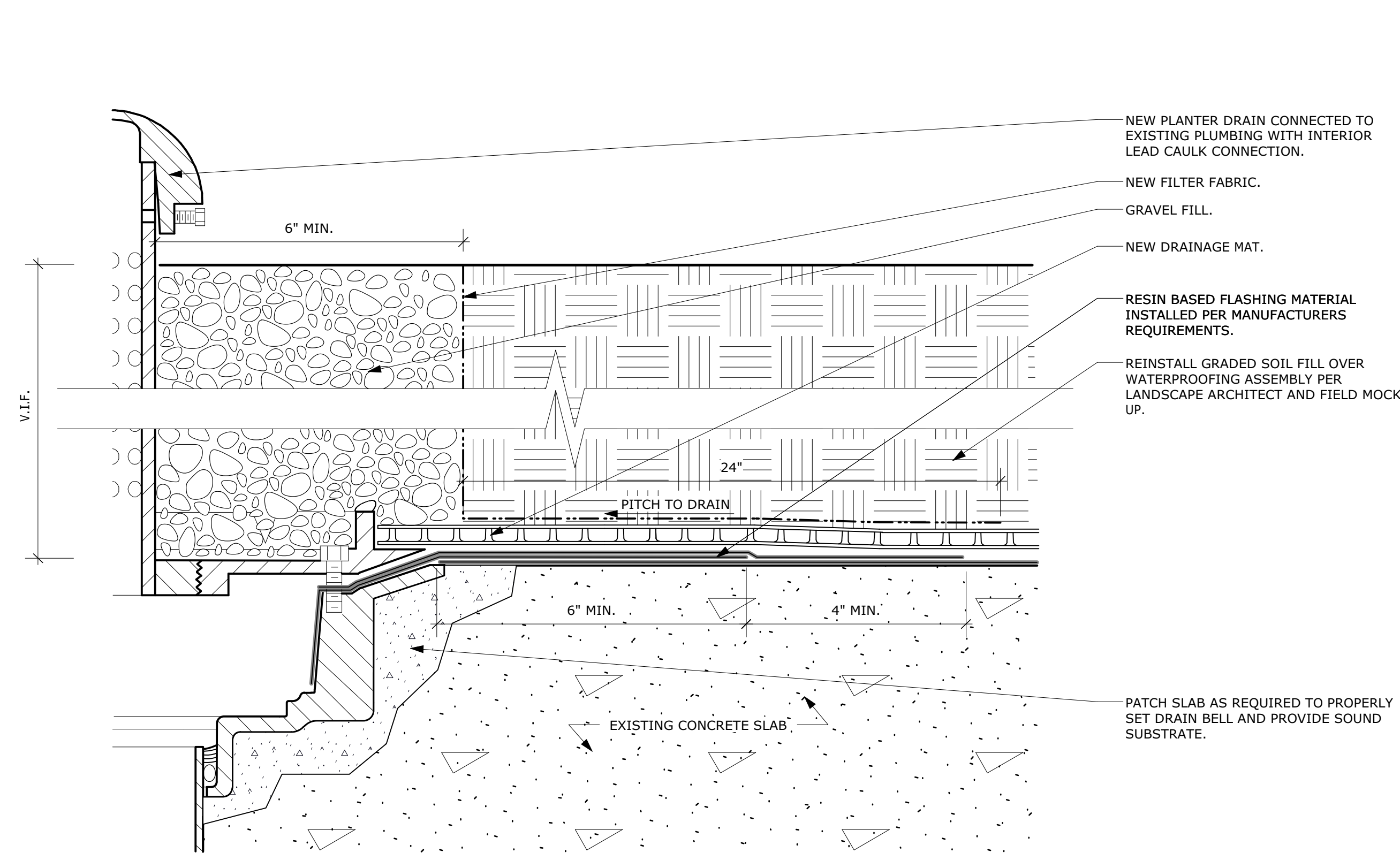
STRUCTURAL
 GACE Consulting Engineers PC
 31 West 27th Street
 New York, New York 10001

MEP
 Collado Engineering
 116 South Broadway
 Tarrytown, New York 10591

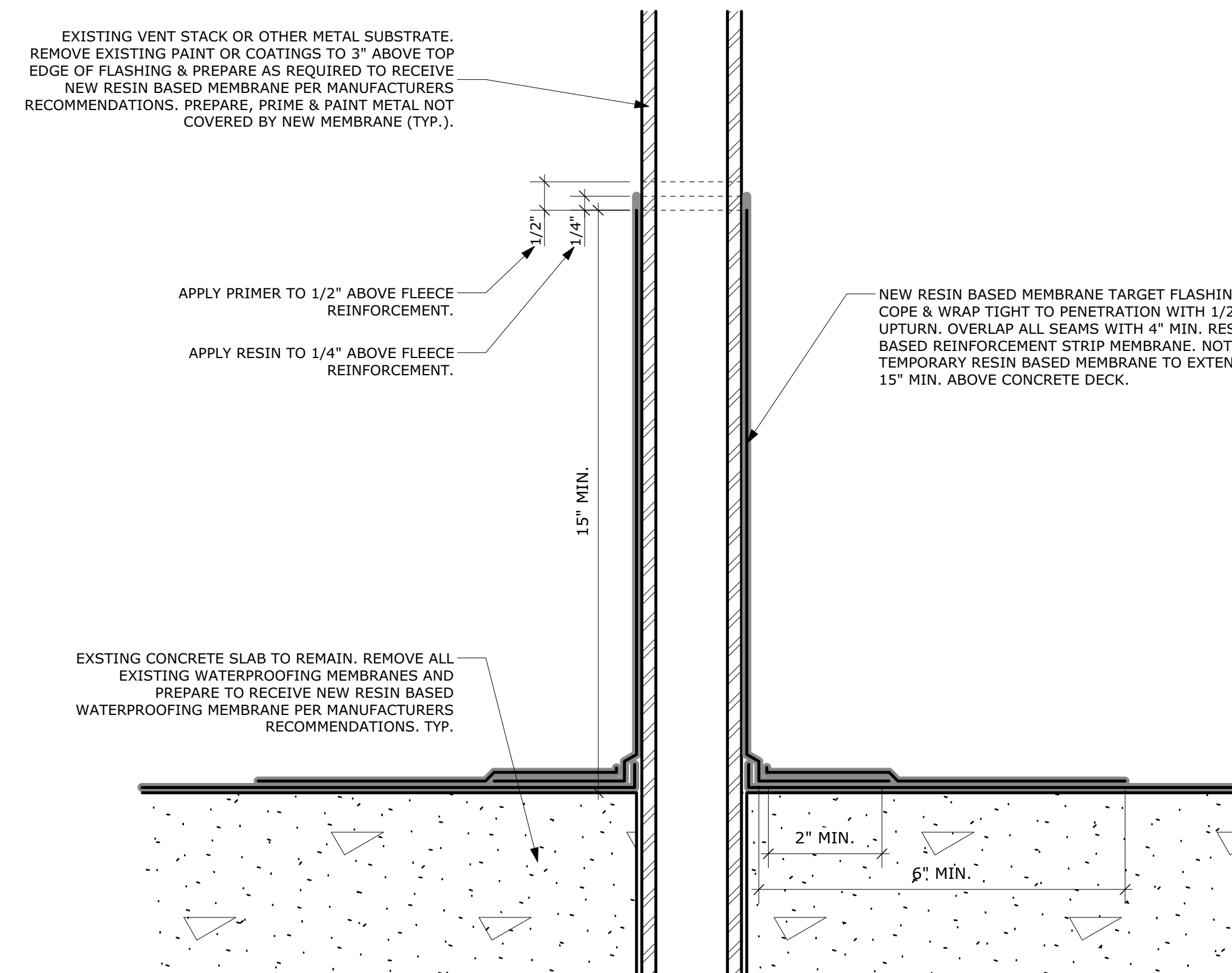
DATE	REVISION	NO.
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1 SECTION DETAIL AT CONCRETE PATCH - OVERHEAD
 Scale: 1/2" = 1"



2 SECTION DETAIL AT NEW PLANTER DRAIN
 Scale: 1/2" = 1"



3 SECTION DETAIL AT PIPE PENETRATION
 SCALE: 6" = 1'-0"



Battery Park City Parks

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Hector Batista
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PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
MISCELLANEOUS DETAILS

SEAL & SIGNATURE:	DATE:	16 JULY 2015
	PROJECT No:	14215
	DRAWING BY:	PG
	CHECKED BY:	FS
	DWG No:	
A-701.00		
CADD FILE No: 14215-A-701.00		9 of 23

CLIENT
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DATE	REVISION	NO.



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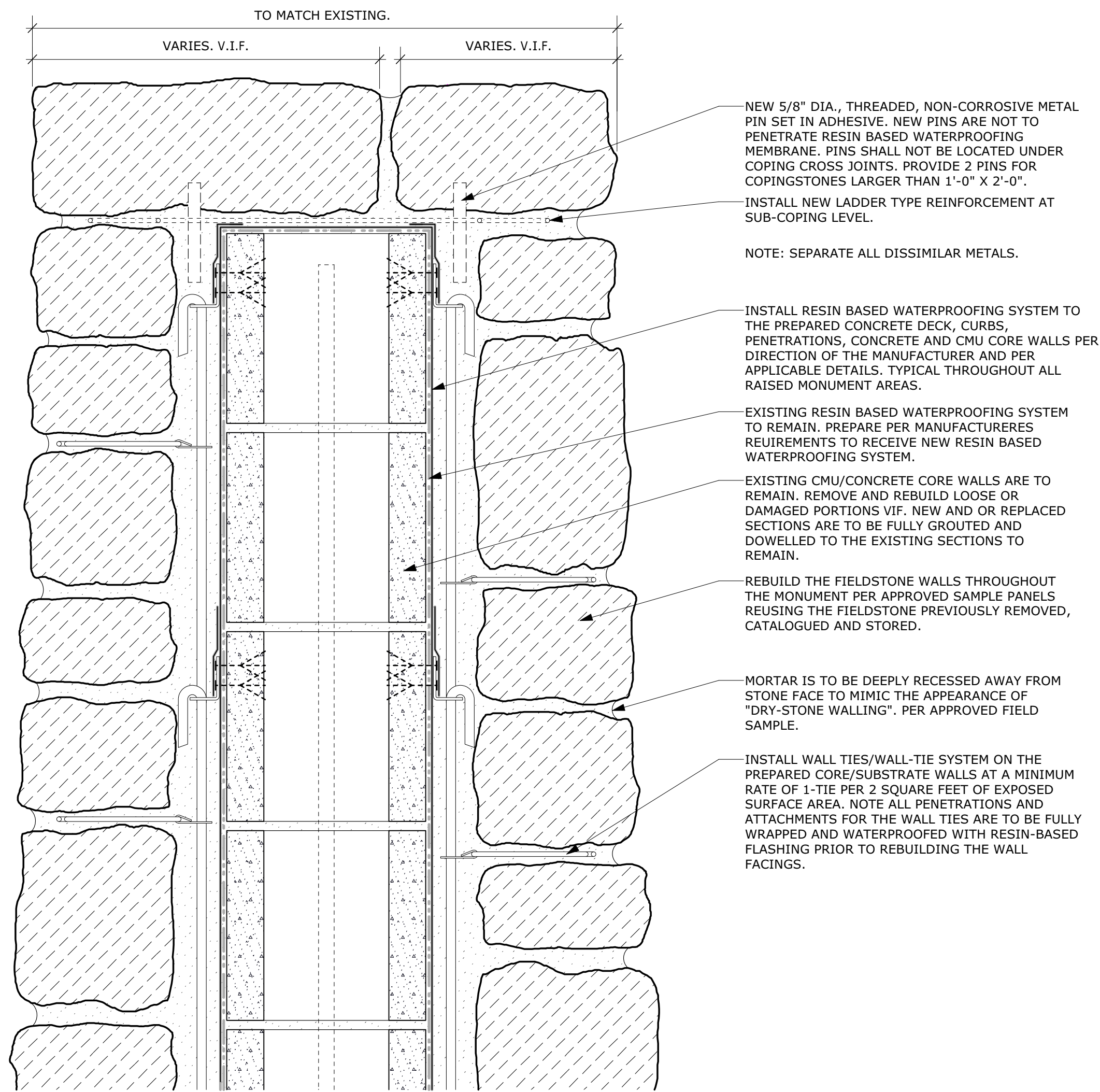
Hector Batista
 Board Member

Shari C. Hyman
 President
 Chief Operating Officer

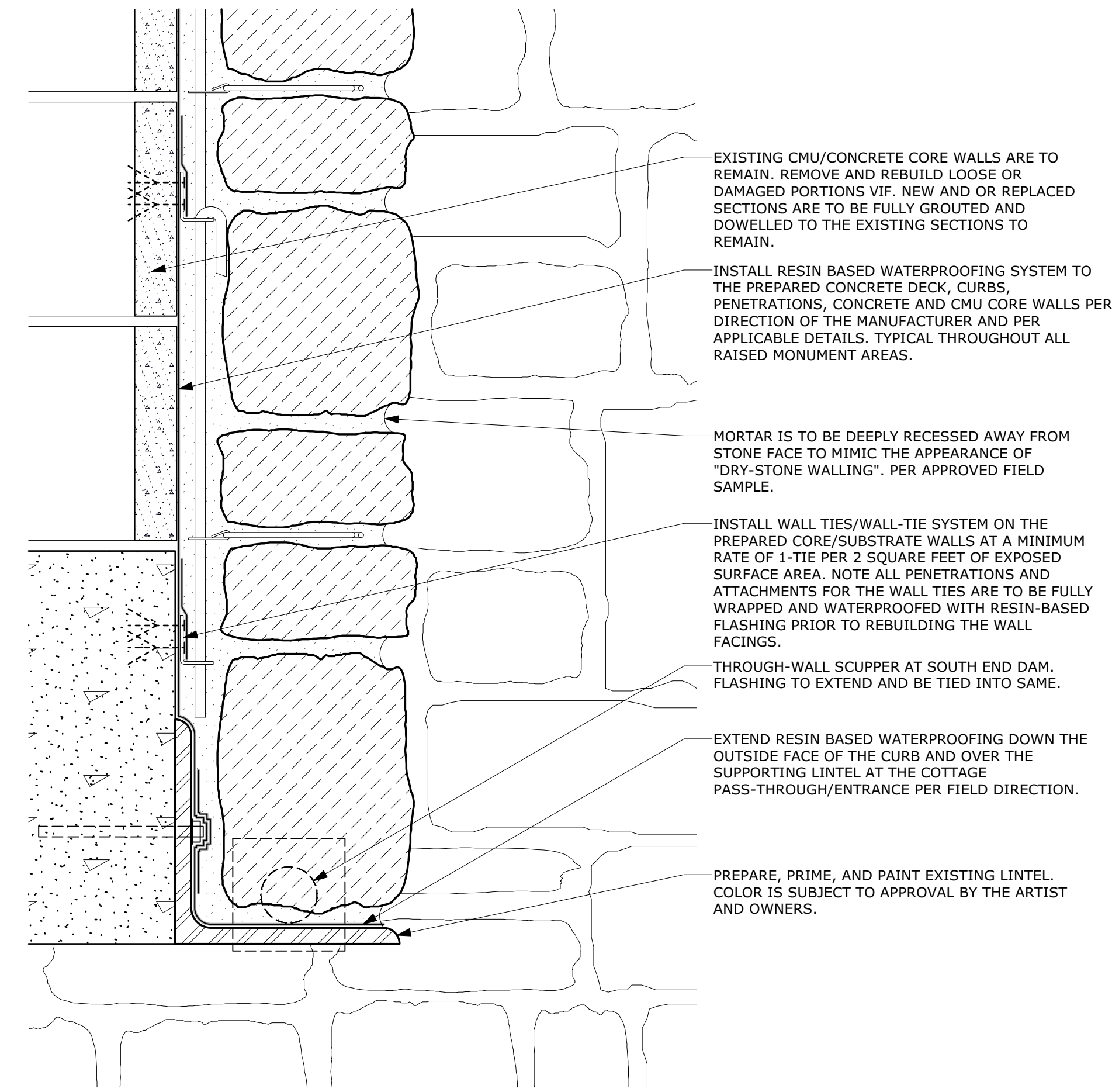
PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
FIELDSTONE WALL
DETAILS

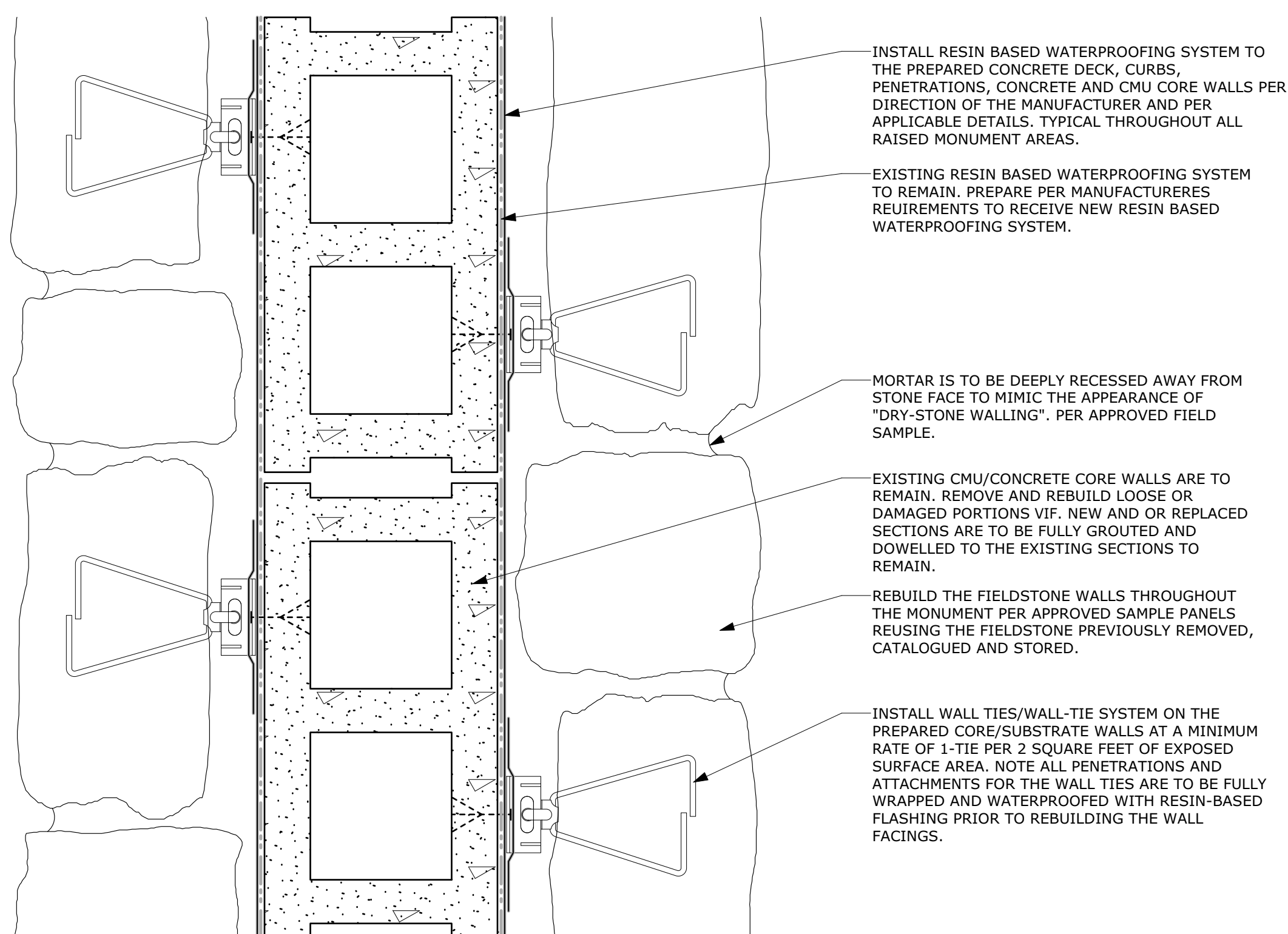
SEAL & SIGNATURE:	DATE: 16 JULY 2015
	PROJECT No: 14215
	DRAWING BY: PG
	CHECKED BY: FS
	DWG No:
A-702.00	
CADD FILE No: 14215-A-700.00 10 of 23	



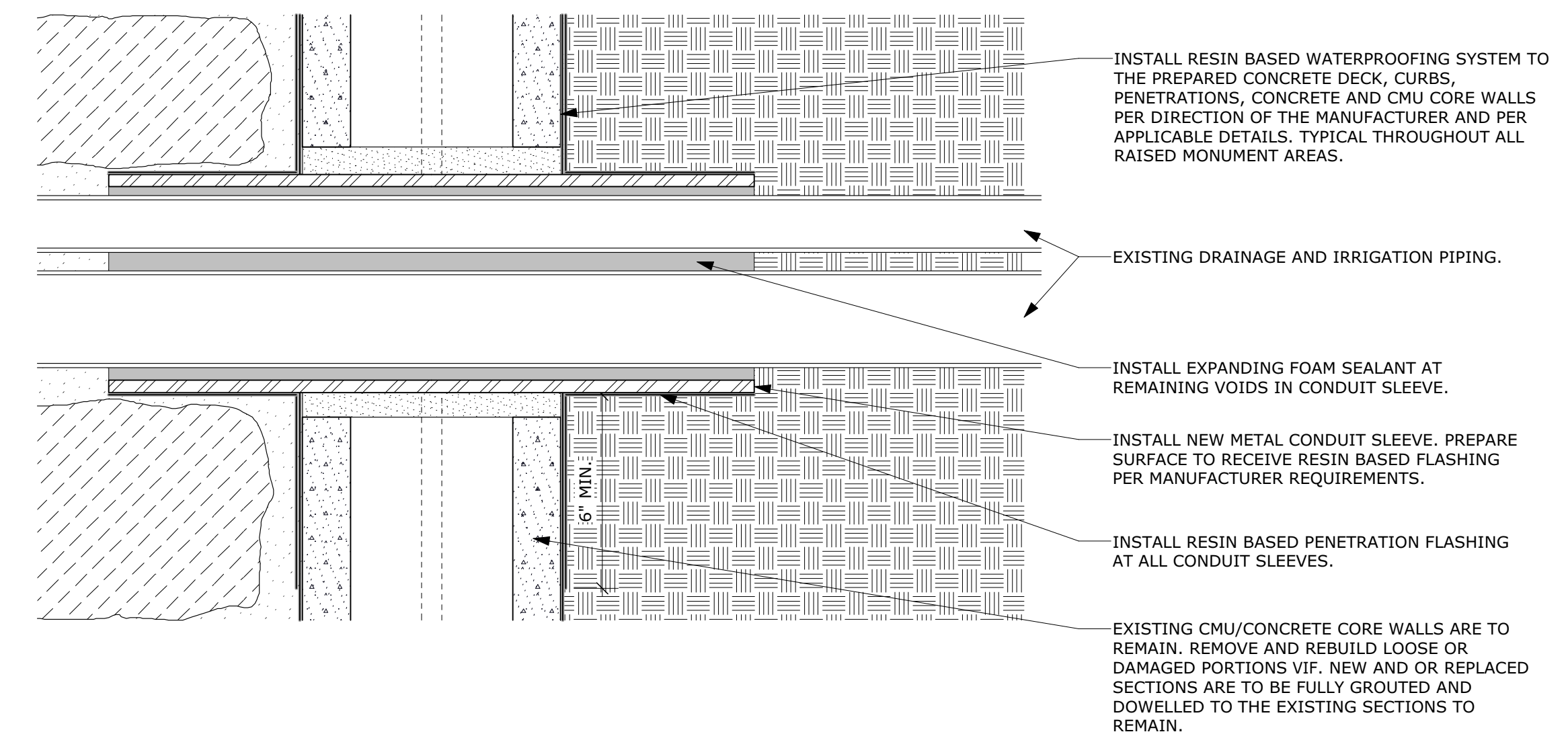
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 Scale: 1/2" = 1"



2 SECTION DETAIL AT COTTAGE THRESHOLD LINTEL
 Scale: 1/2" = 1"



3 SECTION DETAIL AT FIELDSTONE WALL - PLAN
 Scale: 1/2" = 1"



4 SECTION DETAIL AT FIELDSTONE WALL PENETRATION
 Scale: 1/2" = 1"

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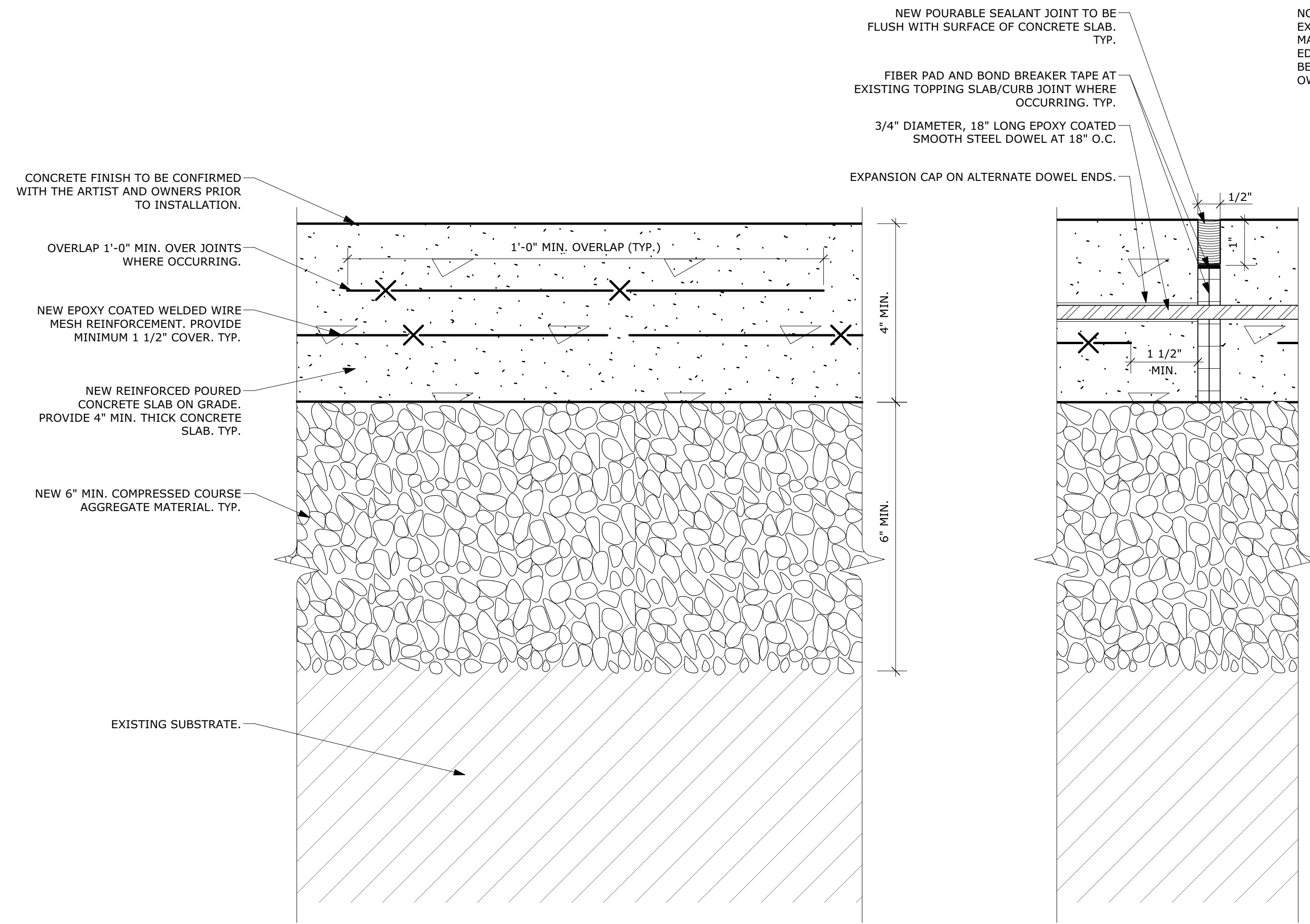
ARTIST
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1 NEW SIDEWALK CONCRETE SLAB
 Scale: 6" = 1'-0"

2 NEW ISOLATION JOINT
 Scale: 6" = 1'-0"



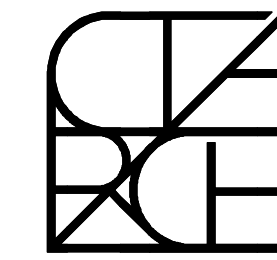
Battery Park City Parks

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PROJECT:
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NEW YORK, NY 10004

DRAWING TITLE:
PATHWAY
DETAILS

SEAL & SIGNATURE:	DATE: 16 JULY 2015
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	DRAWING BY: PG
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	DWG No:
A-703.00	
CADD FILE No: 14215-A-703.00	11 of 23



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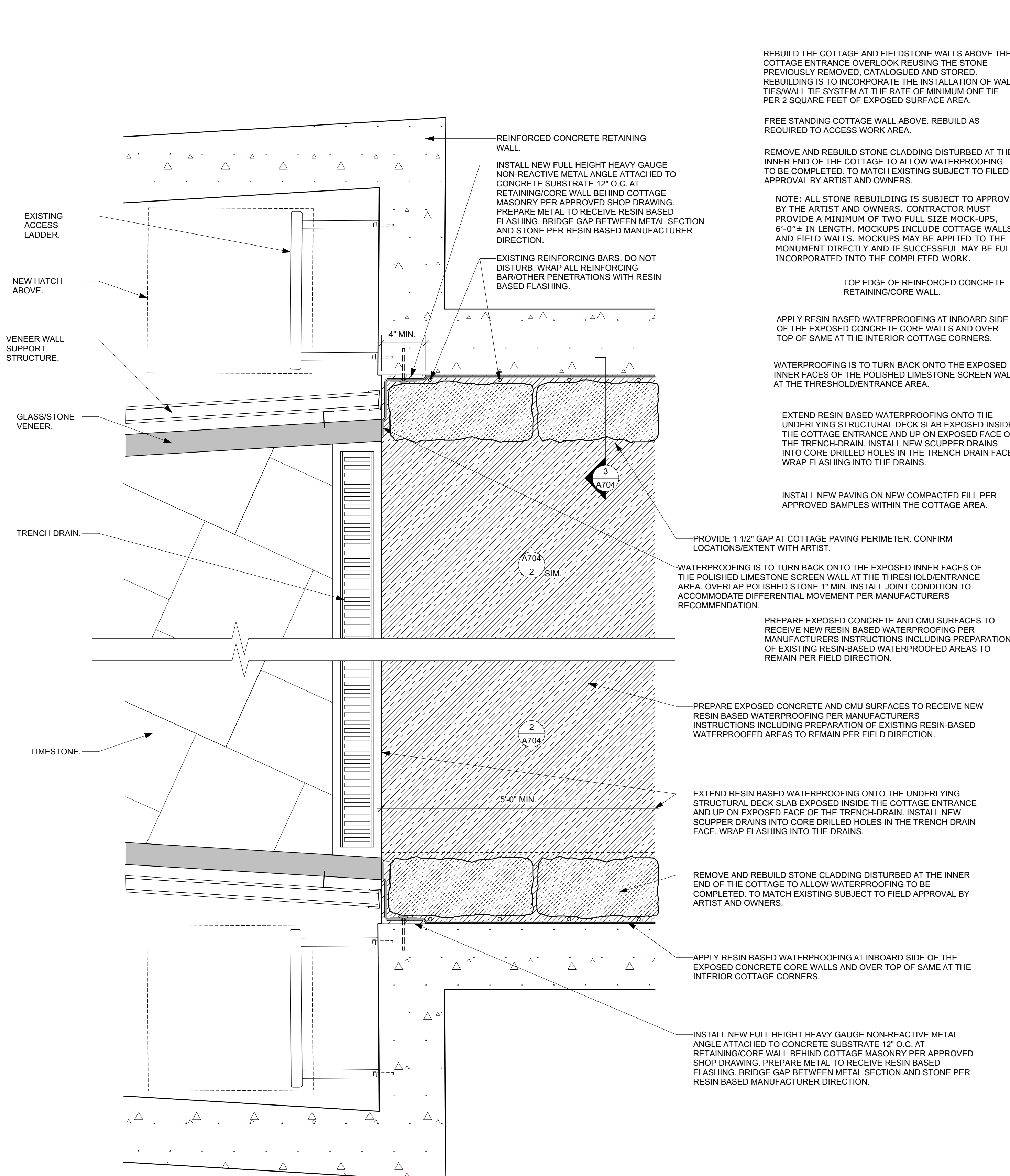
ARTIST
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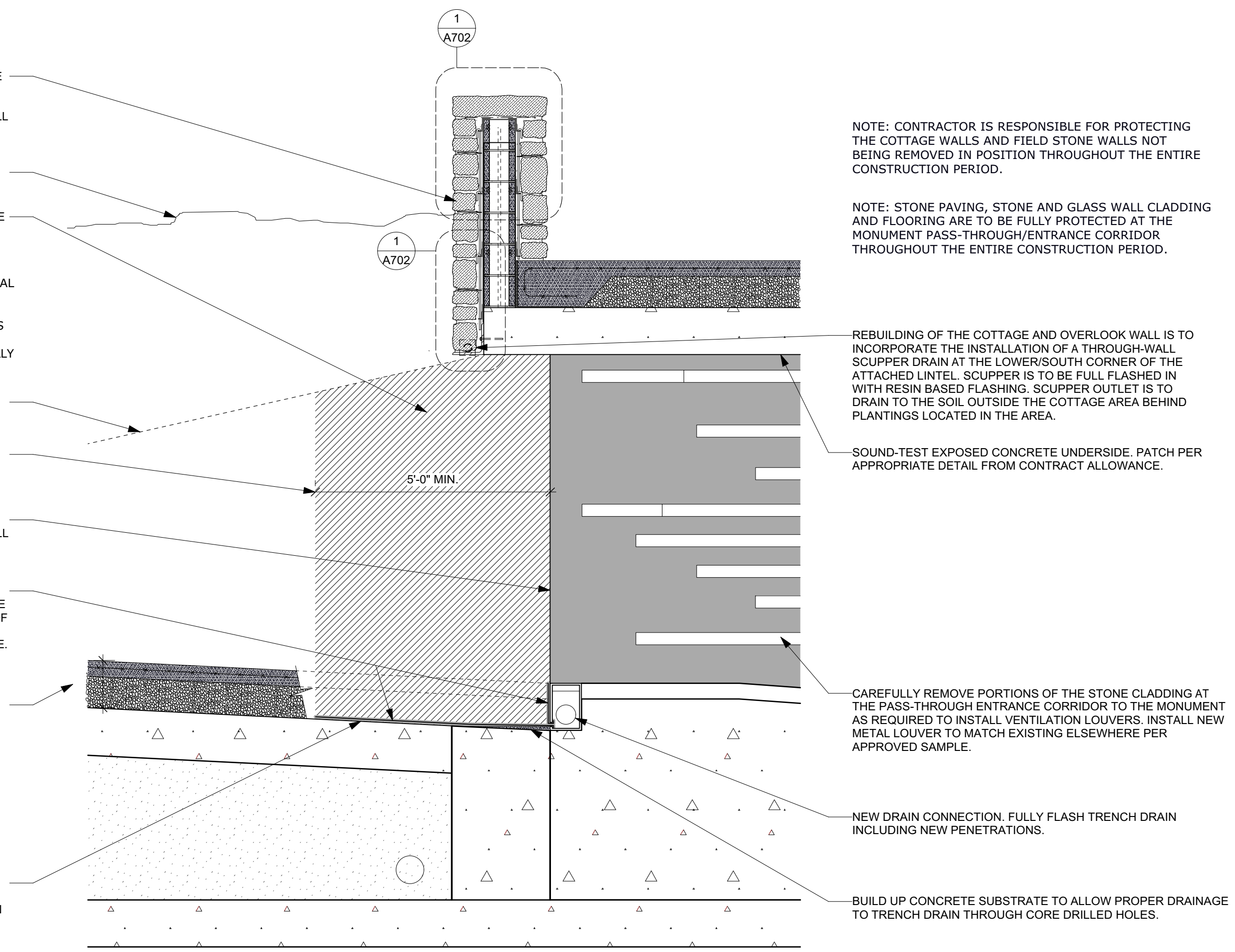
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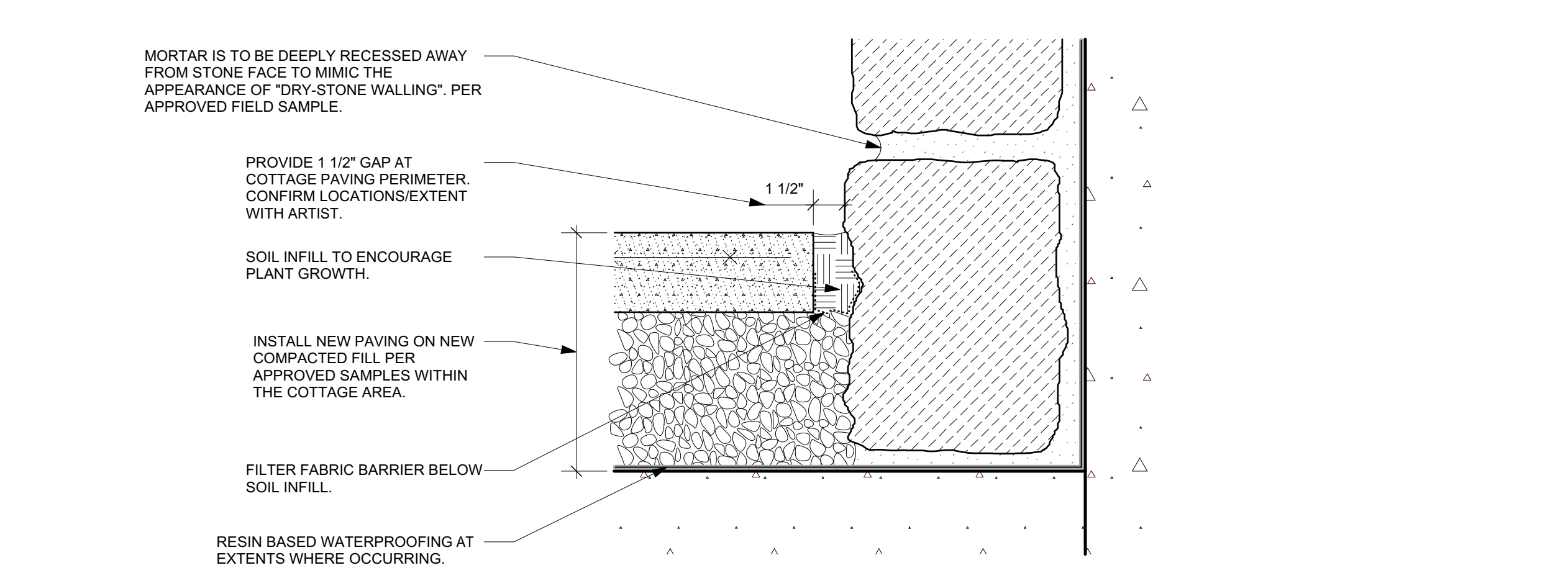
DATE	REVISION	NO.



1 ENTRANCE RAMP / COTTAGE THRESHOLD
Scale: 1" = 1'-0"



2 COTTAGE/ENTRANCE RAMP THRESHOLD - NORTH ELEVATION
Scale: 1/2" = 1'-0"



3 COTTAGE WALL/SLAB DETAIL
Scale: 2" = 1'-0"



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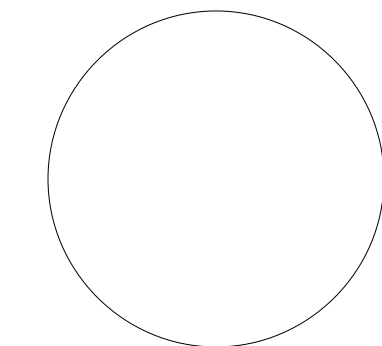
Shari C. Hyman
President
Chief Operating Officer

PROJECT:
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VESEY GREEN
NEW YORK, NY 10004

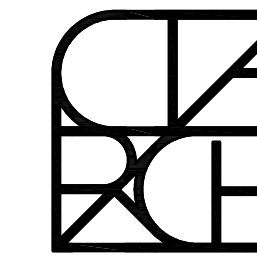
DRAWING TITLE:

COTTAGE
DETAILS

SEAL & SIGNATURE:



DATE:	16 JULY 2015
PROJECT No:	14215
DRAWING BY:	PG
CHECKED BY:	FS
DWG No:	A-704.00
CADD FILE No:	14215-A-704.00
	12 of 23



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New York, New York 10001

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116 South Broadway
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REMOVALS NOTES:

- Any existing or below grade elements that are not indicated on the plan which potentially conflict with demolition work shall immediately be brought to the Landscape Architect's attention before proceeding any further.
- No dangerous conditions shall be left without appropriate barriers, hazard warnings or indicators in full compliance with all governing codes and regulations.
- All pavement, walls, existing structures, or plant material not indicated for removal shall be fully protected from damage during the demolition process. Any damage occurring as a result of negligence or disregard for proper procedures shall be repaired at no cost to the owner.

Irrigation

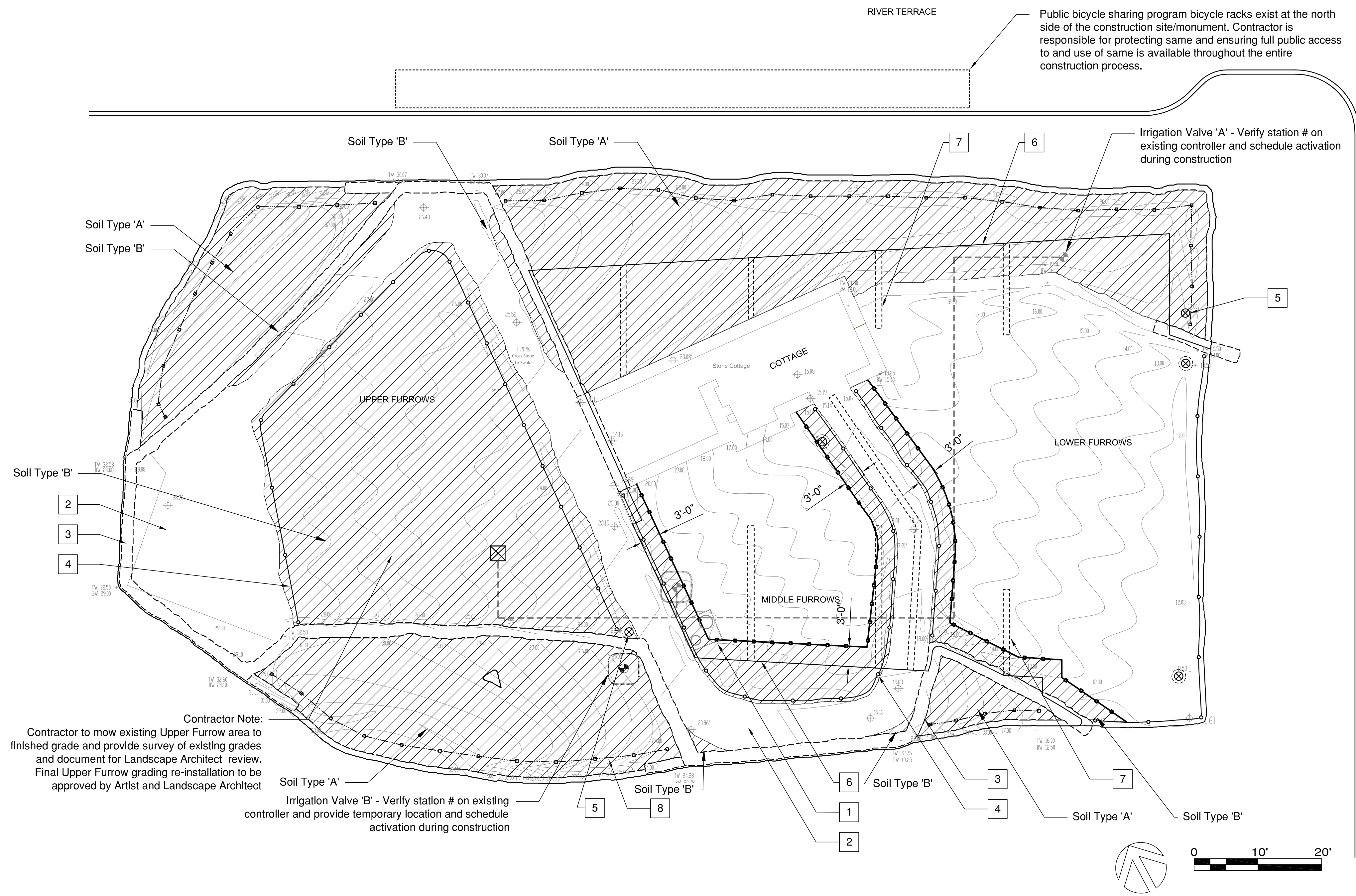
- Protect-in-place POC connection to provide irrigation to valves and landscape area that are to be irrigated during construction.
- Temporarily move irrigation heads for valves 'A' and 'B' to not be obstructed by construction protection fencing.
- Replace all removed irrigation upon completion of waterproofing with 'like in kind'. Install per irrigation As-builts provided by BPCA.

Drainage

- Remove drainage in areas depicted on plans and necessary for the construction of the waterproofing provided in the architectural plans.
- See Drainage As-built plans provided by BPCA for reference of existing drainage piping.
- Map all drainage material removed which include but may not be limited to drain line locations, type, size, impermeable PVC liner and document for the re-installation 'like in kind' upon completion of the waterproofing per architectural plans.
- Contractor is to confirm full function of drainage before, during construction and after substantial completion.

Boulder and Stones

- Carefully remove, catalog and store off-site for replacement of existing boulders, county-stone and other miscellaneous landmarks within the monument site which may be disturbed by the contract work, VIF. All stones are to be replaced back in their current locations upon completion of the contract work. See Architectural Plans and notes.
- Reinstall previously removed, catalogued and stored existing boulders, county-stone and other miscellaneous landmarks within the monument site back in their previous locations upon completion of the contract work. Final locations to be confirmed by the artist.



REMOVALS LEGEND

Remove planting, drainage, irrigation. Remove existing soil to drainage layer only and bag for off-site storage and re-installation upon completion of waterproofing		See details 1,2,3, Sheet DM-150
Irrigation Valve 'B' to be temporarily relocated - see plan		-
Irrigation Valve 'B' temporary location- see plan		-
Construction Fencing		-
Protect-in-Place - Planting (middle, lower furrow) area - Irrigation to remain active during construction in these areas only.		-
Protect-In-Place - POC for Irrigation		-
Protect-In-Place - Existing Irrigation Mainline to remain		-
Protect-In-Place - Irrigation valve to remain		-
Protect-In-Place - Landscape Drains		-

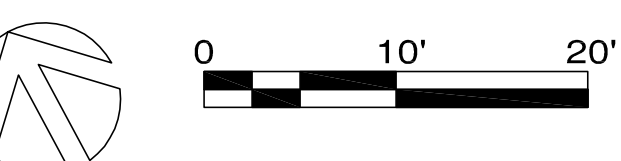
CONSTRUCTION LEGEND

1	Man Hole	See Drainage As-built Plans
2	Concrete Paving	See Architectural Plans
3	Stone Wall	See Architectural Plans
4	Pedestrian Protection Fencing	See Architectural Plans
5	Roof Drain	See Architectural Plans
6	Interstitial Space Wall	See Architectural Plans
7	Structural Cantilever Beam	See Architectural Plans
8	Safety Fence	See Architectural Plans

Contractor Note:
Contractor to mow existing Upper Furrow area to finished grade and provide survey of existing grades and document for Landscape Architect review. Final Upper Furrow grading re-installation to be approved by Artist and Landscape Architect

Irrigation Valve 'B' - Verify station # on existing controller and provide temporary location and schedule activation during construction

Public bicycle sharing program bicycle racks exist at the north side of the construction site/monument. Contractor is responsible for protecting same and ensuring full public access to and use of same is available throughout the entire construction process.



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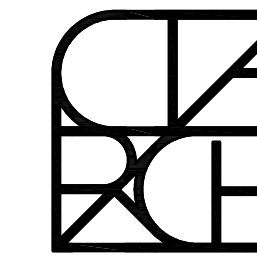
Hector Batista
Board Member

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PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
LANDSCAPE
DEMOLITION PLAN

SEAL & SIGNATURE:	DATE: 16 JULY 2015
	PROJECT No: 14215
	DRAWING BY: JD
	CHECKED BY: AW
	DWG No:
	DM-101.00
CADD FILE No:	13 of 23



CLIENT
Hugh L. Carey
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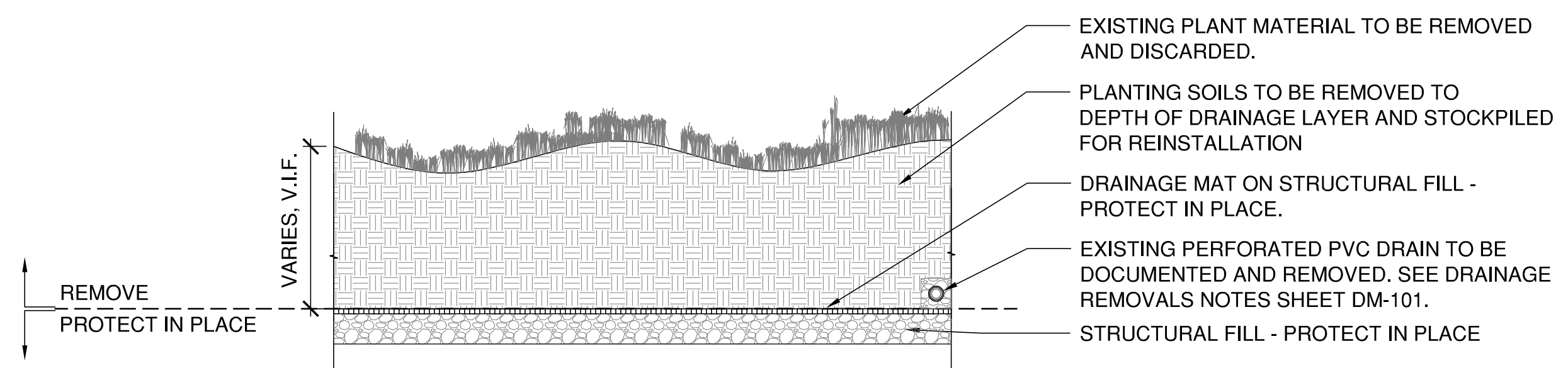
STRUCTURAL
GACE Consulting Engineers PC
31 West 27th Street
New York, New York 10001

MEP
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116 South Broadway
Tarrytown, New York 10591

DATE	REVISION	NO.

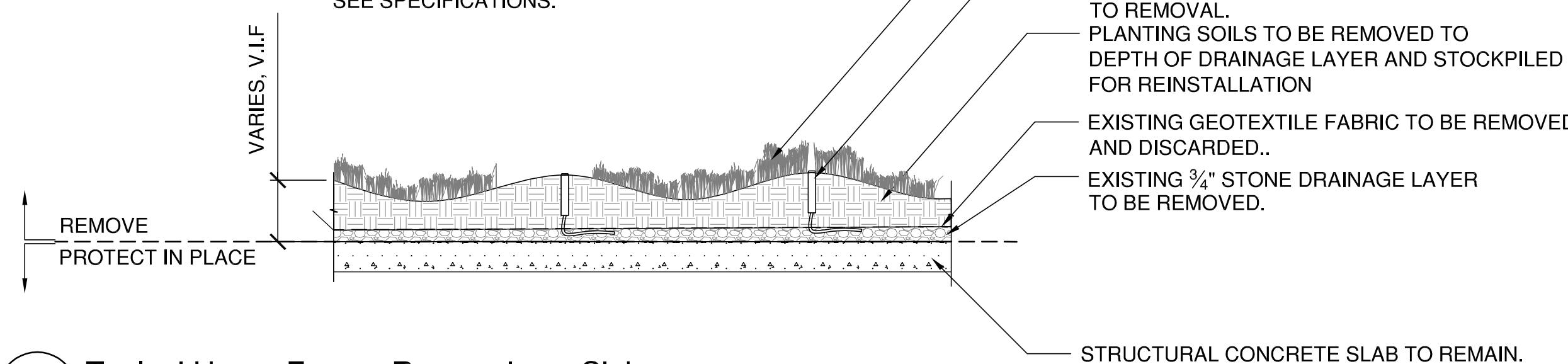
DRAINAGE LAYER NOTE: SOIL REMOVALS SHALL BE REMOVED TO DRAINAGE LAYER ONLY. NO DRAINAGE LAYER GRAVEL SHALL BE INCLUDED IN SOILS REMOVED AND STORED FOR RE-INSTALLATION.

NOTE: IRRIGATION AS NOTED SHALL BE MODIFIED IN MIDDLE AND LOWER FURROWS. SOIL SHALL BE REMOVED AND STORED OFF-SITE PER AS APPROVED BY LANDSCAPE ARCHITECT AND BPCPC. SEE SPECIFICATIONS.



3 Typical Lower / Middle Furrow Removals at Grade
SCALE: 1/4" = 1'-0"

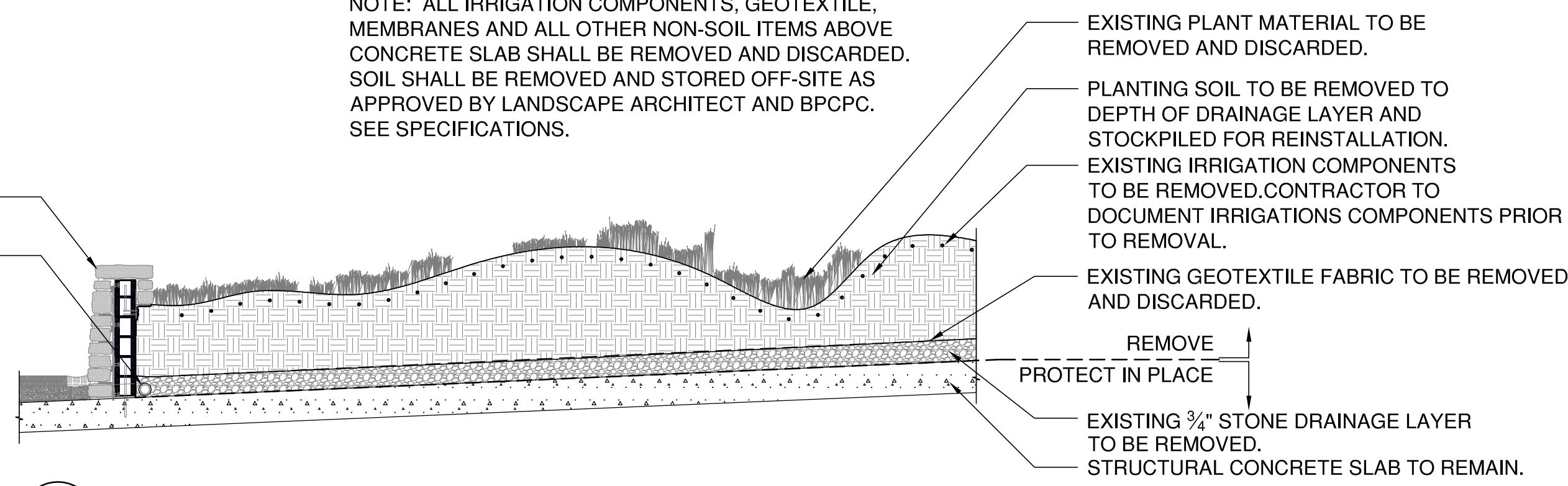
NOTE: ALL IRRIGATION COMPONENTS, GEOTEXTILE, MEMBRANES AND ALL OTHER NON-SOIL ITEMS ABOVE CONCRETE SLAB SHALL BE REMOVED AND DISCARDED. SOIL SHALL BE REMOVED AND STORED OFF-SITE AS APPROVED BY LANDSCAPE ARCHITECT AND BPCPC. SEE SPECIFICATIONS.



2 Typical Upper Furrow Removals on Slab
SCALE: 1/4" = 1'-0"

NOTE: ALL IRRIGATION COMPONENTS, GEOTEXTILE, MEMBRANES AND ALL OTHER NON-SOIL ITEMS ABOVE CONCRETE SLAB SHALL BE REMOVED AND DISCARDED. SOIL SHALL BE REMOVED AND STORED OFF-SITE AS APPROVED BY LANDSCAPE ARCHITECT AND BPCPC. SEE SPECIFICATIONS.

FIELDSTONE WALL - REFER TO ARCHITECTURAL PLANS.
EXISTING DRAIN PIPE TO BE DOCUMENTED AND REMOVED. SEE DRAINAGE REMOVALS NOTES SHEET DM-101.



1 Stone Wall and Rocky Area Removals on Slab
SCALE: 1/4" = 1'-0"



Battery Park City Parks

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PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
LANDSCAPE DEMOLITION DETAILS

SEAL & SIGNATURE:	DATE: 16 JULY 2015
	PROJECT No: 14215
	DRAWING BY: JD
	CHECKED BY: AW
	DWG No:
	DM-150.00
CADD FILE No:	14 of 23

CLIENT: Hugh L. Carey, Battery Park City Authority, 200 Liberty Street, 24th Floor, New York, New York 10282
 ARTIST: Brian Tolle, 18 East 8th Street, #1C, New York, New York 10003

LANDSCAPE: SiteWorks Landscape Architecture, 150 West 28th Street, 8th Floor, New York, New York 10001

STRUCTURAL: GACE Consulting Engineers PC, 31 West 27th Street, 8th Floor, New York, New York 10001
 MEP: Collado Engineering, 116 South Broadway, Tarrytown, New York 10591

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PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
DIAGRAMMATIC GRADING & SOILS PLACEMENT PLAN

SEAL & SIGNATURE: _____
 DATE: 16 JULY 2015
 PROJECT No: 14215
 DRAWING BY: JD
 CHECKED BY: AW
 DWG No:
L-200.00
 CADD FILE No: | 15 of 23

NOTES:

Drainage

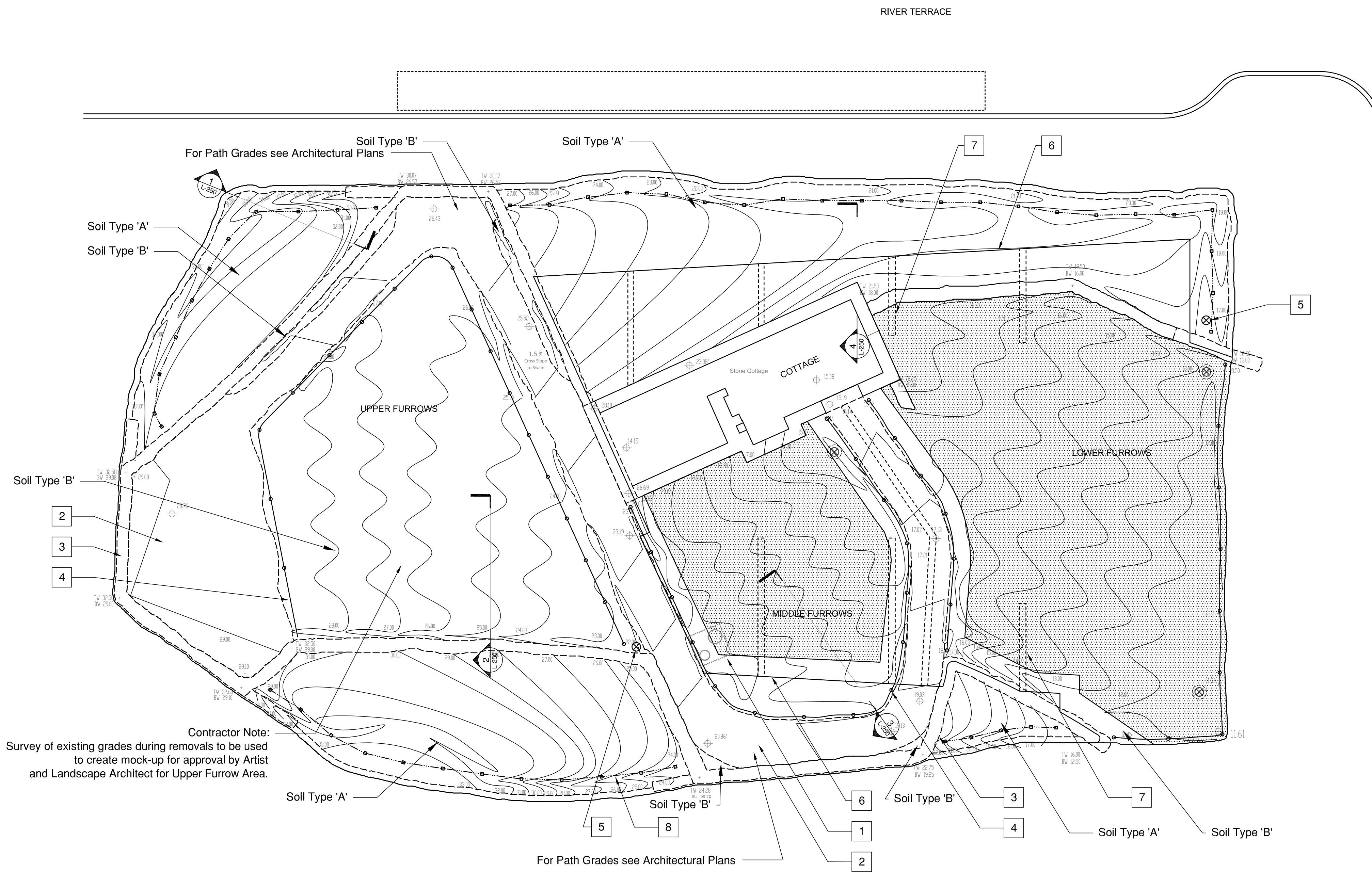
Install drainage as per plans provided by contractor during removals phase of project. Landscape Architect to approve drainage layout prior to rough grading.

Irrigation

Install Irrigation per As-built drawings provided by BPCA and components documented during removals.

Grading

1. Rough grading to be completed and approved by Artist and Landscape Architect prior to installation of 8" Top Soil Layer.
2. Any modifications to the proposed grading as shown on these plans must be approved, in writing, by SiteWorks Landscape Architecture.
3. Location of existing drainage structures and pipes are approximate. The contractor shall field-verify locations and notify the Landscape Architect of any discrepancies.
4. Spot elevations on grading plan shall be met gradually and are subject to the Landscape Architect's approval.



Contractor Note:
 Survey of existing grades during removals to be used to create mock-up for approval by Artist and Landscape Architect for Upper Furrow Area.

GRADING LEGEND

- Protect-in-Place - Existing Grading Area
- Protect-In-Place - Landscape Drains

CONSTRUCTION LEGEND

- | | | |
|---|-------------------------------|-----------------------------|
| 1 | Man Hole | See Drainage As-built Plans |
| 2 | Concrete Paving | See Architectural Plans |
| 3 | Stone Wall | See Architectural Plans |
| 4 | Pedestrian Protection Fencing | See Architectural Plans |
| 5 | Roof Drain | See Architectural Plans |
| 6 | Interstitial Space Wall | See Architectural Plans |
| 7 | Structural Cantilever Beam | See Architectural Plans |
| 8 | Safety Fence | See Architectural Plans |
- Re-Installation post locations to be approved by BPCPC Representative

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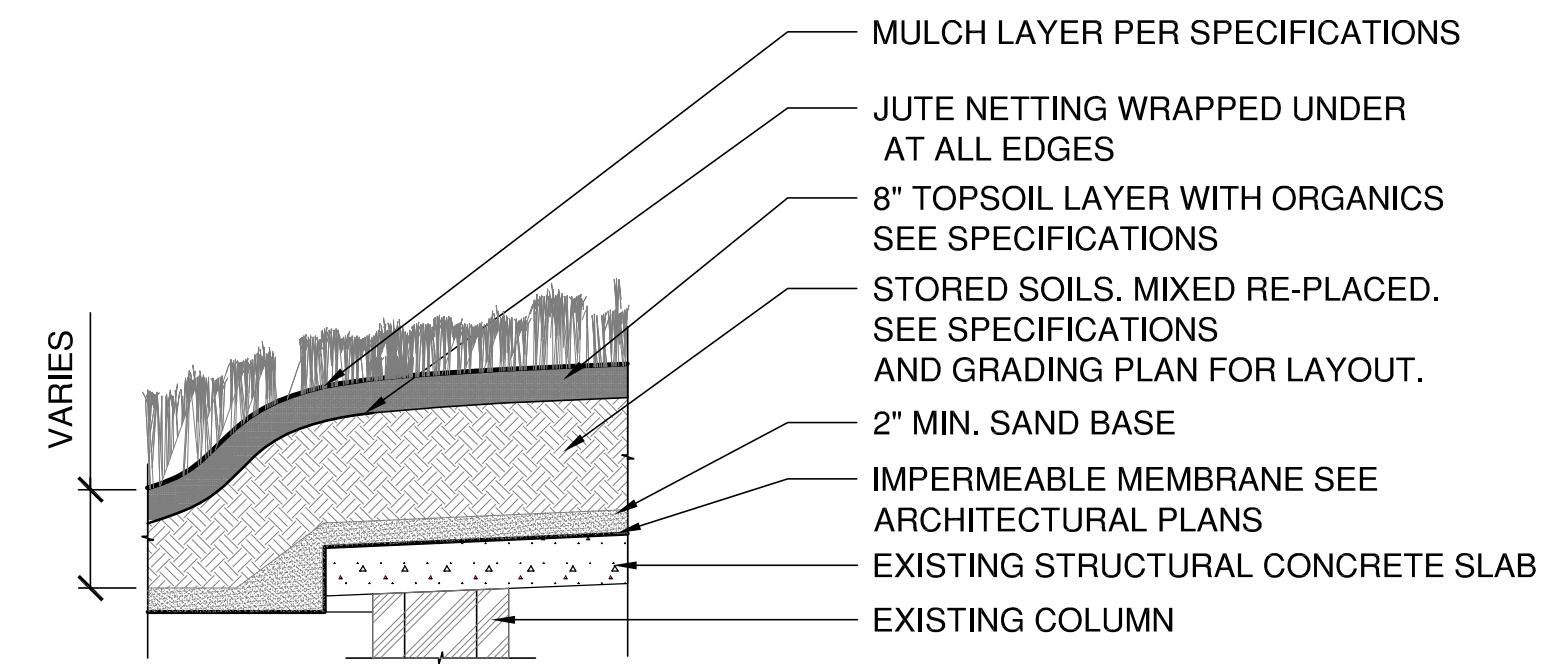
ARTIST: Brian Tolle
 18 East 8th Street, #1C
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LANDSCAPE: SiteWorks Landscape Architecture
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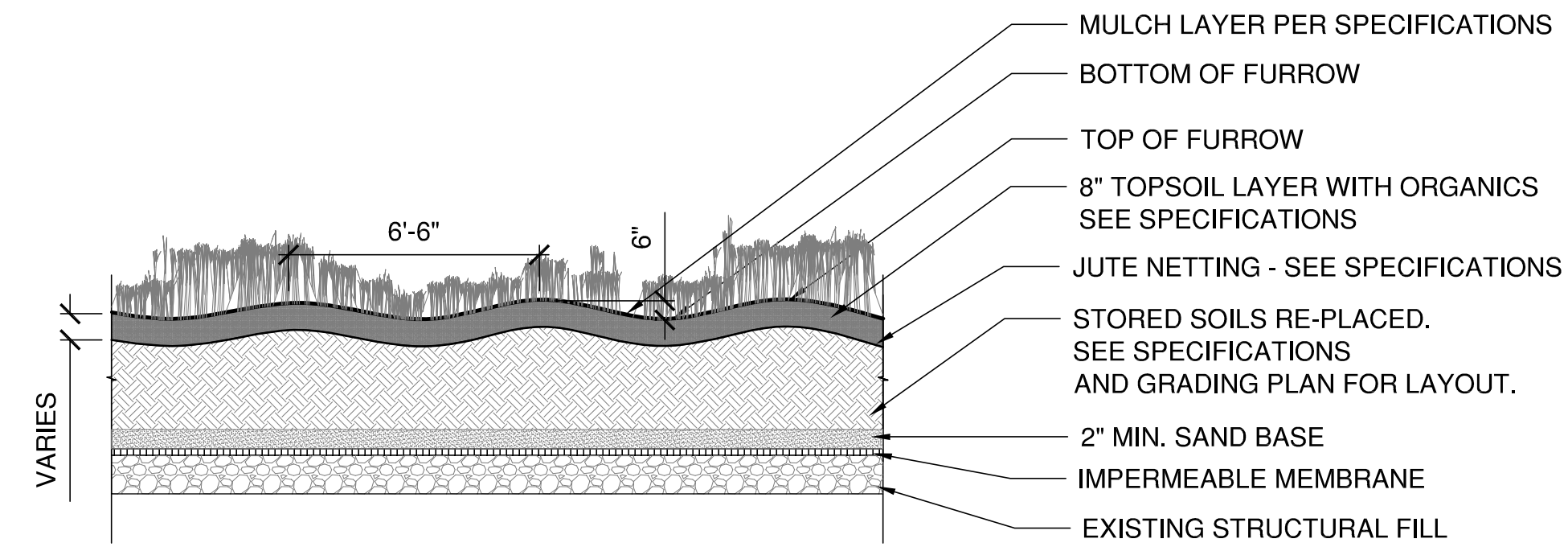
STRUCTURAL: GACE Consulting Engineers PC
 31 West 27th Street
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MEP: Collado Engineering
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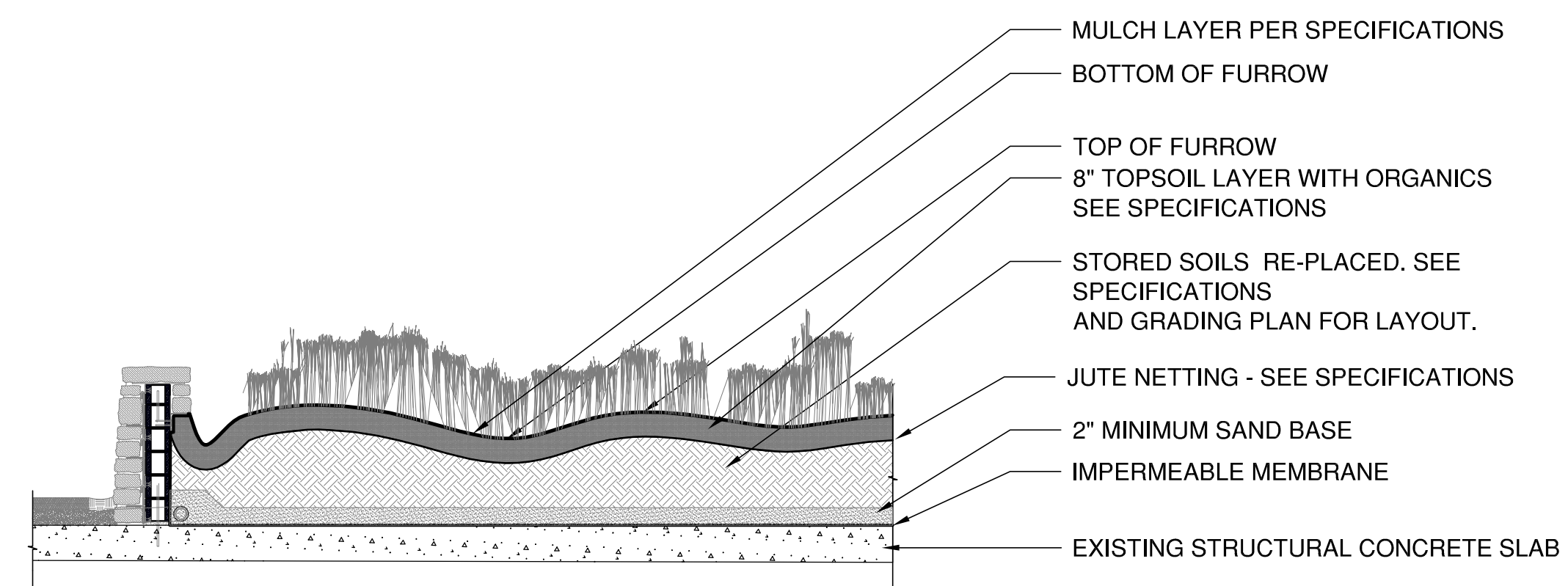
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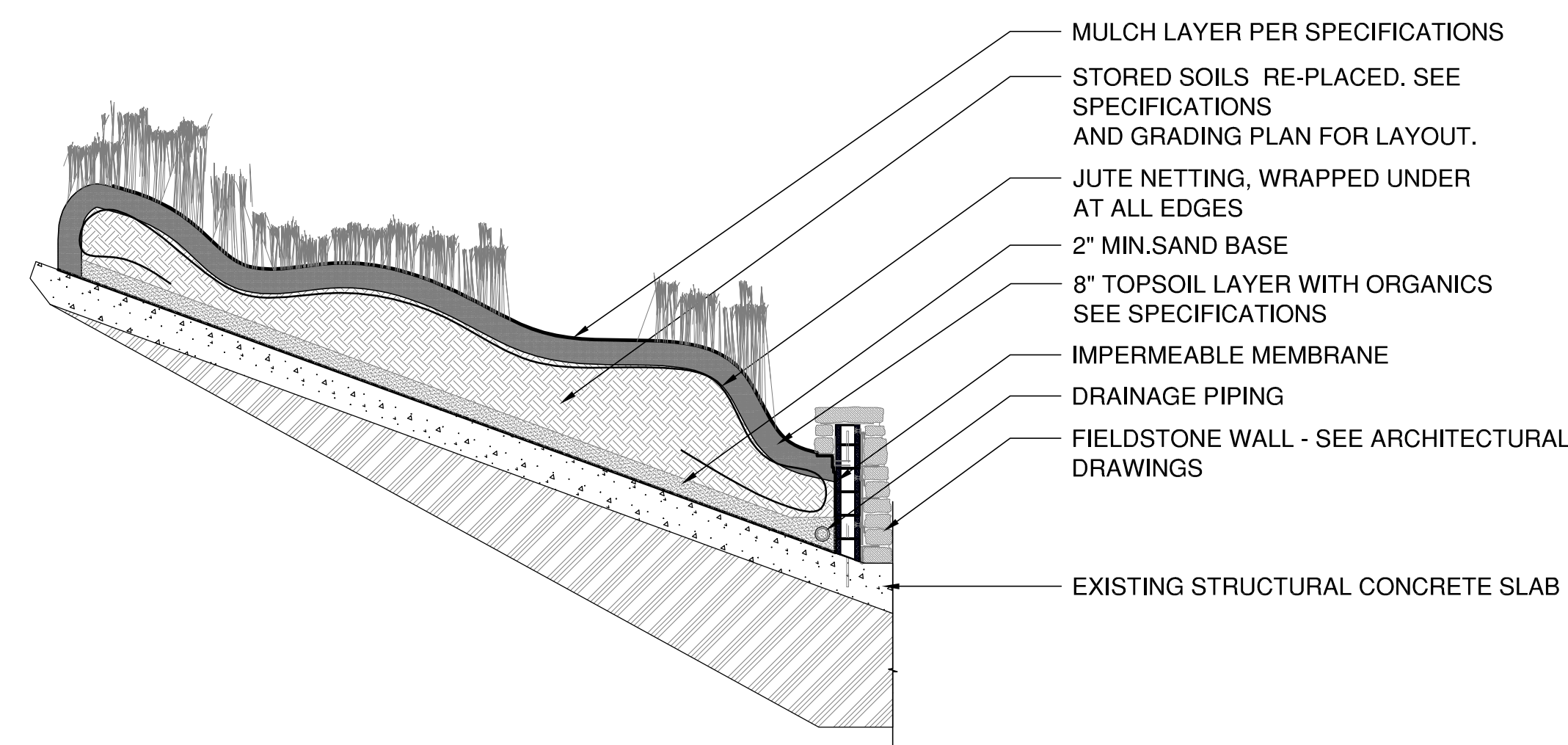
4 Section D-D: High Slope Edge Planting
 SCALE: 1/4" = 1'-0"



3 Section C-C: Middle Furrow
 SCALE: 1/4" = 1'-0"



2 Section B-B: Upper Furrow
 SCALE: 1/4" = 1'-0"



1 Section A-A: Upper Slopes Cantilever Edge Planting
 SCALE: 1/4" = 1'-0"



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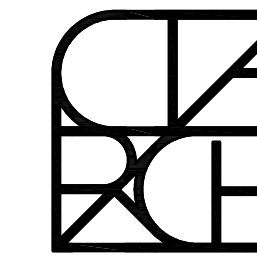
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PROJECT:
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VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
GRADING & SOIL PLACEMENT DETAILS

SEAL & SIGNATURE:	DATE: 16 JULY 2015
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CADD FILE No:	16 of 23



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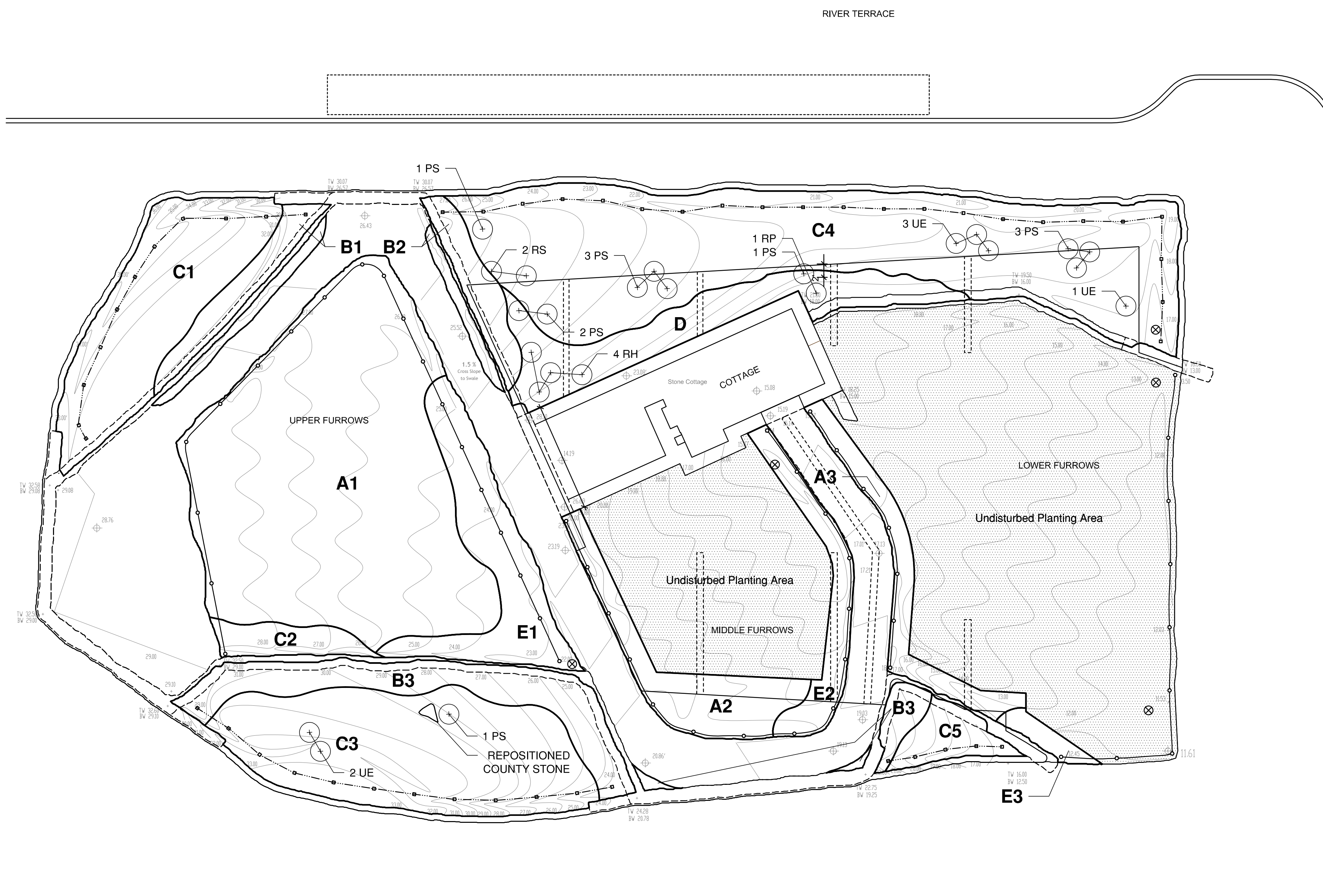
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PLANTING NOTES:

- No substitutions will be acceptable unless approved in writing by the Landscape Architect and BPCPC.
- Any discrepancy between actual field conditions and those shown on the plans are to be brought to the immediate attention of the Landscape Architect. Work shall not proceed until the discrepancy is resolved and written approval from both the owner and SiteWorks Landscape Architecture is obtained.
- Contractor shall notify the Landscape Architect, in writing, of all soil or drainage conditions which the contractor considers detrimental to the growth of plants, prior to planting.
- All plant pits shall be scarified to facilitate drainage and tested for percolation before plants are set in pits.
- All plants shall be freshly dug; neither heeled-in plants nor plants from cold storage will be accepted.
- Plant sizes specified are to be considered minimum. contractor shall notify the Landscape Architect of any discrepancy.
- All plants shall be subject to inspection and approval by the Landscape Architect and BPCPC. The Landscape Architect reserves the right to reject unacceptable plant material on or after delivery to the site.
- All topsoil shall be free of all soil-borne disease and pests, as well as weed seeds and bulbs.
- All planting shall be mulched as per specifications immediately after planting. All mulch shall be free of any injurious substance and debris of any kind. Mulch shall be spread to the depths indicated on the drawings.
- All plants shall be in accordance with Ansi Z60.1 latest edition.
- Layout of plant material shall be placed in the filed under the supervision of the Landscape Architect and Battery Park City Parks Conservancy.
- All plant material shall be sourced upon commencement of work.
- Any plant material not available in the sizes indicated shall be contract grown.



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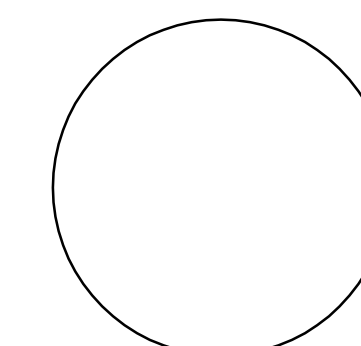
Hector Batista
Board Member

Shari C. Hyman
President
Chief Operating Officer

PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
PLANTING
PLAN

SEAL & SIGNATURE:



DATE:	16 JULY 2015
PROJECT No:	14215
DRAWING BY:	JD
CHECKED BY:	AW
DWG No:	
L-300.00	
CADD FILE No:	17 of 23

MASTER PLANTING SCHEDULE

Table with 7 columns: ABB, QTY, BOTANICAL NAME, COMMON NAME, SIZE/FORM, SPACING, PLAN KEY, NOTES. Lists various plants like Digitalis purpurea, Geranium sanguineum, Ranunculus acris, etc.

PLANTING SCHEDULE BY AREA

Table A11803 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area A11803.

Table A2275 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area A2275.

PLANTING SCHEDULE BY AREA - Continued

Table A3195 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area A3195.

Table B1185 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area B1185.

Table B2180 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area B2180.

Table B375 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area B375.

Table C1573 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area C1573.

Table C2100 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area C2100.

Table C3850 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area C3850.

Table C41862 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area C41862.

Table C5108 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area C5108.

Table D400 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area D400.

Table E1387 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area E1387.

Table E2187 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area E2187.

Table E345 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area E345.

Table E445 SF: Columns include SYM, QTY, BOTANICAL NAME, COMMON NAME, SIZE, NOTE. Lists plants for area E445.

NOTES: 1. Seed quantities by area to be verified in the field per the direction of Battery Park City Parks Conservancy. 2. Plant varieties are unique. Contractor shall notify Landscape Architect in writing and within 21 days of bid award, of any varieties that are not obtainable.

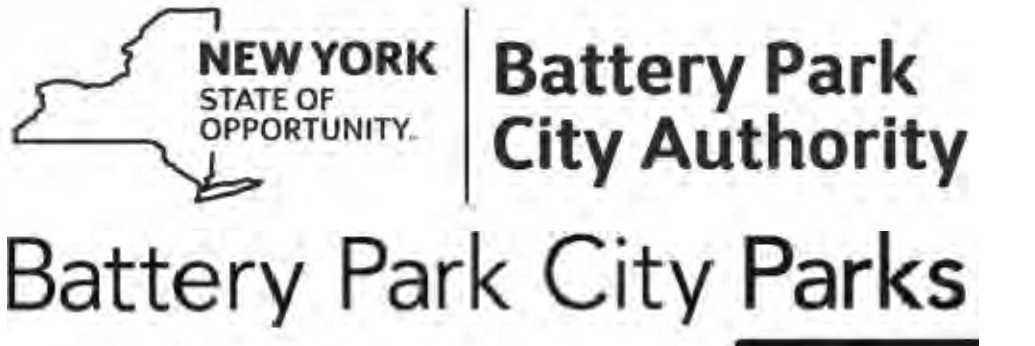


CLIENT: Hugh L. Carey, Battery Park City Authority... ARTIST: Brian Tolle... 200 Liberty Street, 24th Floor, New York, New York 10282

LANDSCAPE: SiteWorks Landscape Architecture... 150 West 28th Street, 8th Floor, New York, New York 10001

STRUCTURAL: GACE Consulting Engineers PC... 31 West 27th Street, New York, New York 10001. MEP: Collado Engineering... 116 South Broadway, Tarrytown, New York 10591

Table with 3 columns: DATE, REVISION, NO.



Andrew M. Cuomo, Governor, State of New York

Dennis Mehiel, Chairman of the Board, Chief Executive Officer

Frank J. Branchini, Vice Chair

Donald Capoccia, Board Member

Martha J. Gallo, Board Member

Lester Petracca, Board Member

Hector Batista, Board Member

Shari C. Hyman, President, Chief Operating Officer

PROJECT: IRISH HUNGER MEMORIAL RESTORATION, VESEY GREEN, NEW YORK, NY 10004

DRAWING TITLE: PLANTING SCHEDULE

SEAL & SIGNATURE: (Signature space) DATE: 16 JULY 2015, PROJECT No: 14215, DRAWING BY: JD, CHECKED BY: AW, DWG No: L-301.00, CADD FILE No: 18 of 23

CLIENT
 Hugh L. Carey
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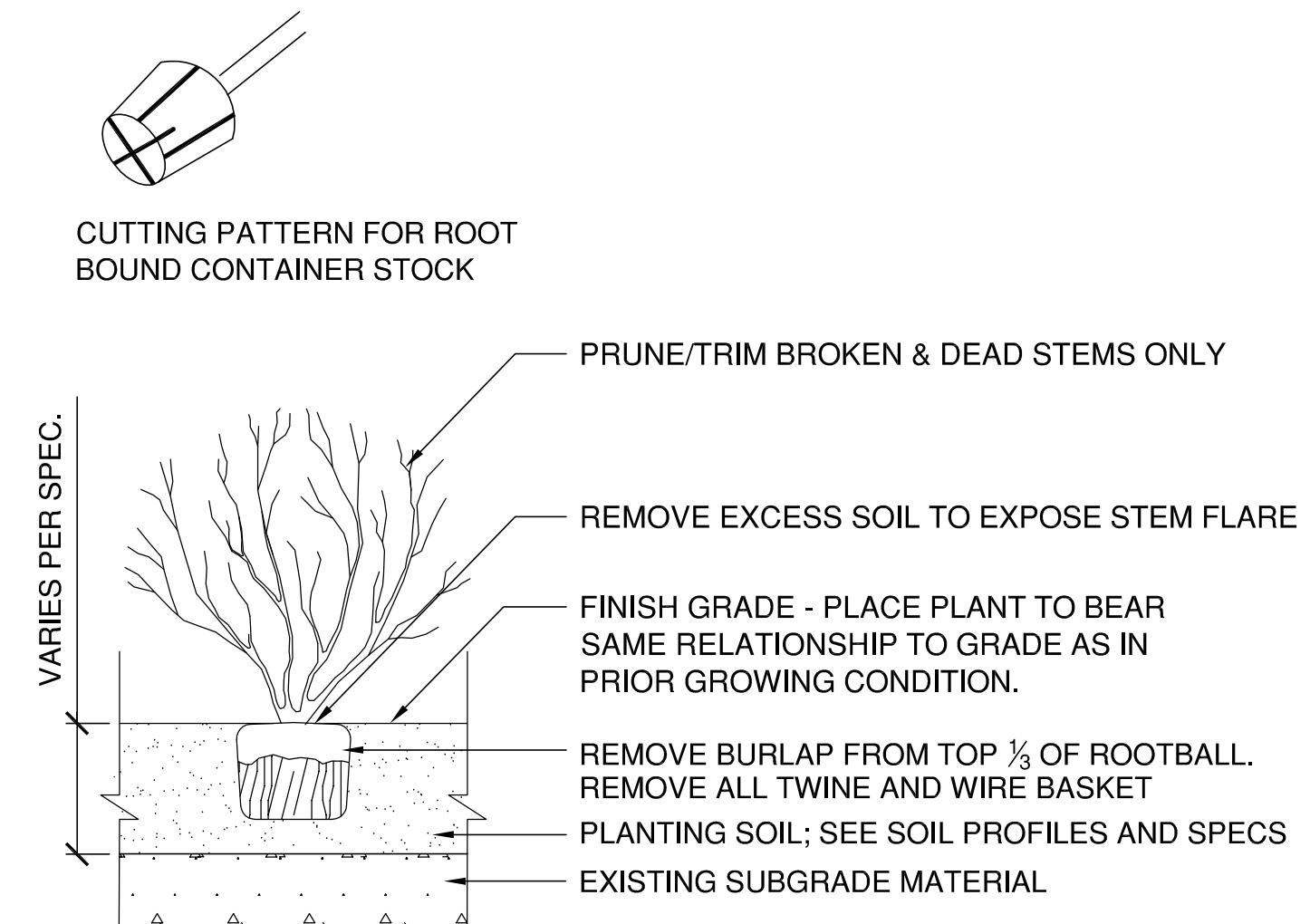
ARTIST
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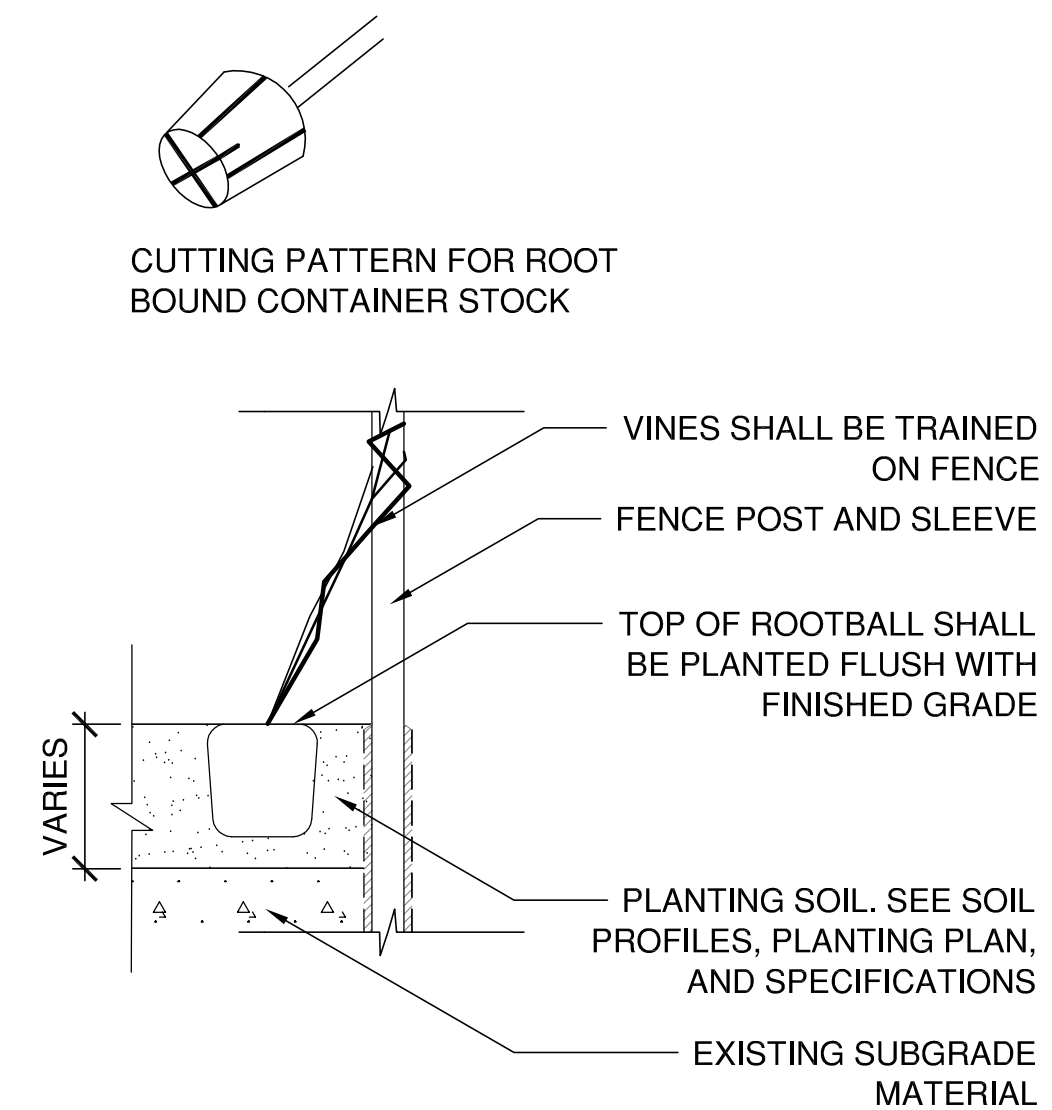
STRUCTURAL
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 New York, New York 10001

MEP
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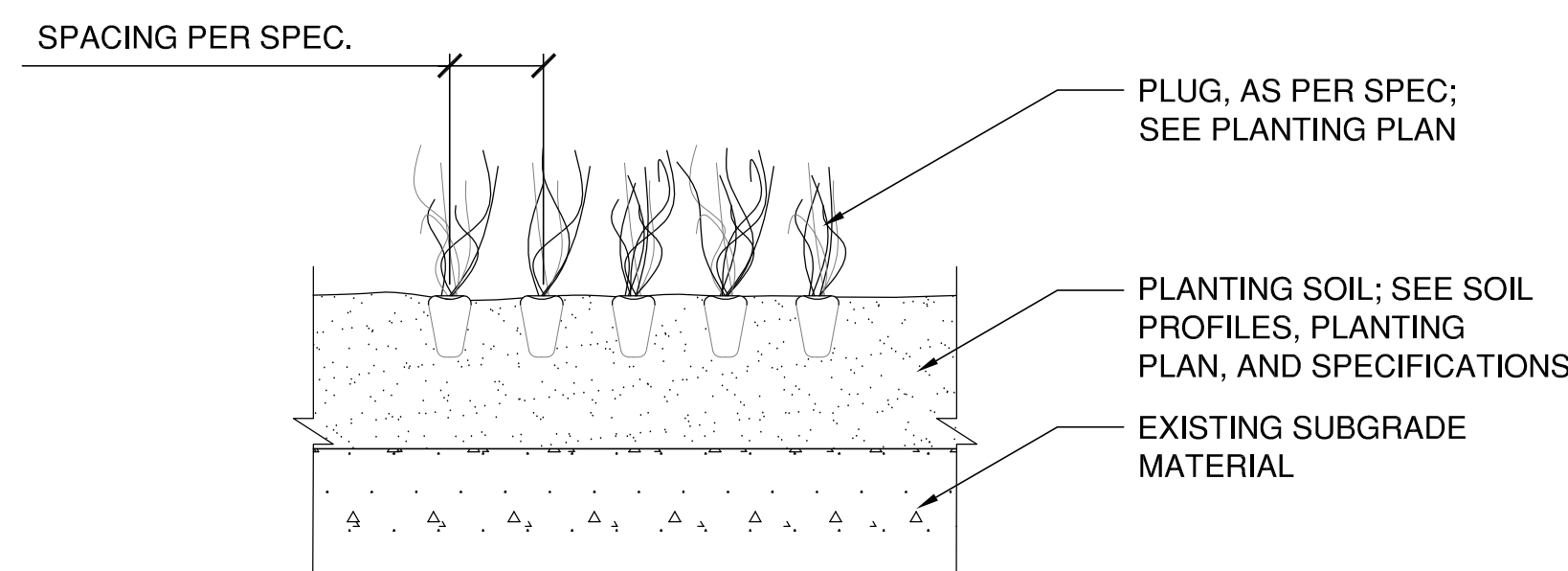
DATE	REVISION	NO.



3 Typical Shrub Planting
 SCALE: 1/2" = 1'-0"



2 Typical Vine Planting
 SCALE: 1/2" = 1'-0"



1 Typical Plug Planting
 SCALE: 1/2" = 1'-0"

- Notes: Plug Planting**
1. Plug roots should be white and rooted through sides and bottom and firmly contained therein. If not planted immediately after delivered to job site, the plants shall be stored out of direct sunlight and wind with their pots and associated root masses maintained moist through periodic watering until the time of planting.
 2. After installing plug stock, firm into place, taking care not to deform.
 3. See plan and specifications for plug placement and spacing.

- Notes: Plug Acceptance Criteria**
1. Provide plug stock with healthy root systems developed by transplanting or root pruning. The extracted root system shall conform to the container dimensions and not be pot bound. roots shall be white in color, firm to the touch, not have "rotten egg" odor, free of disease, insects larvae and defects such as knots, sun-scald, injuries, abrasions, or disfigurement. Any stock not satisfying the above criteria shall be replaced at the contractor's expense.



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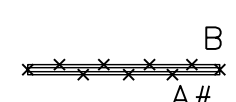
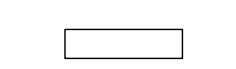





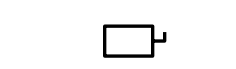
Shari C. Hyman
 President
 Chief Operating Officer

PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
PLANTING DETAILS

SEAL & SIGNATURE:	DATE: 16 JULY 2015
	PROJECT No: 14215
	DRAWING BY: JD
	CHECKED BY: AW
	DWG No:
	L-350.00
CADD FILE No:	19 of 23

SYMBOLS LIST

	EXISTING FLUORESCENT CEILING MOUNTED FIXTURE FIXTURE TYPE 'B' CIRCUITING 'A#'	}	TYPICAL FIXTURE NOTATION
	EXISTING FLUORESCENT CEILING MOUNTED FIXTURE TO BE REMOVED AND REPLACED WITH NEW FIXTURE TYPE 'B' CIRCUITING 'A#'	}	TYPICAL FIXTURE NOTATION
	EXISTING 2 LAMP VAPORPROOF FLUORESCENT LIGHT FIXTURE 4'-0" NATIONAL, METALLUX OR EQUAL		
	EXISTING 2 LAMP VAPORPROOF FLUORESCENT LIGHT FIXTURE 4'-0" NATIONAL, METALLUX OR EQUAL PROVIDE FIXTURE WITH EMERGENCY LIGHTING BALLAST.		
	EXISTING WALL MOUNTED JUNCTION BOX (J-BOX) WITH HOMERUN CIRCUIT AND FLEXIBLE CONNECTION TO EQUIPMENT. USE SEALITE FOR OUTDOOR CONNECTIONS.		
	REMOVE EXISTING WALL MOUNTED JUNCTION BOX (J-BOX) AND REPLACE WITH NEW JUNCTION BOX.		
	HOMERUN TC INDICATES LEADS TO RELAY AND TIME CLOCK CONTROLLED.		
	FUSED DISCONNECT SWITCH. FUSE TO BE EQUAL TO OR LESS THAN THE WIRING AMPACITY.		
	UNFUSED DISCONNECT SWITCH; SWITCH SIZE TO BE GREATER THEN OR EQUAL TO OVER CURRENT PROTECTION. U.O.N.		

ELECTRICAL GENERAL NOTES

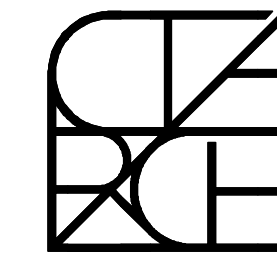
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWING IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. MAINTAIN HEADROOM AND SPACE CONDITIONS.
- SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
- RACEWAYS SHALL BE ALLOWED TO PASS OVER WATER, OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED.
- CUT CONDUIT ENDS SQUARE, REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.
- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. PROVIDE FISH WIRE FOR ALL EMPTY CONDUITS.
- SET BOXES SQUARE AND TRUE WITH BUILDING FINISH.
- COVERS OF JUNCTION AND PULLBOXES SHALL BE READILY ACCESSIBLE.
- DO NOT PULL THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32°F (0°C).
- WIRE COLOR CODING: AS PER CODE. COLOR CODING SHALL MATCH EXISTING INSTALLATION.
- INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS: ONLY WITH WRITTEN CONSENT OF OWNER. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES. ALARM AND EMERGENCY SYSTEMS ARE NOT TO BE INTERRUPTED.
- ALL LIGHT FIXTURES AND INSTRUMENTS THAT ARE REMOVED SHOULD BECOME THE PROPERTY OF THE CONTRACTOR FOR PROPER DISPOSAL AND SALVAGING/RECYCLING AS REQUIRED BY THE OWNER-BPCA.
- RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
- POWER INTERRUPTIONS AND CORE DRILLING ONLY PERMITTED BETWEEN THE HOURS OF 6 PM AND 8 AM. AS APPROVED BY BPCA.
- UPON COMPLETION OF THE WORK, A MARKED UP SET OF "AS-BUILT" DRAWINGS SHALL BE SUBMITTED TO THE OWNER OR ARCHITECT.

ELECTRICAL DEMOLITION NOTES

- THE CONTRACTOR SHALL INCLUDE IN THE BID ALL COSTS ASSOCIATED WITH REMOVALS AND RELOCATIONS OF ELECTRICAL WORK AS DESCRIBED IN THE SPECIFICATIONS WITH ALLOWANCES FOR EXPECTED OR UNFORESEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE ARCHITECT.
- THE CONTRACTOR SHALL REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK WHICH INTERFERES WITH THE NEW ARCHITECTURAL AND ELECTRICAL LAYOUTS IN FULL COORDINATION WITH THE ARCHITECT'S DEMOLITION PLANS. ALL SYSTEMS WHICH ARE NO LONGER REQUIRED TO FUNCTION SHALL BE DE-ENERGIZED AND DISCONNECTED AT THE SOURCE OF THE POWER SUPPLY.
- THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH MINIMUM INTERFERENCE WITH FUNCTIONING ELECTRICAL SYSTEMS. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.
- DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION.
- WIRING SHALL BE REMOVED BACK TO THE NEAREST ELECTRICAL JUNCTION BOX THAT IS TO REMAIN.
- EXISTING PANEL DIRECTORIES AFFECTED BY THE ALTERATION WORK SHALL BE MODIFIED TO REFLECT THE BRANCH CIRCUIT WIRING CHANGES.
- PORTIONS OF FEEDER RUNS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED AND RECONNECTED. NEW FEEDER EXTENSIONS SHALL MATCH EXISTING ONES IN ALL RESPECTS, CABLE TYPE, CONDUCTOR AMPACITY, CONDUIT SIZES, ETC.
- THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROJECT DEMOLITION AND PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS. THE CONTRACTOR SHALL FOLLOW CLOSELY THE ARCHITECT'S DEMOLITION AND PHASING SCHEDULE AND PROCEED IN THE SPECIFIED SEQUENCE.
- ALL EXISTING MATERIAL AND EQUIPMENT IN USABLE CONDITION, WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL REMAIN PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THE ELECTRICAL CONTRACTOR, AS DIRECTED BY THE OWNER.
- MAINTAIN CONTINUITY OF CIRCUIT WIRING FOR ALL EXISTING DEVICES TO REMAIN.
- DISCONNECT AND REMOVE ALL CONDUIT AND CABLE BACK TO POWER SOURCE FROM DEVICES/FIXTURES SLATED FOR REMOVAL.

ELECTRICAL SCOPE OF WORK

- DISCONNECT AND REMOVE EXISTING NON-FUNCTIONING LIGHT FIXTURES IN THE INTERSTITIAL SPACE OF THE IRISH HUNGER MEMORIAL. A TOTAL OF APPROXIMATELY (31) TYPE 'B' AND (7) TYPE 'B-1' FIXTURES HAVE BEEN IDENTIFIED TO BE REMOVED ON THE PLANS.
- PROVIDE NEW SIMILAR QUANTITY OF TYPE 'B' AND TYPE 'B-1' LIGHT FIXTURES TO REPLACE THE EXISTING.
- REUSE EXISTING BRANCH CIRCUITING TO RECONNECT NEW LIGHT FIXTURE.
- PROVIDE A UNIT PRICE COST FOR DISCONNECTING AND REMOVING, PROVIDING A NEW LIGHT FIXTURE AND INSTALLING THE NEW LIGHT FIXTURE AS FOLLOWS:
TYPE 'B': \$ _____ / FIXTURE
TYPE 'B-1': \$ _____ / FIXTURE



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31 West 27th Street
New York, New York 10001

MEP
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116 South Broadway
Tarrytown, New York 10591

DATE	REVISION	NO.
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Battery Park City Parks

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Governor, State of New York

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PROJECT:

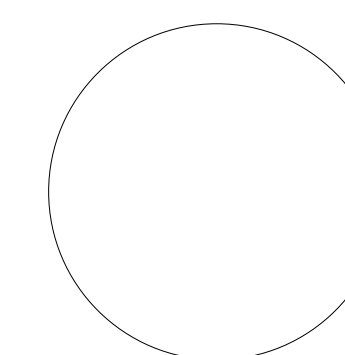
IRISH HUNGER MEMORIAL RESTORATION

VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:

ELECTRICAL SYMBOLS, NOTES & DRAWING LIST

SEAL & SIGNATURE:



DATE: 16 JULY 2015

PROJECT No: 14215

DRAWING BY: SL

CHECKED BY: AH

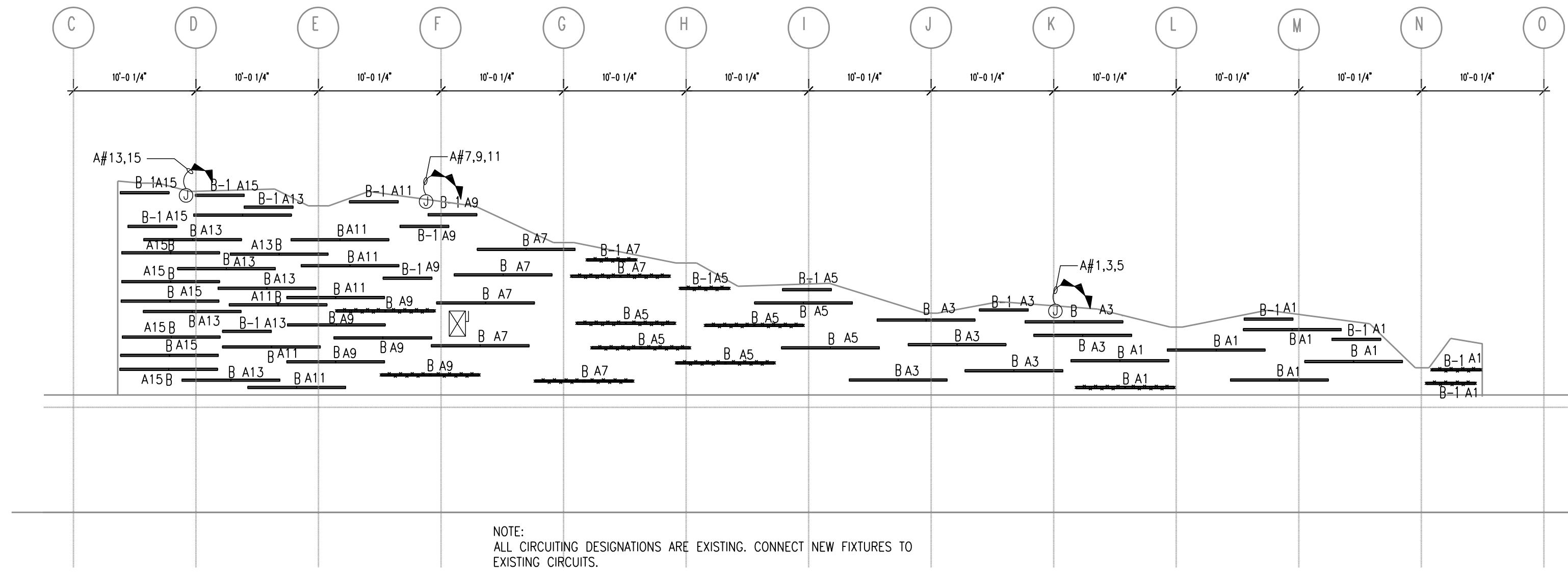
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E-001.00

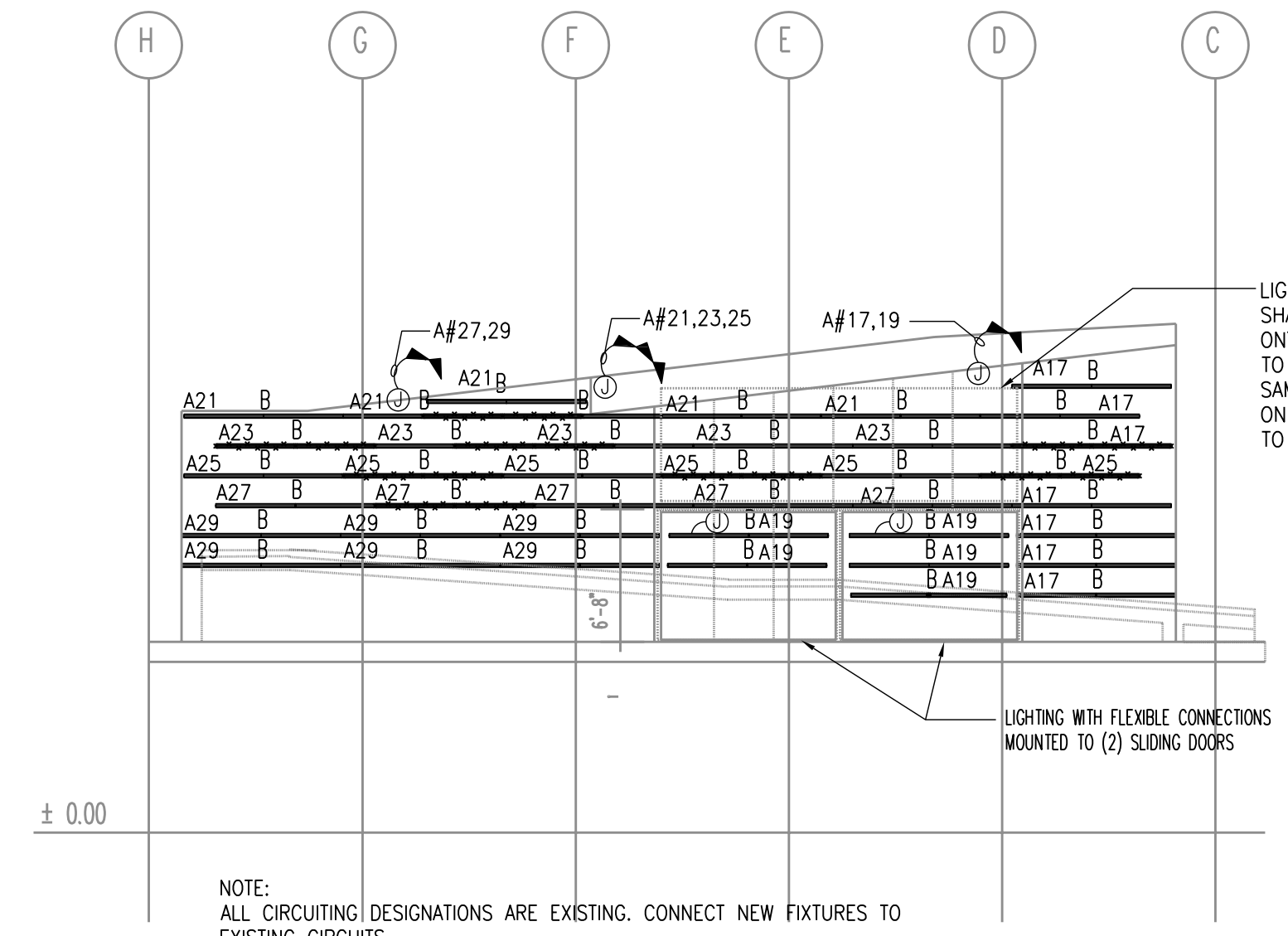
CADD FILE No: | 20 of 23

ELECTRICAL DRAWING LIST	
E-001.00	ELECTRICAL SYMBOLS, NOTES & DRAWING LIST
E-100.00	ELECTRICAL LIGHTING PLAN 1 OF 2
E-101.00	ELECTRICAL LIGHTING PLAN 2 OF 2
E-200.00	ELECTRICAL SPECIFICATIONS

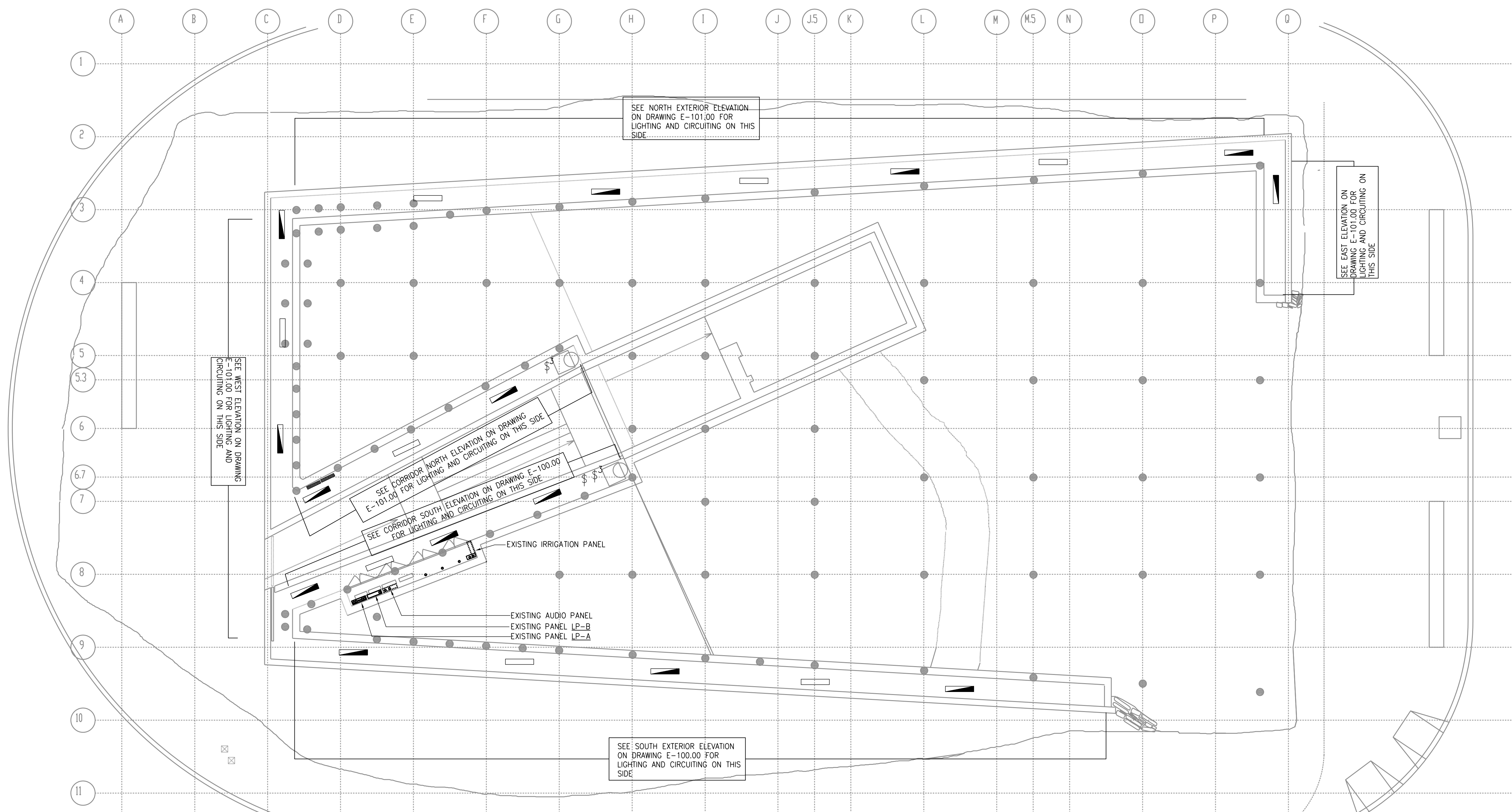
DATE	REVISION	NO.



1 SOUTH EXTERIOR ELEVATION
 SCALE: 1/8"=1'-0"



2 CORRIDOR SOUTH ELEVATION
 SCALE: 1/8"=1'-0"



3 SITE PLAN & CEILING LIGHTING PLAN
 SCALE: 1/8"=1'-0"



Battery Park City Authority

Battery Park City Parks

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PROJECT:
IRISH HUNGER MEMORIAL RESTORATION
VESEY GREEN
NEW YORK, NY 10004

DRAWING TITLE:
ELECTRICAL LIGHTING
PLAN 1 OF 2

SEAL & SIGNATURE:	DATE: 16 JULY 2015
	PROJECT No: 14215
	DRAWING BY: SL
	CHECKED BY: AH
	DWG No:
E-100.00	
CADD FILE No:	21 of 23

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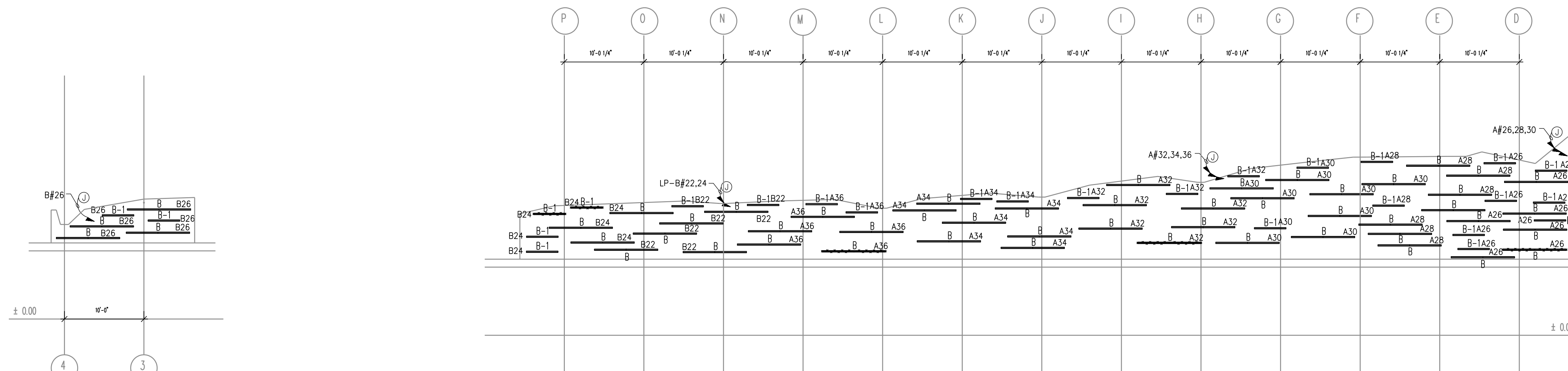
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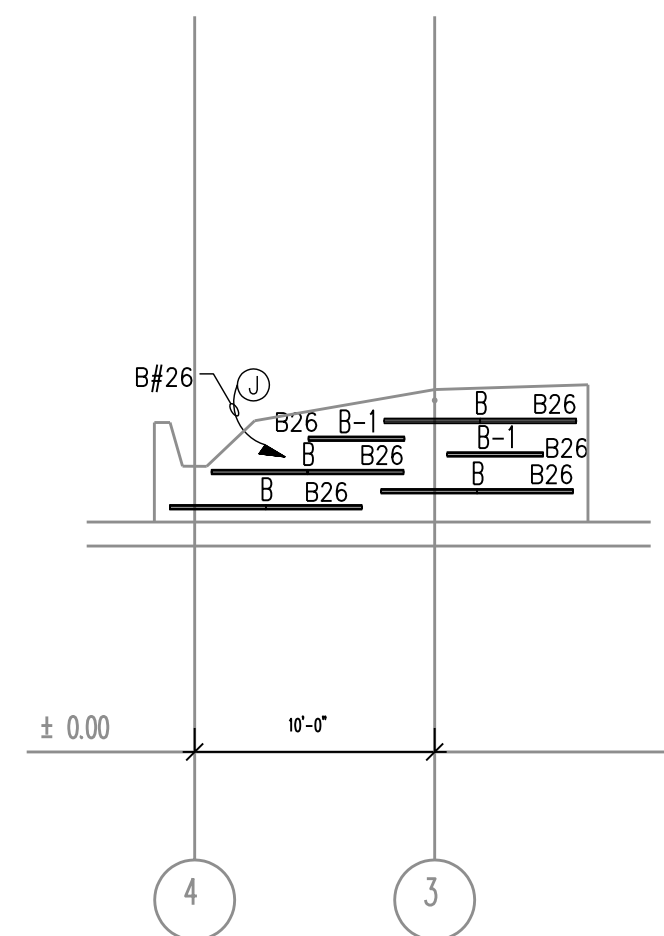
DRAWING TITLE:
ELECTRICAL LIGHTING
PLAN 2 OF 2

SEAL & SIGNATURE:	DATE: 16 JULY 2015
	PROJECT No: 14215
	DRAWING BY: SL
	CHECKED BY: AH
	DWG No:
E-101.00	
CADD FILE No:	22 of 23



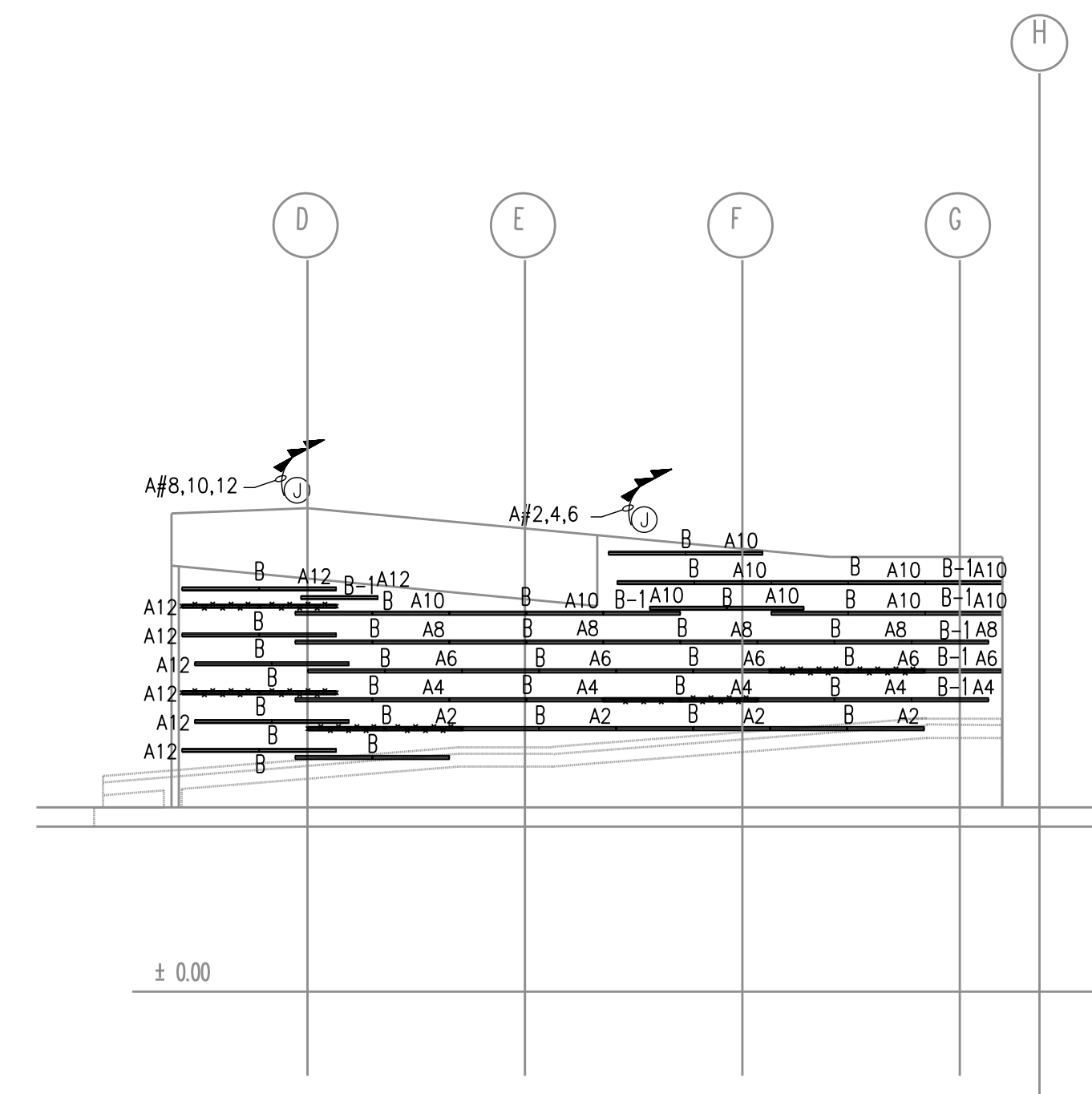
NOTE:
 ALL CIRCUITING DESIGNATIONS ARE EXISTING. CONNECT NEW FIXTURES TO EXISTING CIRCUITS.

2 NORTH EXTERIOR ELEVATION
 SCALE: 1/8"=1'-0"



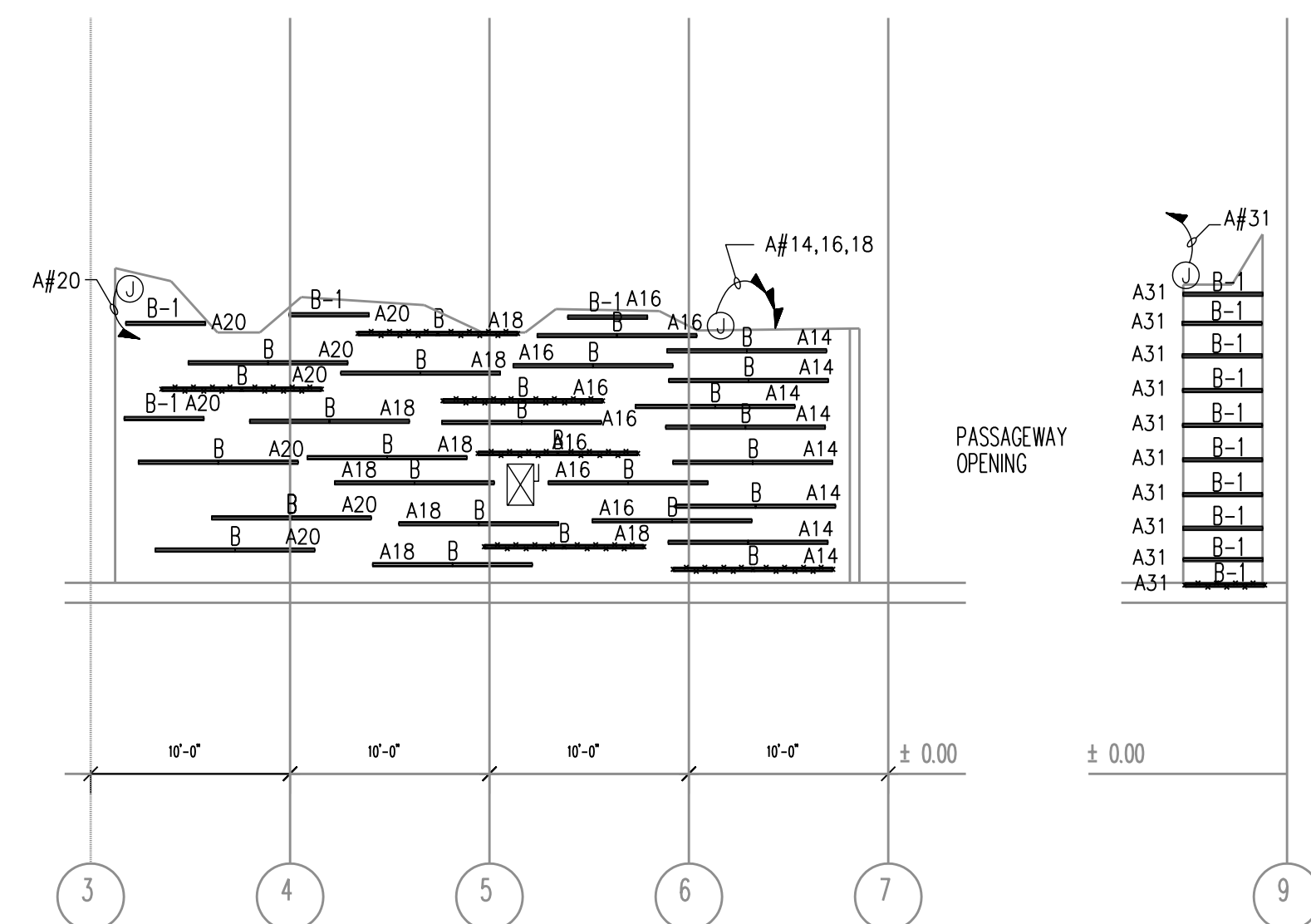
NOTE:
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1 EAST ELEVATION
 SCALE: 1/8"=1'-0"



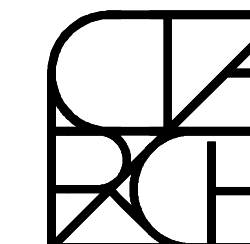
NOTE:
 ALL CIRCUITING DESIGNATIONS ARE EXISTING. CONNECT NEW FIXTURES TO EXISTING CIRCUITS.

4 CORRIDOR NORTH ELEVATION
 SCALE: 1/8"=1'-0"



NOTE:
 ALL CIRCUITING DESIGNATIONS ARE EXISTING. CONNECT NEW FIXTURES TO EXISTING CIRCUITS.

3 WEST ELEVATION
 SCALE: 1/8"=1'-0"



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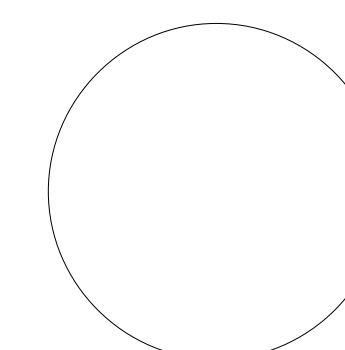
Shari C. Hyman
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PROJECT:
**IRISH HUNGER MEMORIAL
RESTORATION
VESEY GREEN
NEW YORK, NY 10004**

DRAWING TITLE:

ELECTRICAL SPECIFICATIONS

SEAL & SIGNATURE:



DATE:	16 JULY 2015
PROJECT No:	14215
DRAWING BY:	SL
CHECKED BY:	AH
DWG No:	
E-200.00	
CADD FILE No:	23 of 23

ELECTRICAL WORK

1. GENERAL:

- A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.
- B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
- C. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.
- D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- E. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
- F. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
- G. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT.
- H. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.
- I. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
- J. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BATTERY PARK CITY AUTHORITY (BPCA) STANDARDS.
- K. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING CONDUIT (SIZES, CLEARANCES, ETC) AND CONDITIONS.
- L. INSURANCE: IN ACCORDANCE WITH BPCA REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
- M. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

2. SCOPE OF WORK:

- A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.
- B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.
- C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OF ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.
- D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFOR. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

3. SHOP DRAWINGS

- A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.
- B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:
 - 1) PROJECT NAME AND LOCATION
 - 2) NAME OF ARCHITECT AND ENGINEER
 - 3) ITEM IDENTIFICATION
 - 4) APPROVAL STAMP OF PRIME CONTRACTOR
- C. SUBMISSIONS:
 - 1) SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.
 - 2) SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT THREE PRINTS TO THE ARCHITECT. THE ARCHITECT WILL FORWARD TWO PRINTS TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

- 1) WIRE AND CABLE
 - 2) LIGHTING FIXTURES.
4. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS
- A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.
 - B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.
 - C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.
 - D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

5. GENERAL PROVISIONS FOR ELECTRICAL WORK:

- A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.
- B. DEFINITIONS:
 - 1) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
 - 2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
 - 3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
 - 4) "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
 - 5) "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.
 - 6) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.
 - 7) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
 - 8) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

C. QUALITY ASSURANCE

- 1) QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS' LABORATORIES, INC., OR OTHER NATIONALLY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.
- 2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.
- 3) CURRENT CHARACTERISTICS:
 - a. SERVICE: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL
 - b. DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

E. PRODUCT DELIVERY, STORAGE AND HANDLING

- 4) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.
- 5) ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS SHALL BE PERMITTED. CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW.

F. MATERIALS

- 1) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.
- 2) INSERTS AND SUPPORTS:
 - a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.
 - SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
 - MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
 - b. CLIP FORM NAILS FLUSH WITH INSERTS.
 - c. MAXIMUM LOADING 75 PERCENT OF RATING.
 - d. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.
 - e. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.
 - f. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

- G. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES; AFTER FABRICATION, UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARRED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC BASED PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRONWORK.

- H. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

- I. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ENGINEER.

6. RACEWAYS:

- A. PROVIDE RACEWAYS COMPLETE WITH BOXES, FITTINGS AND ACCESSORIES. CONDUIT OR TUBING SIZES REFERRED TO IN SPECIFICATIONS AND ON DRAWINGS ARE NOMINAL DIAMETERS. MINIMUM DIAMETER SHALL BE 3/4 IN.
- B. MATERIALS
 - 1) RACEWAYS:
 - a. RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.
 - b. LIQUIDTIGHT FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED WITH OUTER LIQUIDTIGHT, NON-METALLIC JACKET.
 - c. WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.
 - d. SURFACE METAL RACEWAY: SIZE AS NOTED, BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.
 - 2) FITTINGS AND ACCESSORIES:
 - a. RIGID STEEL: NONSPILT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.

- b. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.
- c. BUSHINGS: METALLIC INSULATED TYPE.
- 3) BOXES:
 - a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES SHALL BE 1-1/2 IN. DEEP OR 3 IN. DEEP AS REQUIRED, SURFACE MOUNTED; FURNISH BLANK COVER.
 - b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE.

- C. JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

7. WIRE AND CABLE:

- A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.
 - CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM.
- B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.
 - CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM.
- C. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C.
- E. COLOR CODING SHALL BE AS FOLLOWS:
 - 1) 120/208 VOLT SYSTEM:
 - BLACK FOR A PHASE
 - RED FOR B PHASE
 - BLUE FOR C PHASE
 - 2) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.

- F. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR BRANCH CIRCUITS INDICATE CIRCUIT NUMBER, PHASE AND POINTS OF ORIGIN. FOR CONTROL AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.
- G. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING.
- H. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F.

- I. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.
- J. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 10 PERCENT OF BRANCH CIRCUITS.
 - PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

8. LIGHTING FIXTURES:

- A. PROVIDE FIXTURES ("LUMINARIES"), COMPONENTS AND LAMPS. FIXTURES SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.
- B. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.
- C. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ET1 AND CBM APPROVED, ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH. TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL. ALL BALLASTS SHALL BE LOW TEMPERATURE AND CAPABLE OF OPERATION TO 0 DEGREES FAHRENHEIT.

EXHIBIT I

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