CITY OF PAWTUCKET

REQUEST FOR PROPOSALS

BID # 27-008

Tidewater Landing Phase 1 B

Riverwalk East Contract 2 – Early Site Work

October 15, 2026

Riverwalk East Contract 2 – Early Site Work

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1.0 - Bid/Solicitation Information

Schedule

****Pre-Bid Meeting:* ☐ No ☒ Yes
10/22/2026 @ 11:00 AM

*******Non-Mandatory *******
Location:
100 Freight Street (Room 204)
Pawtucket, RI 02860

Requests for Further Information:
October 29, 2026 @ 2:00 PM

Requests for information or clarification must be made electronically to the attention of:

Michael Wilcox, Project Engineer E-mail: mwilcox@pawtucketri.gov
AND
Kevin Aguiar P.E, Project Manager E-mail: kaguiar@BETA-inc.com

Please reference the RFP number on all correspondence. Answers to questions received, if any, will be posted on the internet as an addendum to this bid solicitation.

****RFP Submission Deadline:*

November 12, 2026 at 12:00 PM

Late submittals will not be considered.

Proposals must be mailed or hand-delivered in a sealed envelope **marked with the RFP/Bid # and Project Name** to:

Pawtucket City Hall - Purchasing Office
137 Roosevelt Avenue
Pawtucket, RI 02860

Bids will be publicly opened on November 12, 2026 at 4:00 PM during a scheduled Purchasing Board meeting. Please note that the bid opening will be held at 100 Freight Street, Pawtucket, RI.

Bonds/Surety Required

Bidder is required to provide a bid surety in the form of a bid bond or certified check payable to the City of Pawtucket in an amount not less than five percent (5%) of the bid price.
Bonds Required:

Bid Bond: ☐ No ☒ Yes

Fidelity Bond: ☒ No ☐ Yes

Performance and Payment Bond: ☐ No ☒ Yes
(Submit upon award of contract)

Bidder is required to provide a performance and payment bond as outlined in the City's General Terms & Conditions of Purchase (Appendix B of this RFP) in an amount not less than one hundred percent (100%) of the bid price.

The successful bidder will be required to furnish all insurance documentation as outlined in the attached Purchasing Rules & Regulations and General Terms & Conditions of Purchase.

Miscellaneous

The bid process and resulting contract are subject to the Rules and Regulations and General Terms and Conditions of Purchase. Submission of a bid in response to this solicitation is acknowledgement and acceptance of these Rules and Regulations and General Terms and Conditions of Purchase.

The City of Pawtucket reserves the right to award on the basis of cost alone, accept or reject any or all bids, and to act in its best interest including, but not limited to, directly negotiating with any vendor who submits a proposal in response to this RFP and to award a contract based upon the results of those negotiations alone. Proposals found to be technically or substantially non-responsive at any point in the evaluation process will be rejected and not considered further. The City of Pawtucket may, at its sole option, elect to require presentations(s) by bidders clearly in consideration for award.

2.0 - Instructions and Notifications to Bidders

- It is the vendor's responsibility to examine all specifications and site conditions thoroughly and comply fully with specifications and all attached terms and conditions. Vendors must comply with all Federal, State, and City laws, ordinances and regulations, and meet any and all registration requirements where required for contractors as set forth by the State of Rhode Island. Failure to make a complete submission as described herein may result in a rejection of the proposal.
- All vendors/Bidders must register with SAM.gov. No Bids can be accepted without an active registration. All Sub-contractors must be registered as well. SAM.gov Unique Entity ID# must be provided.
- All costs associated with developing or submitting a proposal in response to this Request, or to provide oral or written clarification of its content shall be borne by the bidder. The City of Pawtucket assumes no responsibility for these costs.
- A submittal may be withdrawn by written request to the Purchasing Agent by the proposer prior to the stated RFP deadline.
- Prior to the proposal deadline established for this RFP, changes may be made to a proposal already received by the City if that vendor makes a request to the Purchasing Agent, in writing, to do so. No changes to a proposal shall be made after the RFP deadline.
- Proposals are considered to be irrevocable for a period of not less than ninety (90) days following the opening date, and may not be withdrawn, except with the express written permission of the Purchasing Agent. Should any vendor object to this condition, the vendor must provide objection through a question and/or complaint to the Purchasing Agent prior to the proposal deadline.
- All pricing submitted will be considered to be firm and fixed unless otherwise indicated herein.
- The vendor has full responsibility to ensure that the proposal arrives at the Purchasing Division Office prior to the deadline set out herein. The City assumes no responsibility for delays caused by the U.S. Postal Service or any other delivery service. Postmarking by the due date will not substitute for actual receipt of response by the due date. Proposals arriving after the deadline may be returned, unopened, to the vendor, or may simply be declared non-responsive and not subject to evaluation, at the sole discretion of the Purchasing Agent. **For the purposes of this requirement, the official time and date shall be that of the time clock in the City of Pawtucket's Purchasing Office.**
- At the time and place fixed for the opening of Bids, the Owner will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.
- It is intended that an award pursuant to this Request will be made to a prime contractor, who will assume responsibility for all aspects of the work. Joint venture and cooperative proposals will not be considered, but subcontracts are permitted,

provided that their use is clearly indicated in the bidder's proposal, and the subcontractor(s) proposed to be used are identified in the proposal.

- Bidders are advised that all materials submitted to the City of Pawtucket for consideration in response to this Request for Proposals shall be considered to be public records as defined in Title 38 Chapter 2 of the Rhode Island General Laws, without exception, and may be released for inspection immediately upon request once an award has been made.
- Vendors are responsible for errors and omissions in their proposals. No such error or omission shall diminish the vendor's obligations to the City.
- The City reserves the right to reject any or all proposals, or portions thereof, at any time, with no penalty. The City also has the right to waive immaterial defects and minor irregularities in any submitted proposal at its sole discretion. All material submitted in response to this RFP shall become the property of the City of Pawtucket upon delivery to the Purchasing Agent.
- Bids will be opened publicly at a regularly scheduled purchasing board meeting, the date of which is the same as the RFP submission deadline provided in Section 1.0.
- Interpretations or Addenda: No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the City of Pawtucket (hereinafter called the "Owner"). Any inquiry received seven or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the Contract Documents, and when issued, will be on file in the office of the Owner at least five days before Bids are opened. Addenda will be issued on the City’s Website. It shall be the Bidder's responsibility to make inquiry as to the Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.
- Each Bidder shall, upon request of the Owner, submit a detailed financial statement on a form furnish by the Owner for that purpose. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations under the Contract and the Bidder shall furnish the Owner all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract**.**

3.0 - Overview

3.1 Project Overview

The Project involves site preparation activities to ready the site for future phases of work to be conducted by both the City of Pawtucket and private parties. Work for this contract includes clearing and grubbing, demolition, erosion and sediment controls, grading, restoration, installation of drainage utilities, and remediation of lead impacted soils.

3.2 Project Background

The purpose of this project is to enable future phase of work. The project is funded from a variety of sources that may include but is not limited to a brownfield grant from the RIDEM, loans and grants from RI Infrastructure Bank (RIIB), a grant from a Southern New England Program (SNEP) Watershed Implementation Grant (SWIG) and by the City of Pawtucket, with support from other state agencies. The administration of the construction phase of the project will be managed by the City of Pawtucket.

The project has received approval from the City of Pawtucket Planning Commission and the Rhode Island Coastal Resources Management Council (CRMC). Conditions of those permits will need to be followed for construction of the project.

4.0 - Scope of Work

4.1 Location

The location of the proposed construction activity ("the Project") is shown on the Site Plans Issued for Bid included in this RFP as Appendix H. In general terms, the location of the Project can be described as follows:

- Work will take place on twelve acres of City-owned parcels south of Division Street and West of Portuguese Social Club Way and School St. and north of Festival Pier.
- Work to occur on the following existing parcels:
    - Plat 23, Lots 599
    - Plat 23, Lot 672
    - Plat 23, Lot 673
    - Plat 35 A Lot 361 (Festival Pier)
- Limited Work operations will occur within the City Street Right-Of-Way,

4.2 General Requirements

4.2.1 Project Schedule

- Project Award – November 19, 2026
- Notice to Proceed – no later than December 1, 2026
- Pre-Construction Conference – TBD
- Start of Construction on or before December 14, 2026
- Substantial Completion – April 1, 2027
- Final Completion – April 15, 2027

4.2.2 Hours of Work

The Contractor shall be permitted to work on-Site from 7:00 AM to 5:30 PM, Monday through Friday. The Contractor may be permitted to work during extended hours outside of this time, but only upon receipt of the DPW's express written authorization.

4.2.3 Pricing

UNIT PRICES: The unit price for each of the items in the Proposal of each Bidder shall include its pro rata share of overhead and profit so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price Bid represents the Total Bid. The price submitted for items requiring a lump sum Bid shall also include all overhead and profit and represents the total Bid. Any Bid not conforming to this requirement may be rejected as unresponsive. Special attention of all Bidders is called to this provision, for should conditions make it necessary to revise the quantities or unit price, no limit will be fixed for such increased or decreased quantities nor extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items or work

(i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five percent (25%) except for work not covered in the Contract Documents.

4.2.4 Prevailing Wage Requirements

Bidders are advised that payment of the local prevailing wage, as established by the Rhode Island Department of Labor and Training, is a requirement of this project, as outlined in Appendix B. A copy of the current prevailing wage decision is included in this document as Appendix C. Where a contract will be entered pursuant to competitive bidding procedures, a modification, notice of which is published on the Wage Determination web site at https://sam.gov/content/home; or in the Federal Register less than 10 days before the opening of bids shall be effective unless the agency finds that there is not a reasonable time still available before bid opening to notify bidders of the modification and a report of the finding is inserted in the contract file. Bidders are expected to account for the prevailing wage rates applicable to this project in the formulation of their bid.

All contractors and sub-contractors are required to use the Rhode Island Certified Weekly Payroll and the RI Statement of Compliance form. Use of company payroll forms or other state (MA, CT, etc.) forms is not acceptable. Only employees of the contractor should be listed on the RI Certified Weekly Payroll forms. Subcontractors must do their own separate RI Certified Weekly Payroll form listing all of their workers working on the Prevailing Wage job-site.

Federal forms may be used for Department of Transportation projects only. However, if a complaint is being investigated, the DLT will require the contractor under investigation to resubmit the requested payroll information on the Rhode Island Certified Weekly Payroll form for all hours worked on that Department of Transportation project being investigated.

4.2.5 Payment Requisitions

The Contractor shall prepare draft requisitions for payment for the Project Engineer's review and approval and revise the requisitions as necessary prior to submission to the Owner. Payment requisitions shall be prepared using AIA Standard Forms G702 and G703.

The Owner reserves the right to withhold 5% of each progressive request for payment as retainage. The Owner shall release retainage payments per the terms outlined in Section 12.0 of this RFP.

4.2.6 Experience

The City will require all general contractors and subcontractors have a minimum of 5 years' experience doing similar type of work. This experience should be listed in the form supplied in Section 11 and or attach a separate sheet listing the Bidder's experience and that of any subcontractors performing work.

4.3 Scope Detail

The scope of work is defined comprehensively in the Technical Specifications and Site Plans issued for bid, which are incorporated into this RFP as Appendices G and H, respectively.

In general terms, the Project includes, but is not limited to, the following construction activities:

In general terms, the Project includes, but is not limited to, the following construction activities:

- Mobilization & Demobilization from the site.
- Establishment of project control points, benchmarks, and layout of baselines.
- Installation and maintenance of erosion controls.
- Tree clearing and understory brush cutting and removal.
- Installation of closed drainage system, temporary sediment forebay, and temporary drainage swales.
- Construction of the shared access path
- Soil management and remediation
- Remove and dispose lead impacted soils
- Restoration of disturbed areas

4.4 Additional General Requirements

Reference is made to the Appendices, Technical Specifications, DIVISION 1 for detailed specifications regarding job specific requirements such as Measurement and Payment, Temporary Controls, and Contract Closeout.

5.0 - Insurance

The vendor shall maintain and keep in force such comprehensive general liability insurance as shall protect them from claims which may arise from operations under any contract entered with the City of Pawtucket, whether such operations be by themselves or by anyone directly or indirectly employed by them.

The amounts of insurance shall be not less than $2,000,000.00 combined single limit for any one occurrence covering both bodily injury and property damage, including accidental death.

The City of Pawtucket, Fortuitous Tidewater OZ, LLC, and Fortuitous Partners, LLC shall be named as additional insured on the vendor's General Liability Policy.

The vendor shall maintain and keep in force such Workers' compensation insurance limits as required by the statutes of the State of Rhode Island, and Employer's Liability with limits no less than $1,000,000.

Specifically, the City of Pawtucket assumes that the vendor will adhere to all terms and conditions listed in this RFP.

Submission of a proposal is acknowledgement and acceptance of the City of Pawtucket’s Purchasing Rules and Regulations and General Terms and Conditions of Purchase.

6.0 - Acknowledgement of Risk & Hold Harmless Agreement

In addition to the indemnity provisions in the City of Pawtucket's Terms and Conditions of Purchase and to the fullest extent permitted by law, the selected vendor, its officers, agents, servants, employees, parents, subsidiaries, partners, officers, directors, attorneys, insurers, and/or affiliates (Releasors) agree to release, waive, discharge and covenant not to sue the City of Pawtucket, its officers, agents, servants or employees (Releasees) from any and all liability, claims, cross-claims, rights in law or in equity, agreements, promises demands, actions and causes of action whatsoever arising out of or related to any loss, damage, expenses (including without limitation, all legal fees, expenses, interest and penalties) or injury (including death), of any type, kind or nature whatsoever, whether based in contract, tort, warranty, or other legal, statutory, or equitable theory of recovery, which relate to or arise out of the Releasors use of or presence in and/or on City of Pawtucket property. The Releasors agree to defend, indemnify and hold harmless the Releasees from (a) any and all claims, loss, liability, damages or costs by any person, firm, corporation or other entity claiming by, through or under Releasors in any capacity whatsoever, including all subrogation claims and/or claims for reimbursement, including any court costs and attorney's fees, that may incur due to Releasors use of or presence in and on City of Pawtucket property; and (b) any and all legal actions, including third-party actions, cross-actions, and/or claims for contribution and/or indemnity with respect to any claims by any other persons, entities, parties, which relate to or arise out of Releasors use of or presence in and on City of Pawtucket property.

The Releasors acknowledge the risks that may be involved and hazards connected with use of or presence in and on City of Pawtucket property but elect to provide services under any contract with the City of Pawtucket with full knowledge of such risks. Releasors also acknowledge that any loss, damage, and/or injury sustained by Releasors is not covered by Releasees insurance. Releasors agree to become fully aware of any safety risks involved with the performance of services under any contract with the City of Pawtucket and any safety precautions that need to be followed and agree to take all such precautions.

The duty to indemnify and/or hold harmless the City of Pawtucket shall not be limited by the insurance required under the City of Pawtucket Terms and Conditions of Purchase.

7.0 - Additional Insurance Requirements

In addition to the insurance provisions in the City of Pawtucket Terms and Conditions of Purchase, the liability insurance coverage, except Professional Liability, Errors and Omissions or Workers' Compensation insurance required for performance of a contract with the City of Pawtucket shall include the City of Pawtucket, its divisions, officers and employees, Fortuitous Tidewater OZ, LLC, and Fortuitous Partners, LLC, as Additional Insureds but only with respect to the selected vendor's activities under the contract. The insurance required through a policy or endorsement shall include:

A. A Waiver of Subrogation waiving any right to recovery the insurance company may have against the City of Pawtucket; and

B. A provision that the selected vendor's insurance coverage shall be primary with respect to any insurance, self insurance or self retention maintained by the City of Pawtucket and that any insurance, self insurance or self retention maintained by the City of Pawtucket shall be in excess of the selected vendor's insurance and shall not contribute.

There shall be no cancellation, material change, potential exhaustion of aggregate limits or non-renewal without thirty (30) days written notice from the selected vendor or its insurer(s) to the City of Pawtucket's Purchasing Agent. Any failure to comply with the reporting provision of this clause shall be grounds for immediate termination of the contract with the City of Pawtucket.

Insurance coverage required under the contract shall be obtained from insurance companies acceptable to the City of Pawtucket. The selected vendor shall pay for all deductibles, self insured retentions and/or self insurance included hereunder.

The City of Pawtucket's Purchasing Agent reserves the right to consider and accept alternative forms and plans of insurance or to require additional or more extensive coverage for any individual requirement.

8.0 - Proposal Content and Organization

All bids must be submitted on the forms supplied in Section 11.0 and shall be subject to all requirements of the Contract Documents, including these instructions to bidders. All bids must be regular in every respect and no interlineations, excisions or special conditions shall be made or included in the Bid Form by the Bidder. Pricing must include all costs as specified in this solicitation.

The Owner may consider as irregular any Bid on which there is an alteration of or departure from the Bid Form hereto attached and at its option may reject the same.

Bid Documents, including the Bid, the Bid Bond, the Non-Collusion Affidavit, the Anti-Kickback Acknowledgment, and the Statement of Bidder's Qualifications (if requested) shall be enclosed in a sealed envelope which shall be clearly labeled with the words, **"Tidewater Landing Phase 1B - Riverwalk East Contract 2- Early Site Work, Bid # 27-008**", as well as name of Bidder, and date of bid opening.

Tidewater Landing Phase 1B

Riverwalk East Contract 2- Early Site Work

BID # 27-008

Name of Bidder: _____

Date of bid opening: November 12, 2026

All Bid Forms must be signed.

If the Contract is awarded, it will be awarded by the Owner to a responsible Bidder on the basis of the lowest qualified bid price and the selected Alternative Bid items, if any.

Vendors must include on the Bid Form a list of at least four (4) references with whom they have contracted to do similar work by including the company name, telephone number, contact person, and number of years they have served this customer. Preferably, references should be municipalities which are of approximate size as the City of Pawtucket, and a website address should be included if available.

Respondents must also include an overview of their company's experience including, but not limited to, the number of years the company has been providing these services, the size of the company (including the number of employees and locations), a description of work undertaken that is similar to what is being requested in this RFP, and, if applicable, certifications that show a knowledge of equipment that would be serviced or provided under this contract.

If any subcontractors are to be used in the performance of any work contracted for under this RFP, please list their name(s), contractor license #, address and phone number, and specific description of the subcontract work to be performed.

See Proposed Subcontractors form. Subcontractors will be required to list their experience doing similar work that are contracted to do.

Three (3) copies of your proposal are required: one (1) original unbound hard copy and one (1) unbound photo copy; and one digital (1) copy on CD or similar format—must be submitted at the time of submission. Proposals must be in the following format:

Bid Form (Section 11 "ENTIRE SECTION")
Anti-Kickback Acknowledgement (Appendix A)
Non-Collusion Affidavit of Prime Bidder
Certificate of Compliance with Tax Laws
Company overview
- ***Length of time your firm has been in business***
- ***Length of time at current address***

All licensing (List types and business license number(s), certification and permits as required in the Scope of Work

Please state any and all additions, deletions, and exceptions, if any, that you are taking to any portion of this proposal. If not addressed specifically, the City of Pawtucket assumes that the vendor will adhere to all terms and conditions listed in this RFP.

Submission of a proposal is acknowledgement and acceptance of the City of Pawtucket's Purchasing Rules and Regulations and General Terms and Conditions of Purchase.

9.0 - Evaluation Criteria

The evaluation of proposals will be conducted in a time frame convenient to the City.

The City of Pawtucket reserves the right to award on the basis of cost alone, accept or reject any or all proposals, and to otherwise act in its best interest including, but not limited to, directly negotiating with any Vendor who submits a proposal in response to this RFP and to award a contract based upon the results of those negotiations alone. The City reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the Improvements embraced in this Contract.

Further, the City reserves the right to waive irregularities it may deem minor in its consideration of proposals.

Proposals found to be technically or substantially non-responsive at any point in the evaluation process will be rejected and not considered further. The City of Pawtucket may elect to require presentations(s) by vendors in consideration for award.

Proposals will be evaluated in three (3) phases:

1. The first phase is an initial review to determine if the proposal, as submitted, is complete. To be complete, a proposal must meet all the requirements of this RFP.
2. The second phase is an in-depth analysis and review based on criteria below and their associated weights.

Evaluation Criteria	Importance
Experience/Qualifications	20%
References	10%
Price	70%

3. The third is a comparison of each proposal's weighted evaluation relative to the costs proposed.

In the event that the City requires further information and/or a demonstration of any equipment or process offered in any proposal, all vendors asked for same will do so at no cost to the City.

For purposes of evaluating the bid, The City will use the price referenced above in Evaluation Criteria as the price noted in Section 11 Bid Form, which will be the base bid plus ALL alternates if any, and allowances. The City will select alternates as the budget allows.

10.0 - Miscellaneous

- Vendors shall at all times comply with all federal, state, and local laws, ordinances and regulations and shall defend, indemnify and save harmless the City of Pawtucket against any claims arising from the violation of any such laws, ordinances and regulations, including but not limited to challenges as to the legality of any and all vendor installations.
- The City is exempt from the payment of the Rhode Island State Sales Tax under the 1956 General Laws of the State of Rhode Island, 44-18-30, Paragraph 1, as amended. Further, the City is also exempt from the payment of any excise or federal transportation taxes. The proposal prices submitted must be exclusive of same, and will be so construed.
- The City of Pawtucket reserves the right to cancel an agreement with the Vendor with thirty (30) days written notice and to award the contract to the next highest evaluated bidder.
- The City of Pawtucket reserves the right to renegotiate the terms of this contract with the Vendor for subsequent years provided the Vendor agrees to the contract terms for the renewal period.
- The payment and performance of any obligations under this contract for years beyond the first fiscal year are subject to the availability of funds.
- The City reserves the right to pay the selected Vendor via credit card at its sole discretion.

11.0 – Bid Form

BID # 27-008 Tidewater Landing Phase 1 B

Riverwalk East Contract-2 Early Site Work

Date: _____

Submitted By: _____

(Include Name, Address and Telephone No.) _____

_____

_____

SAM.gov. Unique Entity ID Number:_____

Name and remittance address that will appear on invoices:	Physical address of business:
_____	_____
_____	_____
_____	_____
_____	_____

General Information

Is your firm a sole proprietorship doing business under a different name? ___Yes ___ No

If yes, please indicate sole proprietorship, a name, and the name you are doing business under.

_____

_____

Is your firm incorporated? ____Yes _____ No

Will any of the work spelled out in this bid be outsourced? ____Yes _____ No

If so, please explain below:

_____

_____

_____

Have you or your firm been subject to suspension, debarment or criminal conviction by the City of Pawtucket, the State of Rhode Island, or any other jurisdiction?
Yes: _____ No: _____

Have the City of Pawtucket and/or the State of Rhode Island ever terminated contracts with your firm for cause?
Yes: _____ No: _____

Has your firm ever withdrawn from a contract with the City of Pawtucket and/or the State of Rhode Island during its performance?
Yes: _____ No: _____

Have you or your firm been involved in litigation against the City of Pawtucket and/or the State of Rhode Island.
Yes: _____ No: _____

If you answered yes to any of the foregoing, please explain the circumstances below. If you or your firm has been involved in litigation against the City of Pawtucket and/or the State of Rhode Island, please include the case caption, case number and status. (If more space is needed, please attach separate sheet and submit with the bid.)

_____

_____

_____

Is your company bonded? Yes ____ No ____

Please describe the nature and extent of all insurance coverage:

_____

_____

_____

Addenda

The following Addenda have been received. The noted modifications to the Bidding Documents have been considered and all costs are included in the Bid Sum.

Addendum #1, Dated:_____

Addendum #2, Dated:_____

Addendum #3, Dated:_____

References

Please list at least four (4) companies with whom you have contracted to provide similar services. Preferably, references should be municipalities which are of approximate size as the City of Pawtucket, and a website address should be included if available.

Reference #1

Company Name: _____

Contact Person: _____ Telephone #: _____

Contract Dates: _____ To _____

Website Address: _____

Reference # 2

Company Name: _____

Contact Person: _____ Telephone #: _____

Contract Dates: _____ To _____

Website Address: _____

Reference # 3

Company Name: _____

Contact Person: _____ Telephone #: _____

Contract Dates: _____ To _____

Website Address: _____

Reference # 4

Company Name: _____

Contact Person: _____ Telephone #: _____

Contract Dates: _____ To _____

Website Address: _____

Pricing Proposal

BID # 27-008 Tidewater Landing Phase 1B

Riverwalk East Contract 2- Early Site Work

Part A - Offer

A. Having examined the Place of the Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by BETA Group, Inc. (Engineer/Architect) for the above project) and the City of Pawtucket, we, the undersigned, hereby offer to enter into a Contract to perform the Work, **(Tidewater Landing Phase 1 B - Riverwalk East Contract 2- Early Site Work)** for the amount indicated below, subject to the additions and deductions according to the terms of the Contract Documents and as stated below. The undersigned will provide all necessary and proper material, machinery, equipment, facilities, and means to complete the Work.

B. The undersigned hereby understands that the City of Pawtucket (Owner) has the right to reject any and all bids and to award the contract in the best interests of the Owner. The Owner reserves the right to award the entire project or delete portions of the work to funds available, whichever is in the best interest of the Owner.

C. The undersigned also understands that the contract must be carried out in strict accordance with the contract documents.

D. Total Price below shall include all BID ITEMS listed 1.0 – 23.0 Bid Alternates, if any, and all Allowances.

Total
Price: $…….Dollars,
(Amount in words)

($.....) in lawful money of the United States of America and,
(Amount in figures)

We have included herewith, the unit price bid forms and the required security deposit or Bid Bond as required by the Instruction to Bidders.

For purposes of evaluating the Bid, the price noted above will be the Base Bid, Bid Alternates, if any, plus all Bid Allowances.

Part B - Pricing Proposal – Itemized Pricing:

Riverwalk East Contract 2 – Early Site Work BID # 27-008

Item 1.0 Project Mobilization & Demobilization

_____ ($ Figures) 1 LS

_____ Dollars/Cents

Item 2.0 Site Preparation and Maintenance

_____ ($ Figures) 1 LS

_____ Dollars/Cents

Item 3.0 Rock Excavation

_____ ($ Figures) 10 CY

_____ Dollars/Cents

Item 4.0 Clear and Grub Area

_____ ($ Figures) 3,500 SY

_____ Dollars/Cents

Item 5.0 Gravel Borrow

_____ ($ Figures) 200 CY

_____ Dollars/Cents

Item 6.0 Excavation for Test Pits

_____ ($ Figures) 60 CY

_____ Dollars/Cents

Item 7.0 Construct 12-Inch Gravity Drain - CPP

_____ ($ Figures) 80 LF

_____ Dollars/Cents

Item 8.0 Construct 18-Inch Gravity Drain - CPP

_____ ($ Figures) 135 LF

_____ Dollars/Cents

Item 9.0 Construct 18-Inch Gravity Drain - RCP

_____ ($ Figures) 75 LF

_____ Dollars/Cents

Item 10.0 Construct 18-Inch Flared End Section - RCP

_____ ($ Figures) 1 EA

_____ Dollars/Cents

Item 11.0 Construct 4-Foot Diameter Drain Manhole

_____ ($ Figures) 1 EA

_____ Dollars/Cents

Item 12.0 Construct 5-Foot Diameter Drain Manhole

_____ ($ Figures) 3 EA

_____ Dollars/Cents

Item 13.0 Construct 6-Foot Diameter Drain Manhole

_____ ($ Figures) 1 EA

_____ Dollars/Cents

Item 14.0 Construct Catch Basin

_____ ($ Figures) 1 EA

_____ Dollars/Cents

Item 15.0 Construct Overflow Structure

_____	($ Figures)	1	EA
_____	Dollars/Cents		

Item 16.0 Construct Pre-treatment Separator Structure

_____	($ Figures)	1	EA
_____	Dollars/Cents		

Item 17.0 Remove and Dispose Lead-Impacted Soil – Location A

_____	($ Figures)	2,500	Ton
_____	Dollars/Cents		

Item 18.0 Waste Stockpile – Location A

_____	($ Figures)	1	LS
_____	Dollars/Cents		

Item 19.0 Earthwork -Location A

_____	($ Figures)	1,500	CY
_____	Dollars/Cents		

Item 20.0 Waste Stockpile – Location B

_____	($ Figures)	1	LS
_____	Dollars/Cents		

Item 21.0 Earthwork -Location B

_____	($ Figures)	3,000	CY
_____	Dollars/Cents		

Item 22.0 Restoration 1-Ft Cap

_____	($ Figures)	530	SY
_____	Dollars/Cents		

Item 23.0 Restoration 2-Ft Cap

_____ ($ Figures) 165 SY

_____ Dollars/Cents

NOTE: The price for each bid item shall be written in both words and figures. In the case of a discrepancy, the amount shown in words will govern.

Part C (Pricing Proposal) - Allowances

As part of the Base Bid (Total Bid), the Bidder agrees to carry the quantities of materials below in the Base Bid of the Contract. The Owner reserves the right to remove these items from the contract totally or in part and to adjust the Contract sum which shall reflect the actual costs of the construction authorized by the Owner. Unit prices reflect replacement with suitable materials

1.01 ALLOWANCES:

As part of the Base Bid (Total Bid), the Bidder agrees to carry quantities of materials below in the base bid of the contract. The Owner reserves the right to remove these items from the contract totally or in part and to adjust the contract sum to reflect the actual costs of the construction authorized by the Owner.

ALLOWANCE NO 1. Police Detail for Traffic Protection: An allowance of Twenty - Thousand Dollars ($20,000.00) shall be provided to address this item. The Contractor shall be responsible for reviewing proposed work operations with the Engineer/Owner's Representative and shall coordinate and ensure the proper police detail is present to monitor the construction site and to maintain orderly traffic flow and support traffic protection.

The Contractor shall provide documentation of the days and manhours required. The amount reimbursed will be the amount that is stated on the permit receipt(s). Unused allowances not expended for Police Detail for Traffic Protection shall be reimbursed to the Owner.

$ 20,000.00 Twenty-Thousand dollars
Lump Sum In Words

ALLOWANCE NO 2. Funding Source Signage: An allowance of Three-Thousand Dollars ($3,000.00) shall be provided to address this item. The Contractor shall be responsible for reviewing proposed work operations with the Engineer/Owner's Representative and shall coordinate and ensure the proper signage is installed and visible to the public.

The Contractor shall provide documentation of the invoices for the signage. The amount reimbursed will be the amount that is listed on the invoice. Unused allowances not expended for Funding Signage shall be reimbursed to the Owner.

$ 3,000.00 Three Thousand Dollars
Lump Sum In Words

Part D (Pricing Proposal) - Bid Add Alternates

ALTERNATE NO. 1 Removal of Unsuitable Material
The Contractor shall a unit cost to excavate, remove and legally dispose a quantity of 20 cubic yards of unsuitable material, such as defective gravel base, brick, stone mortar, blocks, cobblestone, curbing, concrete footing and other waste debris that is not scheduled for removal under the other sections of the specifications. The Contractor shall contact the Engineer/Owner's Representative in the event unsuitable material is encountered. Unsuitable material shall not be removed from the site without inspection and approval by the Owner's Representative. Removal requires certification of quantities by the Contractor. Un-used allowances for unsuitable material removal shall be reimbursed to the Owner at the Contract Unit Price stated below.

Removal of 20 Cubic Yards of Unsuitable material

$_____ $_____
Total In Words

Unit Price for the Removal of Unsuitable Material

$_____ $ _____
Cost per Cubic Yard In Words
Per Cy

ALTERNATE **NO. 2 Removal and Disposal of Concrete Foundations and Footings requiring jackhammer demolition:** The Contractor shall a unit cost to for the removal and disposal of the quantity of 10 cubic yards of unclassified concrete requiring jackhammer demolition (considered Unclassified Excavation) The Contractor shall contact the Engineer/Owner's Representative in the unclassified foundations or footings are encountered. The concrete rubble may not be removed from the site without inspections by the Owner's Representative. Certification of quantities is required. Unused allowances for Concrete Foundations and Footing Removal and Disposal shall be reimbursed to the Owner at the Contract Unit Price.

Unit Price for the Removal and Disposal of Concrete Foundations and Footings requiring jackhammer demolition, 10 Cubic Yards:

$_____ $ _____
Cost per Cubic Yard In Words
Per Cy

$ _____ $_____
Total Cost 10 CY Removal and Disposal of Concrete Footings and Foundations In Words

NOTE: The price for each bid item shall be written in both words and figures. In the case of a discrepancy, the amount shown in words will govern.

TOTAL BID PRICE _____

TOTAL BID PRICE IN WORDS _____

Note: Total Bid Price shown above shall match Total Price shown on the first page of this bid form (Section 1.0 OFFER) including Allowances (Refer to Section 1.01 Allowances) and Alternates (Refer to Part D).

All project costs including labor, equipment, materials, overhead, and profit to complete the Work shall be included. Refer to Section 01025 for a description of the bid items listed above as well as additional information.

2.00 ACCEPTANCE:

If this Bid is accepted within the time stated in the contract documents, and we fail to commence the Work, the Bid Bond shall be forfeited as damages to the Owner by reason of our failure, limited in amount to the lesser of the face value of the Bid Bond or the difference between this Bid and the Bid upon which the Contract is executed.

In the event our Bid is not accepted within the time stated in the contract documents, the required Bid Bond shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

The City of Pawtucket reserves the right to increase or decrease the quantities stated in the bid at the unit prices quoted.

3.00 BID FORM SIGNATURE(S)

The Corporate Seal of

_____

(Bidder - please print the full name of your Proprietorship, Partnership, or Corporation)

was hereunto affixed in the presence of:

_____

(Authorized signing officer Title)

(Seal)

_____

(Authorized signing officer Title)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of_____)
) .ss
County of_____)

_____,
being first duly sworn, deposes and says that;

(1) He is_____(owner, partner, officer, representative or agent)_____of

_____,the
BIDDER that has
submitted the attached bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said BIDDER nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including the affiant, has in any way colluded, conspired or agreed, directly or indirectly, with any other BIDDER, firm or person to submit a collusive or sham bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such a contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other BIDDER, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other BIDDER, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Local Government or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the BIDDER or any of its agents, representatives, owners, employees or parties in interest including this affiant.

(Signed)_____

_____
(Title)

Subscribed and sworn to before me

This,_____Day of_____, 20_____

_____

_____

My Commission Expires_____

CERTIFICATE OF COMPLIANCE WITH TAX LAWS

I, _____of
(principal)

_____, certify under
(corporation)

pains and penalties of perjury that said corporation has complied with all the laws of the State of Rhode Island and Providence Plantations relating to taxes.

_____

Date Signature

_____

Title

_____

Federal Tax Identification Number

END OF SECTION

12 – General Conditions – AIA Document A201

GENERAL CONDITIONS

AIA DOCUMENT A201, 2007 EDITION

PART I – GENERAL

DESCRIPTION

A. AIA Document A201, General Conditions of the Contract for Construction, Sixteenth Edition, 2007.

DRAFT

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)
« -»
« »

THE OWNER:
(Name, legal status and address)
« »« »
« »

THE ARCHITECT:
(Name, legal status and address)
« »« »
« »

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

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

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

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

§ 1.1.3 THE WORK

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

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

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

§ 1.1.6 THE SPECIFICATIONS

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

§ 1.1.7 INSTRUMENTS OF SERVICE

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

§ 1.1.8 INITIAL DECISION MAKER

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

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

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

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

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

§ 1.3 CAPITALIZATION

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

§ 1.4 INTERPRETATION

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

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

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

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

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

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

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

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

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

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

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

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

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

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

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

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

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

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

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

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

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

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

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These

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obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

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

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

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

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

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

§ 3.4 LABOR AND MATERIALS

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

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

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

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§ 3.5 WARRANTY

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

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

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

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

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

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

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

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.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

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

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

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

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

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

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

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

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

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

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§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

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

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

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

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

§ 3.13 USE OF SITE

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

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§ 3.14 CUTTING AND PATCHING

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

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

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

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

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

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

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

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

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

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

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

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

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods,

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techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

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

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

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

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

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

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

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

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

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

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

§ 5.3 SUBCONTRACTUAL RELATIONS

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

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

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

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

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§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

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

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

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

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

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

§ 7.2 CHANGE ORDERS

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

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

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§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

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

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

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

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.7.

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

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

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

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

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change.

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

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be

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reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

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

§ 7.4 MINOR CHANGES IN THE WORK

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

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

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

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

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

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

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

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

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

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

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as

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the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

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

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

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

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

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

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to

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make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

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

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

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

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

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

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

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

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

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

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§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

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

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

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

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

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

§ 9.9 PARTIAL OCCUPANCY OR USE

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

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

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

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§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

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

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

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

.1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents; or
.3 terms of special warranties required by the Contract Documents.

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

§ 10.2 SAFETY OF PERSONS AND PROPERTY

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

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

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

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

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

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

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

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

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY
If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

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

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from

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performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

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

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

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

§ 10.4 EMERGENCIES

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

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

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

.1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;

.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;

.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;

.4 Claims for damages insured by usual personal injury liability coverage;

.5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

.6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;

.7 Claims for bodily injury or property damage arising out of completed operations; and

.8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

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

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An

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additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

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

§ 11.2 OWNER'S LIABILITY INSURANCE

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

§ 11.3 PROPERTY INSURANCE

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

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

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

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

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

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

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

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

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

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

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

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

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

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

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

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§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

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

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

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

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

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

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

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

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

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

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

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct

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the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

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

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

§ 13.3 WRITTEN NOTICE

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

§ 13.4 RIGHTS AND REMEDIES

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

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

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

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

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

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

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

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

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

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

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

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

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

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§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

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

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

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

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

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

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

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

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

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

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

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

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

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

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

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

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ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

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

§ 15.1.2 NOTICE OF CLAIMS

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

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

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

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

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

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

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

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

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

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

§ 15.2 INITIAL DECISION

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

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise,

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or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in th Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

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

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

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

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

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

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

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

§ 15.3 MEDIATION

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

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

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

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually

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agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

END SECTION AIA A201

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12.1 – Addendum To General Conditions – AIA Document A201

GENERAL CONDITIONS

A. Standard Form: The General Conditions of the Contract forming a part of the Contract Documents and of these Specifications, consists of AIA Document A201, 2007 Edition.

B. Modifications and Additions: Where Contract Documents refer to General Conditions, such reference shall be interpreted to include Addendum to General Conditions.

C. Where contract documents refer to “architect”, such reference shall be interpreted to be “engineer”.

CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

A. If conflicts or discrepancies occur in the Contract Documents, interpretations will be based on the following priorities:

1. Awarding Authority-Contractor Agreement.
2. Addenda, with those of later date having precedence over those of earlier date.
3. The Supplementary Conditions.
4. The General Conditions of the Contract for Construction.
5. Drawings and Specifications.

B. For an inconsistency between Drawings and Specifications or within either Document not clarified by Addendum, the better quality or greater quantity of work shall be provided according to the Architect's interpretation.

ARTICLE 2 - OWNER

Sub-paragraph 2.1.2- delete in its entirety

ARTICLE 7 – CHANGES IN THE WORK

Sub-paragraph 7.3.4- delete in its entirety

ARTICLE 11 – INSURANCE AND BONDS

Sub-paragraph 11.3- delete in its entirety.

13 – Supplementary Conditions

100.0 CLAIMS FOR EXTRA COST

100.1 If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, they shall, within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the work, submit their protest thereto in writing to the Owner stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

100.2 Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, site location, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material or performing more work than would be reasonably estimated from the Drawings and map issued.

100.3 Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall at once be reported to the Owner and work shall not proceed except at the Contractor's risk, until written instructions have been received by them from the Owner.

100.4 If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or Time is justifiable, the procedure shall be as provided in Section 110 hereof.

101.0 TERMINATION, DELAYS, AND LIQUIDATED DAMAGES

101.1 Termination of Contract. If the Contractor refuses or fails to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Documents, the Owner by written notice to the Contractor, may terminate the Contractor's right to proceed with the work. Upon such termination, the Owner may take over the work and prosecute the same to completion of the work and the Contractor shall also be liable to the Owner in its completion of the work and the Contractor shall also be liable to the Owner for liquidated damages for any delay in the completion of the work as provided below. If the Contractor's right to proceed is so terminated, the Owner may take possession of and utilize in completing the work, such materials, tools, equipment, and plant as may be on the site of the work and necessary therefore.

101.2 Liquidated Damages for Delays. If the work be not completed within the time stipulated in Section 402 hereof, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Owner as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount as set forth in Section 403 hereof and the Contractor and his sureties shall be liable to the Owner for the amount thereof.

101.3 Excusable Delays. The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due.

101.3.1 To any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency.

101.3.2.1 To any acts of the Owner.

101.3.3 To causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the Public enemy, acts of another Contractor in the performance of some other contract with the Owner, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricane, tornadoes, cyclones and other extreme weather conditions; and

101.3.4 To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs 1, 2 and 3 of this paragraph 101.3.

Provided, however, that the Contractor promptly notify the Owner within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

102.0 SAMPLES, CERTIFICATES AND TESTS

102.1 The Contractor shall submit all material or equipment samples, certificates, affidavits, etc. as called for in the contract documents or required by the Owner promptly after award of the Contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Owner. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.

Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the property for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, shall give the name and brand of the products, its place or origin, the name and address of the producer and all specifications or other detailed information which will assist the Owner in passing upon the acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.

102.2 Approval of any materials shall be general only and shall not constitute a waiver of the Owner's right to demand full compliance with Contract requirements. After actual deliveries, the Owner will have such check tests made as they deem necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories, which fail to meet check tests have been incorporated in the work, the Owner will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.

102.3 Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

102.3.1 The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes except those samples taken on the project by the Owner;

102.3.2. The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;

102.3.3 The Contractor shall assure all cost of testing materials offered in substitution of those found deficient; and

102.3.4 The Owner will pay all other expenses.

103.0 PERMITS AND CODES

103.1 The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the Drawings and Technical Specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the Owner. Where the requirements of the Drawings and Technical Specifications fail to comply with such applicable ordinances or codes, the

Owner will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at the variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the Drawings and Technical Specifications), the Contractor shall remove such work without cost to the Owner, but a Change Order will be issued to cover only the excess cost the Contractor would have been entitled to receive if the Change had been made before the Contractor commenced work on the items involved.

103.2 The Contractor shall at their own expense, secure and pay to the appropriate department of the Local Government the fees or charges for all permits for street pavement, sidewalks, sheds, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.

103.3 The Contractor shall comply with applicable local laws and ordinances governing excavations and the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements embraced in this Contract.

104.0 CARE OF WORK

104.1 The Contractor shall be responsible for all damages to person or property that occur as a result of their fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Owner.

104.2 The Contractor shall provide, where necessary and as requested by the Owner, sufficient competent watchmen, both day and night, including Saturdays, Sundays, and holidays, from the time the work is commenced until final completion and acceptance.

104.3 In an emergency affecting and safety of life, limb or property, including adjoining property, the Contractor without special instructions or authorization from the Owner is authorized to act at their discretion to prevent such threatened loss or injury, and they shall so act. They shall likewise act if instructed to do so by the Owner. Any compensation claimed by the Contractor on account of such emergency work will be determined by the Owner as provided in Section 110 hereof.

104.4 The Contractor shall avoid damage as a result of their operations to existing sidewalks, streets, curbs, pavements, utilities, (except those which are to be replaced or removed), adjoining property, etc., and they shall at their own expense completely repair any damage thereto caused by their operations.

104.5 The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property Owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner may become liable in consequence of such injury of damage to adjoining and adjacent structures and their premises.

105.0 ACCIDENT PREVENTION

105.1 The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the Owner may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the “Manual of Accident prevention in Construction” published by the Associates General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

105.2 The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.

105.3 The Contractor shall indemnify and save harmless the Owner from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this Contract.

106.0 USE OF PREMISES

106.1 The Contractor shall confine their equipment, storage of materials and construction operations to the Contract limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be desired by the Owner and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

106.2 The Contractor shall comply with all reasonable instructions of the Owner and the ordinances and codes of the Local Government, regarding signs, advertising, traffic, fires, explosives, danger signals, barricades and fire prevention.

107.0 REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, the Contractor shall remove all temporary construction facilities, debris and unused materials provided for the work, and put

the work site of the work and public rights of way in a neat and clean condition. Trash burning on the site of the work will be subject to prior approval of the Owner and existing State and Local regulations.

108.0 INSPECTION

108.1 All materials and workmanship shall be subject to inspection, examination, or test by the Owner and the Engineer at any and all times during manufacture of construction and at any and all places where such manufacture or construction is carried on. The Owner shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material or specified quality without charge therefore. If the Contractor fails to proceed at once with correction of rejected workmanship or defective material, the Owner may by Contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.

108.2 The Contractor shall furnish promptly all materials reasonably necessary for any tests, which may be required. (See Section 102 hereof). All tests by the Owner will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the Technical Specifications.

108.3 The Contractor shall notify the Owner sufficiently in advance of backfilling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Owner, the Contractor shall uncover for inspection and recover such facilities all at their own expense, when so requested by the Owner.

Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or their subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15 percent of such costs to cover superintendence, general expenses and profit, shall be allowed by the Contractor and they shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

108.4 Inspection of materials and appurtenances to be incorporated in the Improvements embraced in this Contract may be made at the place of production, manufacture of shipment, whatever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the Technical Specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.

108.5 Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the Owner or its agents shall relieve the Contractor of their sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

109.0 REVIEW BY THE OWNER

The Owner, its authorized representatives and agents and the Representative for the Secretary (as defined under GENERAL CONDITIONS, PART II) shall, at all times, have access to, and be

permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the Owner through its authorized representatives or agents.

110.0 FINAL INSPECTION

110.1 When the Improvements embraced in this Contract are substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date, which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection, and bear the signed concurrence of the representative of the Owner having charge of inspection. If the Owner determines that the status of the Improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable. The inspection party will include representatives of each department of the Local Government having in charge Improvements of like character when such Improvements are later to be accepted by the Local Government.

111.0 DEDUCTION FOR UNCORRECTED WORK

If the Owner deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Owner and subject to settlement, in case of dispute, as herein provided.

112.0 INSURANCE

See Section 5.0 Insurance for information.

113.0 PATENTS

The Contractor shall hold and save the Owner its officers, and employees, harmless from liability of any nature of kind, including costs and expenses, for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Owner unless otherwise specifically stipulated in the Technical Specifications.

114.0 WARRANTY OF TITLE

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditioned sale, lease-purchase or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by them to the Owner free from any claims, liens, or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and materials contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal Contract is entered into for such materials.

115.0 GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

116.0 CONTRACTOR TO MAKE OWN EXAMINATION

Plans, calculations, estimates of quantities, and any statements made in the Instructions to Bidders or otherwise as to the conditions under which the work is to be performed are not guaranteed by the Owner to be correct or to be a complete representation of all existing data on conditions affecting work, and the Contractor agrees that they have made their examination and will make no claim for damages on account of any errors, inaccuracies or omissions that may be found.

The Contractor shall not take any advantage or have any claim for damages on account of any discrepancy, error or omission in any plans, calculations, estimates of quantities, or any statement made in the Instructions to Bidders or otherwise as to the conditions under which the work is to be performed, and they shall report such discrepancy, error or omission to the Owner in writing as soon as it comes to their knowledge, and before proceeding with work related to such discrepancy, error or omission. Any correction or modification of the plans or specifications may be made by the Owner when necessary, in their opinion, for the proper fulfillment of their purpose or for their proper interpretation.

200.0 OMITTED

300.0 OMITTED

402.0 TIME FOR COMPLETION

The work which the Contractor is required to perform under this Contract shall be commenced at the time stipulated by the Owner in the Notice to Proceed to the Contractor.

The rate of progress shall be such that the whole work shall be performed in accordance with the terms of this contract within the number of calendar days after the date of execution of the contract as herein stipulated, unless the expected as any part may be delayed under the provisions of this contract. The work shall be pursued in a continuous, diligent, and uniform manner throughout the project until completion.

It is agreed that the rates of progress herein required has been purposely made low enough to allow for the ordinary delays incident to construction work of this character. No extension of time will be made for ordinary delays, inclement weather and accidents, and the occurrence of such will not relieve the Contractor from the necessity of maintaining this rate of progress.

If delays are caused by acts of God, acts of Government or State, strikes extra work, floods or other contingencies clearly beyond the control or responsibility of the Contractor, the Contractor shall be entitled to so much additional time wherein to perform and complete this contract on his part as the Engineer shall certify in writing to be just.

403.0 LIQUIDATED DAMAGES

In case the Contractor fails satisfactorily to complete the entire work contemplated and provided for under this contract on or before the date of completion determined as described above, the Owner shall deduct from the payments due to the Contractor each month the sum of $250.00 for each calendar day (Sundays and legal holidays excluded) of delay, which sum is agreed upon not as a penalty, but as fixed and liquidated damages, said damages shall be deducted from any other moneys due or to become due the Contractor, and in case such damages exceed the amount of all moneys due or to become due, the Contractor then the Contractor or his Surety shall pay the balance to the Owner.

404.0 RESPONSIBILITIES OF CONTRACTOR

404.1 Except as otherwise specifically stated in the Contract Documents, and Technical Specifications, the Contract shall provide and pay for all materials, tools, labor, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fee or other expenses, and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to deliver all improvements embraced in this Contract complete in every respect within the specified time.

404.2 All materials, workmanship, methods and practices shall conform to the current Standards of the American Water Works Association, the Rhode Island Standard Specifications for Road and Bridge Construction, 2010 edition, including all corrections, all issued compilation of approved specifications, and addendum to date and all general requirements and special requirements contained in this project specifications. All work zone traffic control shall be in accordance with the manual on uniform traffic control devices, 2009 edition.

404.3 The Contractor shall be responsible for detailed layout, all stakeout and grade control, and shall employ a registered engineer or a registered land surveyor for this purpose as may be necessary. The Owner will provide engineering and inspection.

404.4 The Contractor shall verify dimensions shown on the plans and if any inconsistencies or discrepancies should be noted on the Drawings and the Specifications, he/she shall immediately notify the Owner. The Contractor will be held responsible for any errors resulting from his/her failure to exercise the aforementioned precaution.

404.5 As soon as the Contract is executed, the Contractor shall order any materials necessary and not supplied by the Owner, submit construction schedules as hereinafter specified, and otherwise anticipate the Notice to Proceed. When the Owner gives the Notice to Proceed, the work of construction shall begin at the time stipulated therein and shall be completed within the Time for Completion specified.

404.6 It is the Contractor's responsibility to make his/her own investigation and related assumptions and to *satisfy himself as to subsurface conditions and to insure that these are reflected in the prices bid*. No change or extra to the price will be accepted due to subsurface conditions or utility locations.

The determination of location and subsequent maintenance and protection of existing subsurface and above ground utilities are the sole responsibility of the Contractor; claims resulting from damage to such by the Contractor will be settled by the Contractor at his/her expense in accordance with the Contract.

404.7 The Contractor shall, at his/her own expense, take out all necessary permits from the county, municipal, or other public authorities; shall give all notices required by law or ordinances; and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the work covered by this Contract.

404.8 RESPONSIBILITY FOR MATERIAL FURNISHED BY OWNER: The Contractor's responsibility for material furnished by the Owner shall begin upon Contractor's acceptance at the point of delivery to him. All such material shall be examined, and material defective in manufacture and/or otherwise damaged shall be rejected by the Contractor at the time and place of delivery to him and replaced by the Owner. Material furnished by the Owner which is accepted by the Contractor, but is discovered prior to final acceptance of the work, (1) to be defective in manufacture, shall be replaced by the Owner; (2) to have been damaged before or after acceptance by the Contractor, shall be replaced by the Contractor. Once accepted by the Contractor at the point of delivery to him, all defective and/or damaged material discovered prior to final acceptance of the work shall be removed by the Contractor and he shall install, at his own expense, the material replaced, in its stead, by the Owner or Contractor. In such case, the Contractor shall furnish all labor, equipment, and material incidental to replacement and necessary for the completion of the work to the satisfaction of the Engineer.

404.9 RESPONSIBILITY FOR SAFE STORAGE: The Contractor shall be responsible for the safe storage of all material furnished to or by him and accepted by him until it has been incorporated in the completed project.

405.0 COMMUNICATIONS

405.1 All notices, demands, requests, instructions, approvals, proposals and claims must be in writing.

405.2 Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other offices as the Contractor may from time to time designate in writing to the Owner), or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for translation, in each case addressed to such office.

405.3 All papers; required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to the CITY OF PAWTUCKET, DEPARTMENT OF PUBLIC WORKS, 250 Armistice Boulevard, Pawtucket, Rhode Island, 02860; any notice to or demands upon the Owner shall be sufficiently given if so delivered, or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Owner at such address, or to such other representative of the Owner or to such other address, as the Owner may subsequently specify in writing to the Contractor for such purpose.

405.4 Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing when the same should have been received in due course of post, or in the case of telegram) at the time of actual receipt, as the case may be.

406.0 PARTIAL USE OF SITE IMPROVEMENTS

The Owner, at its elections may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected, and can be accepted as complying with the Technical Specifications and if in its opinion, each such section is reasonably safe, fit and convenient, for the use and accommodation for which it was intended, provided;

406.1 The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.

406.2 The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

406.3 The use of such sections shall in no way relieve the Contractor or his liability due to having used defective materials or to poor workmanship.

406.4 The period of guarantee shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

407.0 OMITTED

408.0 OMITTED

409.0 EMPLOY SUFFICIENT LABOR AND EQUIPMENT

If, in the opinion of the Engineer, the Contractor is not employing sufficient labor or equipment to complete this contract within the time specified the Owner may, after giving written notice, require said Contractor to employ such additional labor and equipment as may be necessary to enable said work to progress properly.

410.0 INTOXICATING LIQUORS

The Contractor shall not sell and shall neither permit or suffer the introduction or use of intoxicating liquors upon or about the work embraced in this contract.

411.0 ACCESS TO WORK

The Owner and the Engineer, and their agents and employees may, for purposes already specified and for any other purpose, enter upon the work and the premises used by the Contractor, and the Contractor shall provide safe and proper facilities therefor.

412.0 TIME OF BEGINNING WORK

412.1 Except as herein provided, the Contractor shall commence work at such points as the Engineer may approve, within ten (10) days after the execution of this contract by the Owner.

412.2 Such time of starting may be postponed by written agreement between the Owner and the Contractor because of expected delays in receipt of materials and equipment, or if the season be unsuitable for commencement of the work, or because of other contingency clearly beyond the control or responsibility of the Contractor. Unless stipulated otherwise in said agreement, the Contractor shall commence work at such points as the Engineer may direct or approve, within 10 days after the receipt of a written order from the Owner to start work.

413.0 PROVISIONS FOR TRAFFIC

413.1 The Contractor shall not close or obstruct any portion of a street without obtaining permits for from the proper municipal authorities. If any street or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the Owner.

413.2 Streets, roads, private ways, and walks shall be maintained passable by the Contractor at his expense, and the Contractor shall assume full responsibility for the adequacy and safety of provisions made. He shall conduct his construction operations such that interference with the flow of traffic will be held to a minimum.

413.3 The Contractor shall cooperate in every way possible with the municipal authorities maintaining a flow of traffic through the site. The Contractor shall notify the Pawtucket Fire Department when any street is to be closed regardless of the length of time or time of day.

413.4 All detours shall be signed and lighted as directed by the City of Pawtucket.

414.0 COORDINATION WITH OUTSIDE PARTIES

414.1 The Contractor shall conduct his work so as to interfere as little as possible with private business and public travel. He shall at his own expense, wherever necessary or required, maintain fences, furnish watchmen, maintain lights and take such other precautions as may be necessary to protect life and property.

414.2 The Contractor shall take all responsibility for the protection of the work and for preventing injuries to persons and damage to property and utilities on or about the work. He shall not be relieved of his responsibility by any right of the City to give permission or issue orders relating to any part of the work, or by any such permission given or orders issued, or by failure of the Engineer to give such permission or issue such orders. The Contractor shall bear all losses resulting to him or to the Owner on account of the amount of character of the work, or because nature of the land in or on which the work is done is different from what was estimated or expected, or on account of the weather, elements or other causes. The Contractor shall assume the defense of all claims or whatsoever character against the Contractor of the Owner, and indemnify, save harmless and insure the Owner, its officers or agents, against all claims arising out of injury or damage to persons, corporation, or property, whether said claims are for unavoidable damage or not, and from all claims relating to labor and materials furnished for the work. The Contractor shall not be required to indemnify the Owner against damage or claims occasioned by acts of the Owner, except otherwise provided in the articles relative to patents and responsibilities.

415.0 DELAY BY OWNER

The Owner may delay the beginning of the work or any part thereof, if the necessary lands or rights-of-way, or materials for such work shall not have been obtained. The Contractor shall have no claim for damages on account of such delay, but shall be entitled to so much additional time wherein to perform and complete this contract on his part as the City shall certify in writing to be just.

416.0 OMITTED

417.0 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the contract shall forthwith be physically amended to make such insertion.

418.0 SAFETY AND HEALTH REGULATIONS

These construction documents, and the joint and several phases of construction hereby contemplated are to be governed, at all times by applicable provisions of the Federal law(s), including but not limited to, the latest amendments of the following:

(1) Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596;

(2) Part 1910 - Occupation Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations;

(3) Part 1518 - Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.

In the event of any inconsistencies between the above laws and regulations and the provisions of these documents, the laws and regulations shall prevail.

419.0 NOTIFICATION OF EXCAVATION TO UTILITIES

The Contractor shall provide a minimum of two working days notice to "Dig Safe" (1-800-225-4977) and any other appropriate utility before the Contractor begins excavation.

14.0 – Not in Contract -Section Held Open

15.0 – Special Conditions for Build America, Buy America Act

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-7000

OFFICE OF COMMUNITY PLANNING
AND DEVELOPMENT

Special Attention of:
All CPD Division Directors
HUD Field Offices
HUD Regional Offices
All CDBG Grantees
All CoC Grantees
All HOME Participating Jurisdictions
All HTF Grantees
All ESG Grantees
All HOPWA Grantees

NOTICE: **CPD-25-01**

Issued: **January 13, 2025**
Supersedes: CPD-2023-12

Expires: This Notice remains in effect until amended, superseded, or rescinded.

Cross Reference:
Sections 70901-52 of Pub. L. No. 117-58

Subject: CPD Implementation Guidance for the Build America, Buy America Act's Buy America Preference.

Overview

This updated Community Planning and Development (CPD) Notice supersedes CPD Notice 2023-12 to provide clarified implementation guidance for the "Buy America Preference" (BAP) imposed by the Build America, Buy America Act (BABA) enacted under Division G, Title IX of the Infrastructure Investment and Jobs Act (IIJA, Pub. L. No. 117-58) signed into law on November 15, 2021. It describes how grantees can use covered CPD program funds for public infrastructure projects to bolster America's industrial base, protect national security, and support high-paying jobs.

The refreshing of this Notice is intended to provide greater clarity to grantees implementing BABA. Specifically, the Notice clarifies how the BAP applies to public infrastructure for housing projects. Projects with one- to four-units should be classified as private and not subject to BABA. Housing projects with five or more units should be considered as public infrastructure subject to BABA unless another BABA waiver or exemption applies. In addition, the Notice includes a reclassification of HOME-ARP to CPD programs not covered by the BAP, clarification on determining a project scope, BAP applicability to program income, additional recordkeeping considerations, guidance on using HUD's online project-specific waiver application website, and new resources to assist with compliance and determining when a project-specific waiver is appropriate.

This Notice also highlights issues that grantees will want to consider when preparing for

HUD's full implementation of the BAP in FY2025, as described in "Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance" (88 Fed. Reg. 17001, effective March 15, 2023 ("Phased Implementation Waiver"), which establishes BAP implementation points according to a schedule across HUD programs.

More in-depth technical assistance related to both BABA compliance and best practices is available on the HUD Exchange and hud.gov websites. HUD also encourages grantees to contact their assigned local field offices to discuss issues and concerns within the regulatory framework. This Notice uses the term "grantee" generically to also include HOME participating jurisdictions. The guidance provided in this Notice is subject to change if the Office of Management and Budget (OMB) updates guidance on the application of BABA for Federal financial assistance (FFA) programs for infrastructure.

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I. The Build America, Buy America Act (BABA)

The Build America, Buy America Act (BABA) was signed into law by President Biden on November 15, 2021, as part of the Infrastructure Investment and Jobs Act (IIJA) as Sections 70901-52 of Pub. L. No. 117-58. In addition to providing funding for roads, bridges, rails, and high-speed internet access, it created an incentive to increase domestic manufacturing across the country through the inclusion of BABA's "Buy America Preference" (BAP). In general, the BAP requires that all iron, steel, manufactured products, and construction materials used in public infrastructure projects funded with Federal financial assistance (FFA), as outlined in Section 70914(a) of BABA, must be produced in the United States. The intent of the BAP is to stimulate private-sector investments in domestic manufacturing, bolster critical supply chains, and support the creation of well-paying jobs for people in the United States. The preference is also intended to bolster American firms' ability to compete and lead globally for years to come by requiring entities that receive Federal infrastructure funds to use American materials and products.

The BAP applies to all spending on public infrastructure projects by Federal agencies, including HUD. In BABA, and for purposes of this Notice, the Federal infrastructure spending with a BAP is referred to as "Federal financial assistance" or "FFA." Under Section 70912(7), FFA for public infrastructure "projects" includes the "construction, alteration, maintenance, or repair of infrastructure in the United States". Under Section 70914(a), the use of American iron and steel, construction materials, and manufactured products generally applies to funding from CPD programs for public infrastructure projects. However, the BAP does not apply to "pre and post disaster or emergency response expenditures" under Section 70912(4)(B). A list of CPD disaster or emergency funding meeting these criteria can be found in Section IV.

Effective May 14, 2022, the BAP applies to infrastructure spending unless an agency issues a waiver in three limited situations: 1) when applying the domestic content procurement preference would be inconsistent with the public interest, 2) when types of iron, steel, manufactured products or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality, or 3) where the inclusion of those products and materials will increase the cost of the overall project by more than 25 percent. Before issuing a waiver, HUD, must make a detailed written explanation for the proposed determination to issue the waiver publicly available and provide a period of not less than 15 days for public comment on the proposed waiver. Additional details on waivers can be found in Sections VIII and IX of this Notice.

A. Federal Government-wide Guidance on BABA

As a part of the Federal government's support of domestic production and manufacturing through infrastructure investments, OMB and HUD have taken several steps to implement the BAP by providing guidance and issuing HUD general waivers.

On August 23, 2023, OMB issued final rules for 2 CFR Parts 184 and 200 and provided further guidance on implementing the statutory requirements and improving FFA management and transparency (88 Fed. Reg. 57750, effective October 23, 2023). These government-wide regulations apply to HUD programs and provide direction on implementing a BAP waiver process. The new and revised regulations also provide additional guidance on construction material standards, the cost

components of manufactured products, and their definitions.

On October 25, 2023, OMB issued guidance to all Federal agencies on how to implement BABA consistently across the government. The "Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure" (M-24-02) (OMB Guidance) directs Federal agencies, including HUD, on how to apply the BAP and provides an overview of the BAP waiver requirements. OMB may also issue additional or updated guidance in the future, and HUD will update its guidance as necessary.

B. HUD Actions and Guidance on BABA

BABA is a new and complex statute that became effective in 2022. As such, establishing governmentwide guidance on these new statutory requirements has been an iterative process. Since the passage of BABA, HUD has worked diligently to implement the BAP for all HUD programs. Before the law became effective on May 14, 2022, HUD established a Department-wide BABA leadership committee. On June 1, 2022, HUD issued a Request for Information (RFI) to collect public comments on potential BABA implications for HUD grantees (87 FR 33193). To ease the transition in complying with the BAP, HUD proposed and received several general applicability waivers for covered FFA, which includes CPD programs. These waivers and other BABA information are available on HUD's website at https://www.hud.gov/baba. Further details on these waivers and their application to CPD programs are provided in Section V of this Notice.

CPD has taken several actions to notify and communicate with stakeholders and grantees on BABA requirements and their impact on CPD programs. Since Fiscal Year (FY) 2022, all grant transmittal letters and notices of funding opportunities (NOFOs) have included a reference to the BAP under BABA. For the FY2023 and FY2024 funding allocations, all CPD grant agreements with covered FFA included a clause to require that the grantee must comply with BABA, as applicable, which will remain in place for future allocations. Throughout 2023 and 2024, CPD has held BABA information sessions for CPD grantees and operates a dedicated email box at CPDBABA@hud.gov to answer questions from individual grantees and stakeholders. In October 2023, CPD established a HUD Exchange page (hudexchange.info/programs/baba/) as a central resource for grantees. CPD has developed technical assistance products, including quick guides, webinars, and frequently asked questions (FAQs), that are available to CPD grantees on this site.

II. Definitions

CPD has aligned its definitions regarding policy interpretations of BABA with regulations at 2 CFR part 184 and Appendix 1 of OMB guidance M-24-02 as stated below.

1. Build America, Buy America Act is defined in 2 CFR § 184.3 and means division G, title IX, subtitle A, parts I–II, sections 70901 through 70927 of the Infrastructure Investment and Jobs Act (Pub. L. No. 117-58).

2. Buy America Preference is defined in 2 CFR § 184.3 and means the "domestic content procurement preference" set forth in section 70914 of BABA, which requires the head of each Federal agency to ensure that none of the funds made available for a Federal award for

an infrastructure project may be obligated unless all of the iron, steel, manufactured products, and construction materials incorporated into the project are produced in the United States.

3. Categorization of Articles. The term "categorization of articles" refers to the requirement that articles, materials, and supplies should only be classified into one of the following categories:
    i. Iron or steel products;
    ii. Manufactured products;
    iii. Construction materials; or
    iv. Section 70917(c) materials.

    Each article, material, or supply should be classified in only one of the categories listed above. In some cases, an article, material, or supply may not fall under any of the categories listed in this paragraph. The classification of an article, material, or supply as falling into one of the categories listed in this paragraph must be made based on its status at the time it is brought to the work site for incorporation into an infrastructure project. In general, the work site is the location of the infrastructure project at which the iron, steel, manufactured products, and construction materials will be incorporated.

4. Component is defined in 2 CFR § 184.3 and means an article, material, or supply, whether manufactured or unmanufactured, incorporated directly into: a manufactured product; or, where applicable, an iron or steel product.

5. Construction Materials is defined in 2 CFR § 184.3 and means articles, materials, or supplies that consist of only one of the items listed in paragraph (1) of this definition, except as provided in paragraph (2) of this definition. To the extent one of the items listed in paragraph (1) contains as inputs other items listed in paragraph (1), it is nonetheless a construction material.
    (1) The listed items are:
        i. Non-ferrous metals;
        ii. Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
        iii. Glass (including optic glass);
        iv. Fiber optic cable (including drop cable);
        v. Optical fiber;
        vi. Lumber;
        vii. Engineered wood, and
        viii. Drywall.

    (2) Minor additions of articles, materials, supplies or binding agents to a construction material do not change the categorization of the construction material.

6. Covered Materials includes the following when used in connection with an Infrastructure Project:
    (A) all iron and steel;

(B) all Manufactured Products; and
(C) all Construction Materials.

7. Covered CPD Programs. The term "covered CPD programs" means any Federal financial assistance administered by CPD that is used for public infrastructure projects, excepting expenditures related to pre and post disaster or emergency response.

8. Grantee**.** The term "grantee," as defined at 24 CFR 5.100, means the person or legal entity to which a grant is awarded and that is accountable for the use of the funds provided.

9. Federal Financial Assistance (FFA) has the meaning given to the term in 2 CFR 200.1 (or successor regulations) and includes all expenditures by a Federal agency to a Non-Federal Entity for an Infrastructure Project, except that it does not include:

   (A) expenditures for assistance authorized under section 402, 403, 404, 406, 408, or 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170a, 5170b, 5170c, 5172, 5174, or 5192) relating to a major disaster or emergency declared by the President under section 401 or 501, respectively, of such Act (42 U.S.C. 5170, 5191); or

   (B) pre and post disaster or emergency response expenditures.

10. Infrastructure as described in 2 CFR 184.4(c), encompasses public infrastructure projects in the United States, which includes, at a minimum: the structures, facilities, and equipment for roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property; and structures, facilities, and equipment that generate, transport, and distribute energy including electric vehicle (EV) charging. See also 2 CFR 184.4(d).

11. Infrastructure Project The term "infrastructure project" is defined in 2 CFR 184.3 and means any activity related to the construction, alteration, maintenance, or repair of public infrastructure in the United States regardless of whether infrastructure is the primary purpose of the project. See also 2 CFR 184.4(c) and (d).

12. Iron and Steel Products The term "iron and steel products" is defined in 2 CFR 184.3 and means articles, materials, or supplies that consists wholly or predominantly of iron or steel, or a combination of both.

13. Predominantly of iron or steel or a combination of both is defined in 2 CFR 184.3 and means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.

14. Made in America Office. The term "Made in America Office" or "MIAO" means the office at the Office of Management and Budget, established by section 70923 of BABA, that is charged with implementing the BAP and establishing the procedures to review waiver requests.

15. Manufactured Products is defined in 2 CFR 184.3 and means:

    (1) Articles, materials, or supplies that have been:
        (i) Processed into a specific form and shape; or
        (ii) Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

    (2) If an item is classified as an iron or steel product, a construction material, or a section 70917(c) material under 2 CFR 184.4(e) and the definitions set forth in this section, then it is not a manufactured product. However, an article, material, or supply classified as a manufactured product under 2 CFR 184.4(e) and paragraph (1) of this definition may include components that are construction materials, iron or steel products, or section 70917(c) materials.

16. Manufacturer is defined in 2 CFR 184.3 and means the entity that performs the final manufacturing process that produces a manufactured product.

17. Non-Federal Entity means a State, local government, Indian tribe, Institution of Higher Education (IHE), or nonprofit organization that carries out a Federal award as a recipient or subrecipient., as provided in 2 CFR 200.1.

18. Not Listed Construction Materials The term "not listed construction materials" refers to the category of construction materials that are subject to the BAP, but not included in HUD's specifically listed construction materials, as defined in the Phased Implementation Waiver. This includes:
    i. plastic and polymer-based products other than composite building materials or plastic and polymer-based pipe or tube;
    ii. glass (including optic glass); and
    iii. drywall.

19. Obligate means an action taken by HUD that creates a legal liability of the government for the payment of goods and services ordered or received or that administratively recognizes a legal duty on the part of the Agency that could mature into a legal liability by virtue of actions outside of HUD's control. The milestone in the federal assistance award process that establishes the obligation date varies for each program, but for many CPD programs the obligation date occurs upon HUD's execution of the grant agreement.

20. OMB Guidance . The term "OMB guidance" refers to 2 CFR Part 184, the "Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure" (M-24-02), issued October 25, 2023, by the Office of Management and Budget, and any subsequent guidance to rescind or replace M-24-02. This

guidance is applicable to the heads of all Federal agencies for the implementation of BABA's Buy America Preference.

21. Pre and Post Disaster or Emergency Response Expenditures. The term "pre and post disaster or emergency response expenditures" means Federal funding authorized under section 402, 403, 404, 406, 408, or 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) relating to a major disaster or emergency declared by the President under section 401 or 501, respectively. The BAP does not apply to pre- and post-disaster or emergency response expenditures authorized by statutes other than the Stafford Act and made in anticipation of or in response to an event that qualifies as an emergency or major disaster within the meaning of the Stafford Act.

22. Produced in the United States is defined in 2 CFR 184.3 and means:
    i. In the case of iron or steel products, all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
    ii. In the case of manufactured products:
        1. The product was manufactured in the United States; and
        2. The cost of components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for determining the minimum amount of domestic content of the manufactured product. See 2 CFR 184.2(a). The costs of components of a manufactured product are determined according to 2 CFR 184.5.
    iii. In the case of construction materials, all manufacturing processes for the construction material occurred in the United States. See 2 CFR 184.6 for more information on the meaning of "all manufacturing processes" for specific construction materials.

23. Section 70917(c) Materials. The term "section 70917(c) materials" is defined in 2 CFR 184.3 and means cement and cementitious materials; aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

    The Federal Register Notice implementing new BABA regulations at 2 CFR 184 (88 FR 57787) clarifies that all categorizations of Covered Materials should be made based on the status of the material when it arrives at the work site. Section 70917(c) materials that are used at the work site, such as wet concrete or hot asphalt, are not subject to the BAP. However, Section 70917(c) materials may be components of manufactured products if, for example, they are used to produce precast concrete products before being transported to the work site.

24. Specifically listed construction materials. The term "specifically listed construction materials" for HUD programs includes:

a. non-ferrous metals;
b. lumber;
c. composite building materials; and
d. plastic and polymer-based pipe and tube.

III. Applicability of the BAP to CPD Programs and Projects

The BAP applies to the purchase of iron, steel, manufactured products, and construction materials for Covered CPD Programs when funds are used for the construction, alteration, maintenance, or repair of public infrastructure, as defined by BABA. This list of Covered CPD Programs is subject to change if there are any changes to the eligible uses of funds or the establishment of new programs that fund public infrastructure projects and are covered by BABA. Covered CPD Programs currently include:

- Community Development Block Grant Formula Programs (CDBG)
- Section 108 Loan Guarantee
- HOME Investment Partnerships Program (HOME)
- Housing Trust Fund (HTF)
- Recovery Housing Program (RHP)
- Emergency Solutions Grants (ESG)
- Continuum of Care (CoC)
- Housing Opportunities for Persons With AIDS (HOPWA)
- Self-Help Homeownership Opportunity Program (SHOP)
- Special NOFA for unsheltered and rural homeless
- Veterans Housing Rehabilitation and Modification Program (VHRMP)
- Community Project Funding (CPF)/Economic Development Initiatives (EDI)
- Section 4 Capacity Building
- Rural Capacity Building
- Pathways to Removing Obstacles to Housing (PRO Housing)
- Preservation and Reinvestment Initiative for Community Enhancement (PRICE)
- Continuum of Care Builds Notice of Funding Opportunity (CoCBuilds NOFO)

BABA applies to any project that involves the construction, alteration, maintenance, or repair of public infrastructure, regardless of whether infrastructure is the primary purpose of the project. Since the term "infrastructure" includes the structures, facilities, and equipment for "buildings and real property", the BAP generally applies to Covered CPD Program funds provided for housing projects. OMB acknowledged at 2 CFR 184.4(d) that some projects may be "private" in nature and are not considered public infrastructure subject to BABA. An example OMB provided in M-24-02 is a project consisting solely of the purchase, construction, or improvement of a private single-family home for personal use.

Through this notice, CPD provides further clarification on when grantees should apply BABA's requirements to housing projects as described in M-24-02.

1. Housing projects with one to four units are considered "private," consistent with HUD's definition of single-family housing. Housing projects with one to four units, including

onsite utilities and related activities are therefore not considered public infrastructure and are not subject to the BAP.

2. Housing projects with five or more units are considered public infrastructure. Housing projects with five or more units are therefore subject to the BAP unless another BABA waiver or exemption applies.

Covered Materials incorporated into the public infrastructure project are subject to the BAP, regardless of the specific project costs for which Covered CPD Program funds are expended. To determine the scope of an individual public infrastructure project for BABA purposes, grantees should use the definition of a project as determined by the Covered CPD Program in question. For example, 24 CFR 92.2 defines a HOME project as "a site or sites together with any building (including a manufactured housing unit) or buildings located on the site(s) that are under common ownership, management, and financing and are to be assisted with HOME funds as a single undertaking under this part. The project includes all the activities associated with the site and building."[1]

Where no program-specific definition of a project exists, grantees should use the definition of a "project" at 24 CFR 58 to assist with determining project scope: "an activity or group of integrally related activities designed by the recipient to accomplish, in whole or in part, a specific objective." Grantees cannot split an infrastructure project to avoid application of the BAP to the project, such as by dividing procurements, subgrants, cooperative agreements, etc., into separate and smaller awards or contracts, particularly where the procurements, subgrants, cooperative agreements, etc., are integrally and proximately related to the whole.

IV. CPD Programs and Funding Not Covered by the BAP

The BAP does not apply to Federal funds for "pre and post disaster or emergency response." The following list of CPD funds are administered for disaster or emergency-related purposes and therefore the BAP does not apply to them.

- Community Development Block Grant – Disaster Recovery Funds (CDBG-DR)
- Community Development Block Grant – Mitigation (CDBG-MIT)
- Community Development Block Grant – National Disaster Resilience Competition (CDBG-NDR)
- Community Development Block Grant CARES Act (CDBG-CV)
- HOME Investment Partnerships American Rescue Plan Program (HOME-ARP)
- Housing Opportunities for Persons With AIDS CARES Act (HOPWA-CV)
- Emergency Solutions Grants CARES Act (ESG-CV)
- Rapid Unsheltered Survivor Housing (RUSH)

In addition to the funding sources listed above, the BAP does not apply to projects funded solely with program income generated through any Covered CPD Program. Program income is not considered FFA.

[1] See also 24 CFR 93.2 for HTF, 24 CFR 578.3 for CoC, etc.

BABA does not apply to projects that do not include any construction, alteration, maintenance, or repair of public infrastructure. Equipment, tools, and supplies that are brought to a construction site and removed upon completion of the project or furnishings used within the finished project that are not permanently affixed to the public infrastructure project are not covered by the BAP.

V. HUD's General Waivers Applicable to Covered CPD Programs

BABA requirements may be waived by HUD and OMB when applying the BAP would be inconsistent with the public interest, when Covered Materials are not reasonably available in sufficient quantities or quality, or if the inclusion of Covered Materials produced in the United States will increase the overall project by more than 25 percent. The term "general applicability waiver" refers to waivers that have broad applicability across multiple HUD programs. The general applicability waivers for HUD FFA that are currently in effect for all Covered CPD Programs as of publication of this Notice are listed below.

General public interest waivers may be applied to all or a portion of a project without prior approval from HUD when a project meets the conditions established by the waiver. Grantees should maintain documentation demonstrating that the project meets the conditions of each general waiver applied to the project. HUD is responsible for processing and reviewing all waivers, which may only apply prospectively to future expenditures incurred after the effective date of the final waiver. The table below is current as of the publication of this Notice. Details of all proposed and approved waivers can be found at HUD's website at https://www.hud.gov/baba.

General Waiver Type	Purpose	Effective Dates
Public Interest Phased Implementation	HUD issued a public interest waiver, *"Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance"* to allow for orderly implementation of the BAP across HUD programs. The Phased Implementation Waiver establishes a schedule for the phased implementation of the BAP across CPD programs and infrastructure materials.	The public interest waiver was issued in March 2023 and established a phased implementation schedule for the application of the BAP to HUD programs through FY2025. The BAP has been in effect since November 15, 2022, for the use of iron and steel for infrastructure projects funded with newly obligated FFA through the CDBG program.
Exigent Circumstances	HUD issued a public interest waiver for exigent circumstances, "*Public Interest Waiver of Build America, Buy America Provisions for Exigent Circumstances as Applied to Certain Recipients of HUD Federal Financial Assistance*". This waiver applies when there is an urgent need by a CPD grantee to immediately	The public interest waiver for exigent circumstances is effective from November 23, 2022, until November 23, 2027, or such shorter time as HUD may announce via Notice.

General Waiver Type	Purpose	Effective Dates
	complete an infrastructure project because of a threat to life, safety, or property of residents and the community.	
***De Minimis* and Small Grants**	HUD issued a public interest titled "*Public Interest De Minimis and Small Grants Waiver of Build America, Buy America Provisions as Applied to Certain Recipients of HUD Federal Financial Assistance*". This waives the BAP for all infrastructure projects whose total cost (from all funding sources) is equal to or less than the simplified acquisition threshold at 2 CFR 200.1, which is currently $250,000. This Notice also waives the application of the BAP for a *de minimis* portion of an infrastructure project, meaning a cumulative total of no more than five percent of the total cost of the iron, steel, manufactured products, and construction materials used in and incorporated into the infrastructure project, up to a maximum of $1 million.	The public interest *de minimis*, and small grants waiver is effective from November 23, 2022, until on November 23, 2027, or such shorter time as HUD may announce via Notice.
Tribal Recipients Waiver	HUD issued a public interest waiver, "*Extension of Public Interest, General Applicability Waiver of Build America, Buy America Provisions as Applied to Tribal Recipients of HUD Federal Financial Assistance*" for the BAP as it applies to Tribal recipients.	The waiver of the BAP as it applies to Tribal recipients was effective for FFA obligated by HUD from May 23, 2023, until September 30, 2024.
Pacific Island Territory Waiver	HUD issued a "*Public Interest, General Applicability Waiver of Build America, Buy America Provisions as Applied to Pacific Island Territory Recipients of HUD Federal Financial Assistance: Final Notice*" which waives the BAP for any FFA used for infrastructure projects in the Commonwealth of the Northern Mariana Islands, Guam, and American Samoa.	The waiver is effective from November 15, 2023, until February 15, 2025.

VI. Understanding HUD's Public Interest Phased Implementation General Waiver

Under Section 70914(a), the BAP was required to be in effect for all FFA for public infrastructure projects no later than 180 days after it was signed into law. Thus, starting May 14, 2022, all new awards of covered FFA for infrastructure projects obligated by HUD would have been required to comply with the BAP. Due to the short implementation period of 180 days, and to allow for the domestic industry and FFA recipients to have the time and notice necessary to implement BABA efficiently and effectively, HUD issued a Phased Implementation Waiver. This waiver enabled HUD to implement the BAP in an incremental process, resulting in full compliance with the BAP for all HUD obligations in FY 2025.

Covered CPD Programs began applying the BAP to public infrastructure projects beginning with CDBG funds obligated by HUD on and after November 15, 2022. The table below outlines the timeline for applicability of the BAP to each classification of Covered Materials incorporated into public infrastructure projects undertaken with Covered CPD Program funds. The columns identify categories of Covered Materials subject to the BAP and the rows identify covered HUD FFA, some of which are Covered CPD Programs and some of which are FFA from other HUD offices that may contribute funding to CPD-funded projects. Note that HUD's Phased Implementation Waiver divides the statutorily defined category of construction materials into two separate buckets for purposes of applying the BAP. See definitions of specifically listed and not listed construction materials in Section II.

To use the table, find the program(s) that funds the project under consideration, then identify which Covered Materials will be used in the project. The cell in the table where the applicable row and column intersect indicates the date on which the BAP will begin applying to each classification of Covered Materials used in the project. It is important to note that the date of obligation is typically the date on which HUD executed the legal instrument creating the relationship between HUD and the grantee for an award of FFA, commonly the date the grant agreement is signed by HUD. The date on which the grantee commits funds to a project or awards funds to a subrecipient does not impact applicability of the BAP.

For example, a grantee uses FY24 CDBG funding to build a new senior center and the HUD grant agreement was signed by the CPD Director on September 15, 2024. The grantee would use the phased implementation table to determine that:

- Since the funds were from FY24 appropriations and HUD executed the grant agreement after November 15, 2022, the BAP applies to all iron or steel materials and any specifically listed construction materials incorporated into the public infrastructure project; and
- Any not listed construction materials and manufactured products incorporated into the project are not subject to the BAP.
- However, if the grantee were to add funds from an FY25 CDBG grant in the future, then the BAP would apply to all Covered Materials used in the public infrastructure project.

A public infrastructure project may use funding from multiple Covered CPD Programs that impose the BAP to Covered Materials at different points in time. In that case, the procurement of Covered Materials for the project must comply with the program that applies the BAP most broadly.

For example, a public infrastructure project uses FY23 CDBG funding and FY24 HOME funding in the construction of a new multifamily housing development with 12 total units. HUD executed the CDBG grant agreement on September 15, 2023, and HUD executed the HOME grant agreement on September 12, 2024. The phased implementation table is used to determine that:

- HUD executed the CDBG grant agreement after November 15, 2022, but prior to FY24 appropriations. The BAP would apply to iron and steel products incorporated in the public infrastructure project.
- HUD executed the HOME grant agreement after August 23, 2024. The BAP would apply to iron and steel products, construction materials, and manufactured products (all Covered Materials) incorporated into the public infrastructure project.
- In this case, the HOME requirements are broader. Therefore, the procurement of all iron and steel products, construction materials, and manufactured products incorporated in the public infrastructure project must comply with the BAP.

Grantees who are considering adding Covered CPD Program funds for construction, maintenance, alteration, or repair of an infrastructure project that was not previously subject to BABA should contact their local CPD Field Office for technical assistance.

BAP will apply to…	Iron and Steel	Construction Materials – Specifically Listed	Construction Materials – Not Listed	Manufactured Products
CDBG Formula Grants	All funds obligated on or after November 15, 2022	As of the date HUD obligates new FFA from Fiscal Year 2024 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations
Choice Neighborhood, Lead Hazard Reduction, and Healthy Homes Production Grants	New FFA obligated by HUD on or after February 22, 2023	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024
Recovery Housing Program (RHP) Grants	New FFA obligated by HUD on or after August 23, 2023	As of the date HUD obligates new FFA from Fiscal Year 2024 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations	As of the date HUD obligates new FFA from Fiscal Year 2025 appropriations
All other HUD FFA except HOME, Housing Trust Fund, and Public Housing FFA used for maintenance projects	New FFA obligated by HUD on or after February 22, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024
HOME, Housing Trust Fund, and Public Housing FFA used for maintenance projects	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024	New FFA obligated by HUD on or after August 23, 2024

VII. Applying the BAP and HUD General Waivers to Covered CPD Programs

Grantees should assess each project undertaken with Covered CPD Program funds to determine which Covered Materials incorporated into the project are subject to the BAP based on the effective dates in the Phased Implementation Waiver described above. This section describes the process grantees should follow to determine whether a project is subject to the BAP and if the project may be exempted in whole or in part by one of HUD's general waivers.

As a part of its record-keeping, a CPD grantee should document its process to analyze if the

BAP applies to a public infrastructure project using the approach described below. An optional "Buy America Preference Applicability Checklist" is included in Appendix 2 of this Notice. Grantees may choose to use or adapt the tool to serve as a record of the analysis completed for each project.

Step 1: Type of project/activity

Determine if the project is a public infrastructure project as defined in Sections II and III of this Notice. If the project is a public infrastructure project, the analysis continues to step 2.

Step 2: Funding sources

Identify the source(s) of the project funding, including Covered CPD Programs, other HUD funds, or other Federal agency funding. If the project includes funding from a Covered CPD Program listed in this Notice, the analysis continues to Step 3.

Step 3: Covered Materials

Identify and classify all the materials that will be incorporated into the project. Each material should be classified into only one category: iron and steel, specifically listed construction materials, not listed construction materials, or manufactured products. It is important to classify all Covered Materials used in the project to accurately determine BAP applicability because the BAP may only apply to some Covered Materials used in the project under the Phased Implementation Waiver.

The classification must be made based on the material's status at the time it is brought to the location for incorporation into a public infrastructure project. If the project contains any Covered Materials, continue to Step 4.

Step 4: Date of obligation

Use the phased implementation table provided in Section VI of this Notice to determine when the BAP applies to each classification of Covered Materials, based on the obligation date for the Covered CPD Program funds. If the project uses any Covered CPD Program funds subject to the BAP based on the HUD obligation date, identify which Covered Materials must be produced in the United States. The obligation date is generally the date that HUD makes a legal commitment for Covered CPD Program funds to the grantee. The date on which a grantee commits funds to a specific project does not impact the applicability of the BAP.

The obligation date is typically when HUD executes the grant agreement, but this may vary by program. For example, the obligation date for CDBG funds can be found in the CDBG grant agreement. Refer to Appendix 1 or contact your local CPD Field Office for assistance regarding the obligation date. If the project needs a waiver of the BAP for any Covered Materials, continue the analysis to Step 5.

Step 5: General waivers

Analyze each available HUD general waiver, based upon the specific requirements of that waiver. Public infrastructure projects that meet the conditions of a general waiver may be exempt in whole or in part from the BAP. Most HUD general waivers provide exemptions for an entire public infrastructure project that meets the waiver's conditions. Grantees that apply a general waiver to an entire project should maintain documentation in their project records.

The *De Minimis and Small Grants Waiver* is uniquely useful for public infrastructure projects that are not covered in their entirety by the other general waivers. The *De Minimis and Small Grants Waiver* offers flexibility to incorporate Covered Materials of foreign or unknown origin up to 5% of the total cost of Covered Materials used in the project or $1 million, whichever is less. The total cost of Covered Materials includes all classifications of materials, regardless of whether they are subject to the BAP based on HUD's Phased Implementation Waiver. This waiver advances compliance with the BAP by reducing the administrative burden to grantees where the costs of compliance with the BAP could distract from the focus on higher value BAP-compliant items. When using the *De Minimis* waiver, the grantee should document which Covered Materials the waiver was applied to in the project records.

For example, if the total cost of Covered Materials in a project is $100,000, then the grantee should calculate 5% of that total, which equals $5,000. The grantee may use the *De Minimis* waiver to use Covered Materials from foreign or unknown sources up to $5,000. This flexibility can be used towards a specific high-value item or multiple items with lesser values, up to a total of $5,000.

Grantees should calculate this limit for all public infrastructure projects and maximize this flexibility before seeking project-/product-specific waivers. For projects where general waivers do not provide relief for Covered Materials that cannot be procured from domestic sources, a project-/product-specific waiver may be appropriate. Continue the analysis in Step 6.

Step 6: Project-/Product-Specific Waivers

If the BAP applies to a project and all general waiver flexibilities have been utilized, but there are remaining Covered Materials that can only be sourced from foreign or unknown sources, then a grantee may apply for a project-/product-specific waiver. Prior to submitting a project-/product-specific waiver, the grantee must conduct market research to demonstrate its efforts to procure domestic products. One optional resource for conducting market research is the National Institute of Standards and Technology Manufacturing Extension Partnership (NIST MEP) center in the grantee's state. Grantees are encouraged to collaborate with relevant members of the project team to identify Covered Materials that cannot be obtained from domestic sources as early as possible in the project life cycle. NIST MEP's free supplier scouting resources can attempt to identify a domestic manufacturer that can supply the necessary materials or conduct the necessary market research to support the need for a project-/product-specific waiver.

As a part of its record-keeping, a grantee should document its process to analyze how the

BAP applies to a public infrastructure project using the approach described in this section and in Appendix 2. Grantees may also consult their local CPD Field Office for assistance in confirming the analysis completed for a specific project before applying for a project-/product-specific waiver.

VIII. Federal Government-wide Guidance on Project-/Product-Specific Waivers

Once a grantee has completed the analysis described in Section VII and determined that a project-/product-specific waiver is required, the grantee should consider which type of project/product-specific waiver is appropriate, as described below.

The three types of project-/product-specific waivers for which a grantee may apply are described below.

1. A **nonavailability waiver** may be requested if the types of iron, steel, manufactured products, or construction materials required for the project are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality

2. An **unreasonable cost waiver** may be requested when the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.

3. A **public interest waiver** may be requested if the use of American made products would be inconsistent with the public interest. Grantees should explain how waiving the BABA requirement for this project or covered material will serve the public interest and demonstrate definite impacts on the community if specific items, products, or materials are not utilized in an infrastructure project to support this waiver type.

A. Waivers for Infrastructure Projects Funded by Multiple Federal Agencies

If a waiver is required for a public infrastructure project funded by multiple Federal agencies, the Federal agency contributing the greatest amount of Federal funds for the project may be considered the Cognizant Agency for Made in America ("Cognizant Agency") and may take responsibility for coordinating with the other Federal awarding agencies. Each Federal agency waiving the BAP must make its own waiver determination. A Cognizant Agency cannot independently issue a waiver that applies to other agencies. Grantees that fund public infrastructure projects with other Federal agencies should contact the local CPD office as early as possible to coordinate review with other Federal agencies in the event a project-/product-specific waiver is needed.

OMB guidance outlined the waiver review process for agencies to follow before issuing a waiver. Based on this guidance, HUD has developed a Department-wide project-/product-specific waiver submission process, described in Section IX.

IX. Applying for a HUD Specific Waiver

This section describes the process a grantee should follow to request a project-/product-specific waiver. Only the direct HUD recipient should submit a waiver request. Subrecipients and/or subcontractors may not submit a waiver request. The direct recipient should work with project partners to obtain necessary information. Project-/product-specific waivers cannot be approved retroactively for items that have already been purchased or incorporated into a project, so grantees should determine if a project-/product-specific waiver is needed as early as possible in the planning process.

1. Complete the BAP analysis described in Section VII of this Notice to confirm that the project is subject to the BAP and that the grantee has maximized the flexibility provided by HUD general waivers. Grantees may use the optional recordkeeping tool in Appendix 2 and contact the local CPD Field Office if technical assistance is needed.
    a) This step should always include calculating the *De Minimis* limit allowed by HUD's *De Minimis* waiver and applying that flexibility to the products used in the project that cannot be procured from domestic manufacturers, as described in Section VII, Step 5.
2. Complete the necessary market research to support the need for a waiver. Market research may be completed by the grantee or the subrecipient/contractor who has been awarded funds and is purchasing the materials that will be incorporated into the infrastructure project. Acceptable market research strategies may include one or more of the following:
    b) Document the report showing results of supplier scouting services provided by the NIST MEP, or similar supplier scouting service. For more information about the supplier scouting process, contact the local MEP center.
    c) Document that the purchaser has made a good faith effort to contact a minimum of three (3) manufacturers or suppliers to determine if a BABA-compliant material is available in sufficient quantity and satisfactory quality. Documentation may include PDF files or screenshots of Internet searches or email communications, or documentation of phone conversations that notes the date and time of the call, the contact person with whom the purchaser spoke, and a summary of the information received.
3. Collect the required information to complete a waiver application using HUD's BABA Waiver Submission Site (https://babawaiver.hud.gov/s/). Access the PDF version of the application form to see questions ahead of time to assist with preparation. Once started, the application cannot be saved, so make sure all information has been collected in advance.
4. Submit a BABA waiver application through the BABA Waiver Submission Site. For help with completing the application, access the Grantee User Manual or view the BABA Waiver System Training video. For additional technical assistance navigating the waiver system, please email BuildAmericaBuyAmerica@hud.gov.
5. HUD may contact the grantee for additional information as part of a review of the waiver application to validate the need for a waiver.

6. If an application is approved, HUD will post the proposed waiver in the Federal Register for a minimum 15-day public comment period and submit the request to the Made In America Office (MIAO). The MIAO will then review the proposed waiver and public comments for final approval, and communicate a final decision to HUD, which will communicate it to the grantee.

X. Documentation of Compliance with the BAP

This section describes documentation that grantees should maintain to demonstrate compliance with the BAP for Covered Materials, including required terms and conditions of subawards. Project records should describe the public infrastructure project, identify the Covered Materials subject to the BAP, and include documentation that all iron and steel, manufactured products, and construction materials were produced in the United States or evidence of how a waiver was applicable.

Grantees are encouraged to coordinate with relevant members of the public infrastructure project team to ensure that the Covered Materials delivered to the project site are accompanied by documentation that demonstrates compliance with the BAP. Early and frequent coordination, such as pre-bid meetings to identify any Covered Materials that may be a challenge to source domestically, are recommended.

Grantees must maintain documentation of compliance with the BAP in hard copy or electronic formats, or in grant management software and must make it available to HUD upon request for monitoring purposes. Records should be consistent with existing records retention requirements for each of the Covered CPD programs. If there are no CPD program-specific records requirements, the CPD grantee may follow "retention requirements for records," under 2 CFR § 200.334 as applicable to Federal grants. The compliance documentation must support the following:

- Documentation of the determination of BAP applicability to the Covered Materials used in the public infrastructure project. Even if the project is determined to be exempt, documentation of that determination should be retained in the grant files to support the determination. See Section VII and the optional BAP Applicability Checklist in Appendix 2.
- If a project is subject to the BAP, documentation that all Covered Materials subject to the BAP were procured from BABA-compliant sources, as determined by HUD's Phased Implementation Waiver.
- If a general waiver was applied to the project, documentation that supports that the project meets the conditions of the waiver.
- If a project-/product-specific waiver was obtained for the project, a copy of the approved waiver and market research supporting the need for the waiver.

CPD grantees are required to identify whether an activity is an infrastructure project, as defined by BABA, in the Integrated Disbursement and Information System (IDIS) or the Disaster Recovery Grant Reporting System (DRGR), depending on the covered CPD program. Grantees will be prompted to answer a question regarding BAP applicability when creating a new activity or adding new funds to an existing activity. Grantees should answer the question based on the analysis in Section VII.

If the project is subject to the BAP requirements, the following are examples of information and documentation that the grantee may retain to demonstrate compliance. This is not an exhaustive or mandatory list and simply provides examples of documentation that can be maintained to support the conditions outlined above.

A. Project budget specifying the total project cost and the cost of Covered Materials.

B. Procurement list(s) of Covered Materials purchased for the public infrastructure project, either by the grantee, subrecipient, or contractor. This list(s) should reflect, for example:

    a. Type of covered material, (iron, steel, manufactured product, or construction material);
    b. Product or Material;
    c. FFA Source(s);
    d. FFA Obligation Date(s);
    e. Costs per unit;
    f. Total cost of product purchase or contract;
    g. Manufacturer or Vendor;
    h. Actual purchaser (grantee, sub-recipient, contractor);
    i. Special Quality Standards, if applicable; and
    j. U.S. Made verification, if available (Made in the USA label, product specifications, vendor or contractor certification, etc.).

C. Documentation supporting the Covered Materials incorporated into the public infrastructure were made in the United States, for example:

    a. A copy of the label indicating the product was made in the United States;
    b. A copy of the product description or technical specifications that provides sufficient detail to conclude that the Covered Materials comply with BABA;
    c. A certificate or other documentation from the manufacturer demonstrating that the Covered Materials comply with BABA;
    d. A signed certification from the contractor of a project certifying compliance with BABA. (See Appendix 3 for an example.);
    e. A signed certification from the manufacturer of the Covered Materials certifying compliance with BABA.

D. Results of market research and product sourcing to include, for example, the following:

    a. Results of a supplier scouting search conducted by NIST MEP or another supplier scouting service;
    b. Copies of web searches used (e.g., PDF/JPEG copies of web pages showing search terms and results including sources considered, eliminated, and chosen for further research);
    c. Copies of email, fax, or mail correspondence with Covered Materials manufacturers or suppliers; and

d. Records of phone communications with Covered Materials manufacturers or suppliers, including:
    i. Dates and times of phone calls,
    ii. Phone numbers used,
    iii. Whether the phone communication was successful in making it possible to reach a staff person manufacturer or supplier able to respond to questions about BABA compliance, or whether the attempt at communication was 14 unsuccessful (e.g., left a message, phone line was busy, or phone line was disconnected),
    iv. If the phone communication resulted in reaching someone, the name of the person contacted,
    v. Notes describing the substance of the conversation (e.g., manufactured product is assembled in U.S., but the manufacturer is uncertain whether 55% of the value of the materials/components are sourced in the United States).

XI. Subrecipient Compliance with BABA Requirements

The terms and conditions of Federal awards attach to the FFA and flow down to subrecipients at all tiers. This means that all subgrantees, contractors, developers, etc., who receive Covered CPD Program funds through a CPD grantee must comply with BABA requirements. Language notifying subrecipients that the procurement of materials for public infrastructure projects must comply with the BAP must be included in all subawards, contracts, purchase orders, requests for proposals, and all other relevant procurement and bid documents. Sample language that grantees may use for this purpose is included below.

> "Pursuant to the Build America, Buy America Act (BABA), enacted as part of the Infrastructure Investment and Jobs Act (IIJA). Pub. L. 117-58, 41 U.S.C. § 8301 note, the Federal Financial Assistance used to fund this infrastructure project is required to apply a domestic content procurement preference (the "Buy America Preference" or "BAP") for all construction, alteration, maintenance, or repair of infrastructure, including buildings and real property, unless application of the BAP has been waived by HUD. Additional details on fulfilling the BABA requirements can be found at https://www.hud.gov/baba.

XII. Contact Information

Grantees that have questions on this Notice should contact their assigned CPD Field Office Representative or request technical assistance from CPD staff at CPDBABA@hud.gov.

Appendix 1 - Frequently Asked Questions

This Notice includes CPD-specific frequently asked questions (FAQs). For additional FAQs, please view the BABA HUDExchange site, hudexchange.info/programs/baba.

1. **What projects or activities does the BAP apply to?**

   The BAP applies to the Covered Materials used in construction, alteration, maintenance, or repair of public infrastructure projects funded by Covered CPD Programs. The term "infrastructure" includes the structures, facilities, and equipment for projects traditionally considered infrastructure, and buildings and real property. For CPD programs, this may include, but is not limited to, certain funding for:

   - road and sidewalk improvement projects;
   - water, sewer, and other utility projects;
   - broadband infrastructure;
   - affordable housing construction and rehabilitation of buildings with five or more units;
   - community facility construction and rehabilitation;
   - homeless shelter construction and rehabilitation; and
   - other activities that are defined as public infrastructure according to BABA.

2. **What projects or activities are not subject to the BAP?**

   The BAP does not apply to projects undertaken with Covered CPD Program funds that do not involve any construction, alteration, maintenance, or repair of public infrastructure. Examples of CPD-funded projects to which the BAP does not apply include planning, capacity building, program administration, public services, training, counseling, short-term rental assistance, land acquisition and demolition projects where there are no articles, materials or supplies that are consumed in, incorporated into, or affixed to infrastructure. The BAP does not apply to affordable housing development projects with one to four units.

3. **How can I find products that are Made in the USA?**

   The Federal Trade Commission requires that products advertised or labeled as "Made in the USA" are generally assembled with parts and materials made of U.S. origin. Some manufacturers provide certification letters available on their website or upon request. HUD encourages grantees to coordinate with their local NIST Manufacturing Extension Partnership (MEP) center or similar supplier scouting service to find potential domestic manufacturers of items that cannot readily be sourced domestically.

4. **If a project is already underway with funds not subject to the BAP and new funding is added that is subject to the BAP, does the entire project need to comply with the BAP?**

   Yes, if any funds subject to the BAP are included in a project, the entire project must comply with the BAP for Covered Materials based on HUD's and any other applicable

general waivers, regardless of when the project was originally funded. Grantees who are considering adding Covered CPD Program funds for construction, maintenance, alteration or repair of an infrastructure project that was not previously subject to BABA requirements, should contact the local CPD Field Office for technical assistance.

5. How do I find the obligation date of my grant?

The obligation date is, in most cases, the date the grant agreement was signed by the CPD Director. You can locate this date by looking at the original grant agreement or navigating to IDIS or DRGR. For grants managed in IDIS, navigate to the View Grant screen and locate the date in the Obligation Date field. For grants managed in DRGR, navigate to the View Grant screen and locate the Contract Effective Date.

Appendix 2 - Optional Buy America Preference Applicability Checklist

This checklist is an optional tool that may be used or adapted to assist with determining if the Buy America Preference (BAP) applies to a public infrastructure project funded by a covered CPD program. This checklist follows the analysis steps as described in Section VII of Notice CPD-25-01 and may be retained for recordkeeping purposes.

Project Information

Grantee	
Grant Number	
Activity Name	
Activity Number (IDIS/DRGR)	

Step 1. Determine if the project is a public infrastructure project as defined in Sections II and III of Notice CPD-25-01.

☐Yes	Continue to Step 2.
☐No	The BAP does not apply. The BAP only applies to public infrastructure projects. Stop here.

Step 2. Is the project funded using a Covered CPD Program?

Check the box below for each CPD program funding this project.

Group A: Covered CPD Programs

☐	CDBG	☐	SHOP
☐	Section 108	☐	VHRMP
☐	HOME	☐	CPF/EDI
☐	HTF	☐	Section 4
☐	RHP	☐	Rural Capacity Building
☐	ESG	☐	PRO Housing
☐	CoC	☐	PRICE
☐	HOPWA	☐	FY23 PSH Funds

Group B: CPD Programs Not Covered by the BAP

☐	CDBG-DR	☐	CDBG-CV
☐	CDBG-MIT	☐	HOPWA-CV
☐	CDBG-NDR	☐	ESG-CV
☐	HOME-ARP		

If you selected **any** Group A programs (even if Group B programs are also selected), answer yes. If you selected **only** Group B programs, answer no.

☐Yes	Continue to Step 3.
☐No	The BAP does not apply to this project because it is not funded by a covered CPD program. Stop here.

Step 3. Will the project use Covered Materials?

Each material should be classified into only one category: iron and steel, specifically listed construction materials, not listed construction materials, or manufactured products. This classification is necessary to apply HUD's Phased Implementation Waiver.

Check the box below for each type of covered material incorporated into this infrastructure project.

☐	Iron or steel
☐	Specifically Listed Construction materials
☐	Not Listed Construction materials
☐	Manufactured products

If you checked any boxes above, answer yes.

☐Yes	Continue to Step 4.
☐No	The BAP does not apply to this project because it will not incorporate any Covered Materials. Stop here.

Analysis continues on next page.

Step 4. Based on the obligation date of the covered CPD program funds, does the BAP apply to the funding source and Covered Materials that will be used in the project?

Use the phased implementation table to determine whether the BAP applies based on the obligation date for the covered CPD program funds and classification of materials. The BAP may only apply to some Covered Materials used in the project.

The obligation date is generally the date that HUD executed the grant agreement for covered CPD program funds to the grantee. This date may be found in the grant agreement. The obligation date is not the date when the grantee commits funds to a project under a subrecipient agreement.

BAP will apply to…	**Iron and Steel**	**Specifically Listed Construction Materials**	**Not Listed Construction Materials**	**Manufactured Products**
CDBG	CDBG funds obligated on or after 11/15/22	Projects using FY24 CDBG funds	Projects using FY25 CDBG funds	Projects using FY25 funds.
RHP	RHP funds obligated on or after 8/23/23	RHP funds obligated on or after 8/23/24	RHP funds obligated on or after 8/23/24	RHP funds obligated on or after 8/23/24
All other CPD programs except HOME and HTF	Funds obligated on or after 2/22/24	Funds obligated on or after 8/23/24	Funds obligated on or after 8/23/24	Funds obligated on or after 8/23/24
HOME and HTF	HOME or HTF funds obligated on or after 8/23/24	HOME or HTF funds obligated on or after 8/23/24	HOME or HTF funds obligated on or after 8/23/24	HOME or HTF funds obligated on or after 8/23/24

☐ Yes	Indicate here which Covered Materials the BAP applies to and continue to Step 5: ☐ Iron and steel ☐ Specifically listed construction materials ☐ Not listed construction materials ☐ Manufactured products
☐ No	The BAP does not apply to this project because the funds were obligated before the effective date for the program/materials used in the project. Stop here.

Step 5. HUD has issued several general waivers. Check the box next to any conditions that apply to the project.

Public infrastructure projects that meet the conditions of a general waiver may be exempt in whole or in part from the BAP.

☐	The total cost of the project from all sources (Federal and non-Federal) is $250,000 or less. If checked, the Small Grants Waiver applies, and the project is exempt from the BAP.
☐	There is an urgent need to immediately complete the project because of a threat to life, safety, or property. If checked, the Exigent Circumstances Waiver applies, and the project is exempt from the BAP.
☐	The project is in Guam, American Samoa, or the Northern Mariana Islands. If checked, the Pacific Island Territories Waiver applies, and the project is exempt from the BAP.
☐	The project is being funded by a Tribal recipient. If checked, the Tribal Recipients Waiver applies, and the project is exempt from the BAP.

If you checked any of the boxes above, answer yes below.

☐ Yes	The HUD general waiver selected above is being applied to this project, so the BAP does not apply to the entire project. Attach documentation of the conditions of the waiver and then stop here.
☐ No	Proceed to Step 5a.

Step 5a. Calculate the *De Minimis* limit for the project:

The total cost of all Covered Materials includes all iron and steel, construction materials, and manufactured products used in the project, regardless of whether the BAP currently applies under the Phased Implementation Waiver.

Enter the total cost of all Covered Materials:	
Multiply that amount by 0.05 (5%):	
Enter the lower of the number calculated in the row above or $1,000,000:	

The amount in the third row above is the *De Minimis* limit for this project. The BAP can be waived for Covered Materials from foreign or unknown sources at a cost not to exceed the *De Minimis* limit of 5% of the total cost of materials or $1,000,000 (whichever is less). The BAP

will still apply to other Covered Materials used in the project. **Attach a list of Covered Materials and their associated costs to which the *De Minimis* limit has been applied.**

Step 6. Is there a need for a project-/product-specific waiver?

If the BAP applies to a project and all general waiver flexibilities have been utilized, but there are remaining Covered Materials that can only be sourced from foreign or unknown sources, then a grantee may apply for a project-/product-specific waiver.

☐ Yes	Refer to guidance in Section VII Step 6 of Notice CPD 25-01.
☐ No	Stop here and retain this analysis in project records.

_____ _____

Completed by Date Completed

Appendix 3 - Optional Buy America Preference Certification

Project Information

Grantee	
Grant Number	
Activity Name	
Activity Number (IDIS/DRGR)	

This *"Optional Buy America Preference Certification"* is used to certify that, as required by the Build America, Buy America (BABA) Act, all of the iron, steel, manufactured products, and construction materials incorporated into a public infrastructure project are produced in the United States, unless exempted by a HUD general waiver or a project-/product-specific waiver approved by HUD and the Made in America Office (MIAO) at the Office of Management and Budget (OMB).

For Covered Materials not otherwise exempted from the Buy America Preference (BAP), the undersigned certifies the following:

- All iron and steel used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- All manufactured products used in the project are produced in the United States. This means the manufactured product was manufactured in the United States, and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for determining the minimum amount of domestic content of the manufactured product; and
- All construction materials used in the project are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

Attach a list of all Covered Materials procured by the signatory and used in the project.

I/We, the undersigned, certify under penalty of perjury that the information provided above is true and correct. WARNING: Anyone who knowingly submits a false claim or makes a false statement is subject to criminal and/or civil penalties, including confinement for up to 5 years, fines, and civil and administrative penalties. (18 U.S.C. §§ 287, 1001, 1010, 1012, 1014; 31 U.S.C. §§ 3729, 3802).

Signature	Title/Organization	Date

Appendix A

ANTI-KICKBACK ACKNOWLEDGMENT

ALL BIDDERS/OFFERORS MUST ATTEST TO THE FOLLOWING:

The vendor acknowledges, under the pains and penalties of perjury, that he/she has not been offered, paid, or solicited for any contribution or compensation, nor has he/she been granted a gift, gratuity, or other consideration, either directly or indirectly by any officer, employee or member of the governing body of the City of Pawtucket who exercises any functions or responsibilities in connection with either the award or execution of the project to which this contract pertains.

Further, the vendor acknowledges, under the pains and penalties of perjury, that he/she has not offered, paid, or solicited by way of any contribution or compensation, nor has he/she granted a gift, gratuity or other consideration either directly or indirectly to any officer, employee, or member of the governing body of the City of Pawtucket who exercises any functions or responsibilities in connection with either the award or execution of the project to which this project or contract pertains.

_____ _____

SIGNATURE OF OFFEROR DATE

_____

TITLE

_____

COMPANY

Title of RFP:

_____

(submit at time of bid submission)

Appendix B

CITY OF PAWTUCKET
GENERAL TERMS AND CONDITIONS OF PURCHASE

CITY OF PAWTUCKET
GENERAL TERMS AND CONDITIONS OF PURCHASE

Preamble

The City of Pawtucket's Purchasing Office may, from time to time, make amendments to the General Terms and Conditions when the City of Pawtucket's Purchasing Agent determines that such amendments are in the best interest of the City of Pawtucket. Amendments shall be made available for public inspection at the Purchasing Office located in Pawtucket City Hall but shall not require formal public notice and hearing. Copies of the Terms and Conditions shall be provided to any individual or firm requesting them.

CITY OF PAWTUCKET'S PURCHASING OFFICE GENERAL CONDITIONS OF PURCHASE

All City of Pawtucket purchase orders, contracts, solicitations, delivery orders and service requests shall incorporate and be subject to the provisions of Rhode Island General Laws 37-2-2 and the City of Pawtucket purchasing rules and regulations adopted pursuant thereto, all other applicable provisions of the Rhode Island General Laws, the Pawtucket City Charter, specific requirements described in the Request or Contract, and the following General Conditions of Purchase:

1. GENERAL

   All purchase orders, contracts, solicitations, delivery orders, and service requests are for specified goods and services, in accordance with express terms and conditions of purchase, as defined herein. For the purposes of this document, the terms "bidder" and "contractor" refer to any individual, firm, corporation, or other entity presenting a proposal indicating a desire to enter into contracts with the City of Pawtucket, or with whom a contract is executed by the City of Pawtucket's Purchasing Agent, and the term "contractor" shall have the same meaning as "vendor".

2. ENTIRE AGREEMENT

   The City of Pawtucket's Purchase Order, or other City of Pawtucket contract endorsed by the City of Pawtucket Purchasing Office, shall constitute the entire and exclusive agreement between the City of Pawtucket and any contractor receiving an award. In the event any conflict between the bidder's standard terms of sale, these conditions or more specific provisions contained in the solicitation shall govern.

   All communication between the City of Pawtucket and any contractor pertaining to any award or contract shall be accomplished in writing.

   a. Each proposal will be received with the understanding that the acceptance, in writing, by contract or Purchase Order by the City of Pawtucket Purchasing Agent of the offer to do work or to furnish any or all the materials, equipment, supplies or services described therein shall constitute a contract between the bidder and the City of Pawtucket. This shall bind the bidder on his part to furnish and deliver at the prices and in accordance with the conditions of said accepted proposal and detailed specifications and the City of Pawtucket on its part to order from such contractor (except in case of emergency) and to pay for at the agreed prices, all materials, equipment, supplies or services specified and delivered. A contract shall be deemed executory only to the extent of funds available for payment of the amounts shown on Purchase Orders issued by the City of Pawtucket to the contractors.

   b. No alterations or variations of the terms of the contract shall be valid or binding upon the City of Pawtucket unless submitted in writing and accepted by the City of Pawtucket Purchasing Agent. All orders and changes thereof must emanate from the City of Pawtucket Purchasing Office: no oral agreement or arrangement made by a contractor with a department or employee will be considered to be binding on the City of Pawtucket Purchasing Agent, and may be disregarded.

   c. Contracts will remain in force for the contract period specified or until all articles or services ordered before date of termination shall have been satisfactorily delivered or rendered and accepted and thereafter until all terms and conditions have been met, unless:

      1. terminated prior to expiration date by satisfactory delivery against orders of entire quantities, or
      2. extended upon written authorization of the City of Pawtucket Purchasing Agent and accepted by the contractor, to permit ordering of the unordered balances or additional quantities at the contract price and in accordance with the contract terms, or

3. canceled by the City of Pawtucket in accordance with other provisions stated herein.

d. It is mutually understood and agreed that the contractor shall not assign, transfer, convey, sublet or otherwise dispose of this contract or his right, title or interest therein, or his power to execute such contract, to any other person, company or corporation, without the previous consent, in writing, of the City of Pawtucket Purchasing Agent.

e. If, subsequent to the submission of an offer or issuance of a purchase order or execution of a contract, the bidder or contractor shall merge with or be acquired by another entity, the contract may be terminated, except as a corporate resolution prepared by the contractor and the new entity ratifying acceptance of the original bid or contract terms, condition, and pricing is submitted to the City of Pawtucket Purchasing Office, and expressly accepted.

f. The contractor or bidder further warrants by submission of an offer or acceptance of a purchase order or other contract that he has no knowledge at the time of such action of any outstanding and delinquent or otherwise unsettled debt owed by him to the City of Pawtucket, and agrees that later discovery by the City of Pawtucket Purchasing Agent that this warranty was given in spite of such knowledge, except where the matter is pending in hearing or from any appeal therefrom, shall form reasonable grounds for termination of the contract.

3. SUBCONTRACTS

No subcontracts or collateral agreements shall be permitted, except with the City of Pawtucket's express written consent. Upon request, contractors must submit to the City of Pawtucket Purchasing Office a list of all subcontractors to be employed in the performance of any Purchase Order or other contract arising from this Request.

4. RELATIONSHIP OF PARTIES

The contractor or bidder warrants, by submission of an offer or acceptance of a purchase order or other contract, that he is not an employee, agent, or servant of the City of Pawtucket, and that he is fully qualified and capable in all material regards to provide the specified goods and services. Nothing herein shall be construed as creating any contractual relationship or obligation between the City of Pawtucket and any sub-bidder, subcontractor, supplier, or employee of the contractor or offeror.

5. COSTS OF PREPARATION

All costs associated with the preparation, development, or submission of bids or other offers will be borne by the offeror. The City of Pawtucket will not reimburse any offeror for such costs.

6. SPECIFIED QUANTITY REQUIREMENT

Except where expressly specified to the contrary, all solicitations and contracts are predicated on a specified quantity of goods or services, or for a specified level of funding.

a. The City of Pawtucket reserves the right to modify the quantity, scope of service, date of delivery or completion, or funding of any contract, with no penalty or charge, by written notice to the contractor, except where alternate terms have been expressly made a part of the contract.

b. The City of Pawtucket shall not accept quantities in excess of the specified quantity except where the item is normally sold by weight (where sold by weight, the City of Pawtucket will not accept quantities greater than ten per cent [10%] of the specified quantity), or where the Request or Contract provides for awards for other than exact quantities.

c. Purchase Orders or other contracts may be increased in quantity or extended in term without subsequent solicit with the mutual consent of the contractor and the City of Pawtucket, where determined by the City of Pawtucket Purchasing Agent to be in the City of Pawtucket's best interest.

7. TERM AND RENEWAL

Where offers have been requested or contracts awarded for terms exceeding periods of twelve (12) months, it is mutually understood and agreed that the City of Pawtucket's commitment is limited to

a base term not to exceed twelve (12) months, subject to renewal annually at the City of Pawtucket's sole option for successive terms as otherwise described, except where expressly specified to the contrary. Purchase orders appearing to commit to obligations of funding or terms of performance may be executed for administrative convenience, but are otherwise subject to this provision, and in such cases the City of Pawtucket's renewal shall be deemed to be automatic, conditional on the continued availability of appropriated funds for the purpose, except as written notice of the City of Pawtucket's intent not to renew is served.

8. DELIVERY/COMPLETION

Delivery must be made as ordered and/or projects completed in accordance with the proposal. If delivery qualifications do not appear on the bidder's proposal, it will be interpreted to mean that goods are in stock and that shipment will be made within seven (7) calendar days. If the project completion date is not specified in the proposal, the date shall be determined by the City of Pawtucket Purchasing Agent. The decision of the City of Pawtucket Purchasing Agent, as to reasonable compliance with the delivery terms, and date of completion shall be final. Burden of proof of delay in receipt of order shall rest with the contractor. No delivery charges shall be added to invoices except when authorized on the Purchase Order.

9. FOREIGN CORPORATIONS

In accordance with Title 7 Chapter 1.1 (“Business Corporations”) of the General Laws of Rhode Island, no foreign corporation shall have the right to transact business in this state until it shall have procured a certificate of authority so to do from the Secretary of State.

10. PRICING

All pricing offered or extended to the City of Pawtucket is considered to be firm and fixed unless expressly provided for to the contrary. All prices shall be quoted F.O.B. Destination with freight costs included in the unit cost to be paid by the City of Pawtucket, except, where the Request or Contract permits, offers reflecting F.O.B. Shipping Point will be considered, and freight costs may then be prepaid and added to the invoice.

11. COLLUSION

Bidder or contractor warrants that he has not, directly or indirectly, entered into any agreements or participated in any collusion or otherwise taken any action in restraint of full competitive bidding. In special circumstances, an executed affidavit will be required as a part of the bid.

12. PROHIBITION AGAINST CONTINGENT FEES AND GRATUITIES

Bidder or contractor warrants that he has not paid, and agrees not to pay, any bonus, commission, fee, or gratuity to any employee or official of the City of Pawtucket for the purpose of obtaining any contract or award issued by the City of Pawtucket. Bidder or contractor further warrants that no commission or other payment has been or will be received from or paid to any third party contingent on the award of any contract by the City of Pawtucket, except as shall have been expressly communicated to the City of Pawtucket Purchasing Agent in writing prior to acceptance of the contract or award in question. Subsequent discovery by the City of Pawtucket of non-compliance with these provisions shall constitute sufficient cause for immediate termination of all outstanding contracts and suspension or debarment of the bidder(s) or contractor(s) involved.

13. AWARDS

Awards will be made with reasonable promptness and by written notice to the successful bidder (only); bids are considered to be irrevocable for a period of ninety (90) days following the bid opening unless expressly provided for to the contrary in the Request, and may not be withdrawn during this period without the express permission of the City of Pawtucket Purchasing Agent.

a. Awards shall be made to the bidder(s) whose offer(s) constitutes the lowest responsive price offer (or lowest responsive price offer on an evaluated basis) for the item(s) in question or for the Request as a whole, at the option of the City of Pawtucket. The City of Pawtucket reserves the right to determine those offers which are responsive to the Request, or which otherwise serve its best interests.

b. The City of Pawtucket reserves the right, before making award, to initiate investigations as to whether or not the materials, equipment, supplies, qualifications or facilities offered by the bidder meet the requirements set forth in the proposal and specification, and are ample and sufficient to insure the proper performance of the contract in the event of award. If

upon such examination it is found that the conditions of the proposal are not complied with or that articles or equipment proposed to be furnished do not meet the requirements called for, or that the qualifications or facilities are not satisfactory, the City of Pawtucket may reject such a bid. It is distinctly understood, however, that nothing in the foregoing shall mean or imply that it is obligatory upon the City of Pawtucket to make any examinations before awarding a contract; and it is further understood that if such examination is made, it in no way relieves the contractor from fulfilling all requirements and conditions of the contract.

c. Qualified or conditional offers which impose limitations of the bidder's liability or modify the requirements of the bid, offers for alternate specifications, or which are made subject to different terms and conditions than those specified by the City of Pawtucket may, at the option of the City of Pawtucket, be
   1. rejected as being non-responsive, or
   2. set aside in favor of the City of Pawtucket's terms and conditions (with the consent of the bidder), or
   3. accepted, where the City of Pawtucket Purchasing Agent determines that such acceptance best serves the interests of the City of Pawtucket.

   Acceptance or rejection of alternate or counter-offers by the City of Pawtucket shall not constitute a precedent which shall be considered to be binding on successive solicitations or procurements.

d. Bids submitted in pencil, or which do not bear an original signature, in ink, by an owner or authorized agent thereof, will not be accepted.

e. Bids must be extended in the unit of measure specified in the Request. In the event of any discrepancy between unit prices and their extensions, the unit price will govern.

f. The City of Pawtucket Purchasing Agent reserves the right to determine the responsibility of any bidder for a particular procurement.

g. The City of Pawtucket Purchasing Agent reserves the right to reject any and all bids in whole or in part, to waive technical defects, irregularities, and omissions, and to give consideration to past performance of the offerors where, in his judgment the best interests of the City of Pawtucket will be served by so doing.

h. The City of Pawtucket Purchasing Agent reserves the right to make awards by items, group of items or on the total low bid for all the items specified as indicated in the detailed specification, unless the bidder specifically indicates otherwise in his bid.

i. Preference may be given to bids on products raised or manufactured in the City of Pawtucket or State of Rhode Island, other things being equal.

j. The impact of discounted payment terms shall not be considered in evaluating responses to any Request.

k. The City of Pawtucket Purchasing Agent reserves the right to act in the City of Pawtucket's best interests regarding awards caused by clerical errors by the City of Pawtucket Purchasing Office.

14. SUSPENSION AND DEBARMENT

The City of Pawtucket Purchasing Agent may suspend or debar any vendor or potential bidder, for good cause shown:

a. A debarment or suspension against a part of a corporate entity constitutes debarment or suspension of all of its divisions and all other organizational elements, except where the action has been specifically limited in scope and application, and may include all known corporate affiliates of a contractor, when such offense or act occurred in connection with the affiliate's performance of duties for or on behalf of the contractor, or with the knowledge, approval, or acquiescence of the contractor or one or more of its principals or directors (or where the contractor otherwise participated in, knew of, or had reason to know of the acts).

b. The fraudulent, criminal or other serious improper conduct of any officer, director, shareholder, partner, employee, or any other individual associated with a contractor may be imputed to the contractor when the conduct occurred in connection with the individual's performance of duties for or on behalf of the contractor, or with the contractor's knowledge, approval or acquiescence. The contractor's acceptance of benefits derived from the conduct shall be evidence of such knowledge, approval, or acquiescence.

c. A vendor or contractor who knowingly engages as a subcontractor for a contract awarded by the City of Pawtucket to a vendor or contractor then under a ruling of suspension or debarment by the City of Pawtucket shall be subject to disallowance of cost, annulment or

termination of award, issuance of a stop work order, or debarment or suspension, as may be judged to be appropriate by the City of Pawtucket's Purchasing Agent.

15. PUBLIC RECORDS

Contractors and bidders are advised that certain documents, correspondence, and other submissions to the City of Pawtucket's Purchasing Office may be voluntarily made public by the City of Pawtucket absent specific notice that portions of such submittals may contain confidential or proprietary information, such that public access to those items should be withheld.

16. PRODUCT EVALUATION

In all specifications, the words "or equal" are understood after each article when manufacturer's name or catalog are referenced. If bidding on items other than those specified, the bidder must, in every instance, give the trade designation of the article, manufacturer's name and detailed specifications of the item the bidder proposes to furnish; otherwise, the bid will be construed as submitted on the identical commodity described in the detailed specifications. The City of Pawtucket's Purchasing Agent reserves the right to determine whether or not the item submitted is the approved equal the detailed specifications.

a. Any objections to specifications must be filed by a bidder, in writing, with the City of Pawtucket's Purchasing Agent at least 96 hours before the time of bid opening to enable the City of Pawtucket's Purchasing Office to properly investigate the objections.
b. All standards are minimum standards except as otherwise provided for in the Request or Contract.
c. Samples must be submitted to the City of Pawtucket's Purchasing Office in accordance with the terms of the proposals and detailed specifications. Samples must be furnished free of charge and must be accompanied by descriptive memorandum invoices indicating whether or not the bidder desires their return and specifying the address to which they are to be returned (at the bidder's risk and expense), provided they have not been used or made useless by tests; and absent instructions, the samples shall be considered to be abandoned. Award samples may be held for comparison with deliveries.
d. All samples submitted are subject to test by any laboratory the City of Pawtucket's Purchasing Agent may designate.

17. PRODUCT ACCEPTANCE

All merchandise offered or otherwise provided shall be new, of prime manufacture, and of first quality unless otherwise specified by the City of Pawtucket. The City of Pawtucket reserves the right to reject all nonconforming goods, and to cause their return for credit or replacement, at the City of Pawtucket's option. Contract deliverables specified for procurements of services shall be construed to be work products, and subject to the provisions of this section.

a. Failure by the City of Pawtucket to discover latent defect(s) or concealed damage or non-conformance shall not foreclose the City of Pawtucket's right to subsequently reject the goods in question.
b. Formal or informal acceptance by the City of Pawtucket of non-conforming goods shall not constitute a precedent for successive receipts or procurements.
c. Where the contractor fails to promptly cure the defect or replace the goods, the City of Pawtucket reserves the right to cancel the Purchase Order, contract with a different contractor, and to invoice the original contractor for any differential in price over the original contract price.
d. When materials, equipment or supplies are rejected, the same must be removed by the contractor from the premises of the City of Pawtucket within forty-eight (48) hours of notification. Rejected items left longer than two days will be regarded as abandoned and the City of Pawtucket shall have the right to dispose of them as its own property.

18. PRODUCT WARRANTIES

All product or service warranties normally offered by the contractor or bidder shall accrue to the City of Pawtucket's benefit, in addition to any special requirements which may be imposed by the City of Pawtucket. Every unit delivered must be guaranteed against faulty material and workmanship for a period of one year unless otherwise specified, and the City of Pawtucket may, in the event of failure, order its replacement, repair, or return for full credit, at its sole option.

19. PAYMENT

Unless otherwise provided for by the Request or Contract, payment shall not be made until delivery has been made, or services performed, in full, and accepted. Payment shall not be due prior to thirty (30) working days following the latest of completion, acceptance, or the rendering of a properly submitted invoice.

a. Payment terms other than the foregoing may be rejected as being nonresponsive.
b. No partial shipments, or partial completion will be accepted, unless provided for by the Request or Contract.
c. Where a question of quality is involved, or failure to complete a project by the specified due date, payment in whole or part against which to charge back any adjustment required, shall be withheld at the direction of the City of Pawtucket Purchasing Agent. In the event a cash discount is stipulated, the withholding of payments, as herein described, will not deprive the City of Pawtucket from taking such discount.
d. Payments for used portion of inferior delivery or late delivery will be made by the City of Pawtucket on an adjusted price basis.
e. Payments on contracts under architectural or engineering supervision must be accompanied by a Certificate of Payment and Statement of Account signed by the architect or engineer and submitted to the City of Pawtucket Purchasing Office for approval.

20. THIRD PARTY PAYMENTS

The City of Pawtucket recognizes no assigned or collateral rights to any purchase agreement except as may be expressly provided for in the bid or contract documents, and will not accede to any request for third party or joint payment(s), except as provided for in specific orders by a court of competent jurisdiction, or by express written permission of the City of Pawtucket's Purchasing Agent. Where an offer is contingent upon such payment(s), the offeror is obligated to serve affirmative notice in his bid submission.

21. SET-OFF AGAINST PAYMENTS

Payments due the contractor may be subject to reduction equal to the amount of unpaid and delinquent state taxes (or other just debt owed to the State), except where notice of delinquency has not been served or while the matter is pending in hearing or from any appeal therefrom.

22. CLAIMS

Any claim against a contractor may be deducted by the City of Pawtucket from any money due him in the same or other transactions. If no deduction is made in such fashion, the contractor shall pay the City of Pawtucket the amount of such claim on demand. Submission of a voucher and payment, thereof, by the City of Pawtucket shall not preclude the City of Pawtucket's Purchasing Agent from demanding a price adjustment in any case when the commodity delivered is later found to deviate from the specifications and proposal.

a. The City of Pawtucket's Purchasing Agent may assess dollar damages against a vendor or contractor determined to be non-performing or otherwise in default of their contractual obligations equal to the cost of remedy incurred by the City of Pawtucket, and make payment of such damages a condition for consideration for any subsequent award. Failure by the vendor or contractor to pay such damages shall constitute just cause for disqualification and rejection, suspension, or debarment.

23. CERTIFICATION OF FUNDING

The Director of Finance shall provide certification as to the availability of funds to support the procurement for the current fiscal year ending June 30th only. Where delivery or service requirements extend beyond the end of the current fiscal year, such extensions are subject to both the availability of appropriated funds and a determination of continued need.

24. UNUSED BALANCES

Unless otherwise specified, all unused Blanket Order quantities and/or unexpended funds shall be automatically canceled on the expiration of the specified term. Similarly, for orders encompassing more than one fiscal year, unexpended balances of funding allotted for an individual fiscal year may be liquidated at the close of that fiscal year, at the City of Pawtucket's sole option.

25. MINORITY BUSINESS ENTERPRISES

Pursuant to the provisions of Title 37 Chapter 14.1of the General Laws, the City of Pawtucket reserves the right to apply additional consideration to offers, and to direct awards to bidders other than the responsive bid representing the lowest price where:

a. the offer is fully responsive to the terms and conditions of the Request, and
b. the price offer is determined to be within a competitive range (not to exceed 5% higher than the lowest responsive price offer) for the product or service, and
c. the firm making the offer has been certified by the R.I. Department of Economic Development to be a small business concern meeting the criteria established to be considered a Minority Business Enterprise.

26. PREVAILING WAGE REQUIREMENT

In accordance with Title 37 Chapter 13 of the General Laws of Rhode Island, payment of the general prevailing rate of per diem wages and the general prevailing rate for regular, overtime and other working conditions existing in the locality for each craft, mechanic, teamster, or type of workman needed to execute this work is a requirement for both contractors and subcontractors for all public works projects.

The rates of pay set forth under this contract, are the minimum to be paid during the life of the Contract. It is therefore, the responsibility of Bidders to inform themselves as to local labor conditions, such as the length of work day and work week, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustments of rates.

Certified weekly payrolls and statement of compliance forms are required from contractors and subcontractors. Submit on State of Rhode Island Department of Labor and Training forms.

27. EQUAL OPPORTUNITY COMPLIANCE, HANDICAPPED ACCESS AND AFFIRMATIVE ACTION

Contractors of the City of Pawtucket are required to demonstrate the same commitment to equal opportunity as prevails under federal contracts controlled by Federal Executive Orders 11246, 11625, 11375 and 11830, and Title 28 Chapter 5.1 of the General Laws of Rhode Island.
Affirmative action plans shall be submitted by the contractor for review by the State Equal Opportunity Office. A contractor's failure to abide by the rules, regulations, contract terms and compliance reporting provisions as established shall be grounds for forfeiture and penalties as shall be established, including but not limited to suspension.

28. DRUG-FREE WORKPLACE REQUIREMENT

Contractors who do business with the City of Pawtucket and their employees shall abide by the State's drug-free workplace policy and the contractor shall so attest by signing a certificate of compliance.

29. TAXES

The City of Pawtucket is exempt from payment of excise, transportation and sales tax imposed by the Federal or State Government. These taxes should not be included in the proposal price. Exemption Certificates will be furnished upon request.

30. INSURANCE

All construction contractors, independent tradesmen, or firms providing any type of maintenance, repair, or other type of service to be performed on City of Pawtucket premises, buildings, or grounds are required to purchase and maintain coverage with a company or companies licensed to do business in the state as follows:

a. Comprehensive General Liability Insurance
Combined Single Limit not less than $1,000,000 Each Occurrence; $2,000,000 General Aggregate; $2,000,000 Products-Completed Ops Aggregate. Must include contractual liability, independent contractors, and completed operations. Commercial General Liability coverage must include coverage for Premises/operations, products-completed operations liability, contractual liability, broad form property damage, explosion, collapse, underground work. There shall be no endorsement that restricts coverage for work near/over water or subsidence/excavation. Completed operations liability coverage must be

maintained by Contractor for a period of at least 3-years post-final acceptance of Work.

- Independent Contractors;
- Contractual - including construction hold harmless and other types of contracts or agreements in effect for insured operations;
- Products and Completed Operations;
- Personal Injury (with employee exclusion deleted)

b. Automobile Liability Insurance
Combined Single Limit not less than $1,000,000 each occurrence for bodily Injury and property damage including non-owned and/or hired vehicle coverage.

OR

Bodily Injury, per person, $500,000/ Bodily Injury, $1,000,000 per accident/ Property Damage, $500,000 per accident including non-owned and/or hired vehicle coverage.

c. Workers' Compensation Insurance
As required by the General Laws of Rhode Island.

- Employers' liability $1,000,000

d. Umbrella/Excess $2,000,000 per occurrence/aggregate, follow form over Commercial General Liability, Auto Liability, and Employers Liability.

e. Contractor's Pollution Liability: $1,000,000 per claim / $2,000,000 aggregate minimum including sudden & gradual, transportation, Non-Owned Disposal Sites, and emergency response.

f. Professional Liability: If Contractor, subcontractors, or consultants perform any professional services (including design, design-assist, delegated design, engineering, surveying, or construction management professional services), Professional Liability coverage shall be maintained in an amount equal to $1,000,000 per claim / $2,000,000 aggregate; retroactive date must be prior to project start; ERP 2 years minimum.

g. Marine / Watercraft Liability: If any watercraft is used (barges, workboats), require Protection & Indemnity (P&I) / Marine Liability in an amount no less than $1,000,000 each occurrence.

City of Pawtucket, Pawtucket Redevelopment Agency, Fortuitous Tidewater OZ, LLC, and Fortuitous Partners, LLC, and their respective officers, officials, employees, members, managers, agents, and volunteers shall be included as Additional Insureds on Commercial General Liability for both ongoing and completed operations, Commercial Automobile Liability, Umbrella/Excess Liability, and Contractor's Pollution Liability where applicable.

Contractor's insurance shall be primary and non-contributory to any insurance maintained by the Additional Insureds.

A Waiver of Subrogation in favor of City of Pawtucket, Pawtucket Redevelopment Agency, and Fortuitous Tidewater OZ, LLC shall apply to Commercial General Liability, Commercial Auto Liability, and Workers Compensation where permitted.

A 30-Day written Notice of Cancellation shall be provided in favor of City of Pawtucket, Pawtucket Redevelopment Agency, and Fortuitous Tidewater OZ, LLC with respect to all insurance maintained by Contractor."

The City of Pawtucket's Purchasing Agent reserves the right to consider and accept alternate forms and plans of insurance or to require additional or more extensive coverage for any individual requirement. Successful bidders shall provide certificates of coverage, reflecting the City of

Pawtucket as an additional insured, to the City of Pawtucket Purchasing Office, forty-eight (48) hours prior to the commencement of work, as a condition of award. Failure to comply with this provision shall result in rejection of the offeror's bid.

31. BID SURETY

When requested, a bidder must furnish a Bid Bond or Certified Check for 5% of his bid, or for the stated amount shown in the solicitation. Bid Bonds must be executed by a reliable Surety Company authorized to do business in the State of Rhode Island. Failure to provide Bid Surety with bid may be cause for rejection of bid. The Bid Surety of any three bidders in contention will be held until an award has been made according to the specifications of each proposal. All others will be returned by mail within 48 hours following the bid opening. Upon award of a contract, the remaining sureties will be returned by mail unless instructed to do otherwise.

32. PERFORMANCE AND LABOR AND PAYMENT BONDS

A performance bond and labor and payment bond of up to 100% of an award may be required by the City of Pawtucket's Purchasing Agent. Bonds must meet the following requirements:

a. Corporation: The Bond must be signed by an official of the corporation above his/her official title and the corporate seal must be affixed over his/her signature.
b. Firm or Partnership: The Bond must be signed by all of the partners and must indicate that they are " Doing Business As (name of firm)."
c. Individual: The Bond must be signed by the individual owning the business and indicate "Owner."
d. The Surety Company executing the Bond must be licensed to do business in the State of Rhode Island or Bond must be countersigned by a company so licensed.
e. The Bond must be signed by an official of the Surety Company and the corporate seal must be affixed over his signature.
f. Signatures of two witnesses for both the principal and the Surety must appear on the Bond.
g. A Power of Attorney for the official signing of the Bond for the Surety Company must be submitted with the Bond.

33. SUSPENSION, DEFAULT AND TERMINATION

a. Suspension of a Contract by the City of Pawtucket

The City of Pawtucket reserves the right at any time and for any reason to suspend all or part of this contract, for a reasonable period, not to exceed sixty days, unless the parties agree to a longer period. The City of Pawtucket shall provide the contractor with written notice of the suspension order signed by the Purchasing Agent or his or her designee, which shall set forth the date upon which the suspension shall take effect, the date of its expiration, and all applicable instructions. Upon receipt of said order, the contractor shall immediately comply with the order and suspend all work under this contract as specified in the order. The contractor shall take all reasonable steps to mitigate costs and adverse impact to the work specified in the contract during the suspension period. Before the order expires, the City of Pawtucket shall either:

1. cancel the suspension order;
2. extend the suspension order for a specified time period not to exceed thirty (30) days; or
3. terminate the contract as provided herein.

The contractor shall resume performance once a suspension order issued under this section is canceled or expires. If as a result of the suspension of performance, there is a financial or schedule impact upon the contract, an appropriate adjustment may be made by, or with the approval of, the City of Pawtucket's Purchasing Agent. Any adjustment shall be set forth in writing. After a suspension order has been canceled or expires, the contractor shall provide any request for adjustment to the City of Pawtucket's Purchasing Agent within thirty (30) days after resuming work performance.

b. Termination of a Contract by the City of Pawtucket

1. Termination for Default or Nonperformance

If, for any reason, the contractor breaches the contract by failing to satisfactorily fulfill or perform any obligations, promises, terms, or conditions, and having been given reasonable notice of and opportunity to cure such default, fails to take satisfactory corrective action within the time specified by the City of Pawtucket, the City of Pawtucket may terminate the contract, in whole or in part, the termination

of all outstanding contracts or sub-contracts held by the contractor, and the suspension or debarment of the contractor from future procurements by giving written notice to the contractor specifying the date for termination. The City of Pawtucket shall endeavor to provide such notice at least seven (7) calendar days before the effective date of the termination.

A contractor who fails to commence within the time specified or complete an award made for repairs, alterations, construction, or any other service will be considered in default of contract. If contractor consistently fails to deliver quantities or otherwise perform as specified, the City of Pawtucket's Purchasing Agent reserves the right to terminate the contract and contract for completion of the work with another contractor and seek recourse from the defaulting contractor or his surety. In the event of a termination for default or nonperformance, in whole or in part, the City of Pawtucket may procure similar goods or services in a manner and upon terms it deems appropriate, and the contractor shall be liable for the excess costs incurred by the City of Pawtucket as a result of the contractor's default. The contractor, or its surety, agrees to promptly reimburse the City of Pawtucket for the excess costs, but shall have no claim to the difference should the replacement cost be less.

2. Termination Without Cause

The City of Pawtucket may terminate the contract in whole or in part without cause at any time by giving written notice to the contractor of such termination at least thirty (30) days before the effective date of such termination. The notice shall specify the part(s) of the contract being terminated and the effective termination date.

Within thirty (30) days of the effective date of the termination of the contract the contractor shall compile and submit to the City of Pawtucket an accounting of the work performed up to the date of termination. The City of Pawtucket may consider the following claims in determining reasonable compensation owed to the contractor for work performed up to the date of termination:

a. contract prices for goods or services accepted under the contract;
b. costs incurred in preparing to perform and performing the terminated portion of the contract; or
c. any other reasonable costs incurred by the contractor as a result of the termination.

The total sum to be paid to the contractor shall not exceed the total contract price, less any payments previously made to the contractor, the proceeds from any sales of goods or manufacturing materials, and the contract price for work not terminated.

3. Contractor's Obligations in the Event of Termination

If the contract is terminated for any reason, or expires pursuant to its terms, the contractor shall transfer and deliver to the City of Pawtucket in the manner and to the extent directed by the City of Pawtucket:

a. all finished or unfinished material prepared by the contractor; and
b. all material, if any, provided to the contractor by the City of Pawtucket.

For the purposes of the contract, "material" shall include, but is not limited to, goods, supplies, parts, tools, machinery, equipment, furniture, fixtures, information, data, reports, summaries, tables, maps, charts, photographs, studies, recommendations, files, audiotapes, videotapes, records, keys, security badges, and documents.

If the contract is terminated for cause, the contractor shall not be relieved of liability to the City of Pawtucket for damages sustained because of any breach by the contractor. In such event, the City of Pawtucket may retain any amounts which may be due and owing to the contractor until such time as the exact amount of damages due the City of Pawtucket from the contractor has been

determined by the City of Pawtucket Purchasing Agent. The City of Pawtucket may also set off any damages so determined against the amounts retained.

Upon termination of the contract, the contractor shall stop performance on the date specified, terminate any outstanding orders and subcontracts applicable to the terminated portion of the contract, and shall incur no further commitments or obligations in connection with the terminated performance. The contractor shall settle all liabilities and claims arising out of the termination of subcontracts and order generating from the terminated performance. The City of Pawtucket may direct the contractor to assign the contractor's right, title and interest under terminated orders or subcontracts to the City of Pawtucket or a third party.

Terminations of Purchase Order Contracts or Master Pricing Agreements shall require the signature of the City of Pawtucket Purchasing Agent or his designee. Notice of termination by either party shall be submitted in writing to the other party in accordance with the termination clause of the contract, or where no specific termination clause is included, written notice shall be provided no later than thirty (30) days before the expiration of the contract.

34. INDEMNITY

The contractor guarantees:

a. To save the City of Pawtucket, its agents and employees, harmless from any liability imposed upon the City of Pawtucket arising from the negligence, either active or passive, of the contractor, as well as for the use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article or appliance furnished or used in the performance of the contract of which the contractor is not the patentee, assignee or licensee.

b. To pay for all permits, licenses and fees and give all notices and comply with all laws, ordinances, rules and regulations of the City of Pawtucket and of the State of Rhode Island.

c. That the equipment offered is standard new equipment, latest model of regular stock product with all parts regularly used with the type of equipment offered; also, that no attachment or part has been substituted or applied contrary to manufacturer's recommendations and standard practice.

35. CONTRACTOR'S OBLIGATIONS

In addition to the specific requirements of the contract, construction and building repair contractors bear the following standard responsibilities:

a. To furnish adequate protection from damage for all work and to repair damages of any kind, for which he or his workmen are responsible, to the building or equipment, to his own work, or to the work of other contractors;

b. The contractor, its subcontractor(s) and their employees and/or agents, shall protect and preserve property in the contractor or subcontractor's possessions in which the City of Pawtucket has an interest, and any and all materials provided to the contractor or subcontractor by the City of Pawtucket;

c. To clear and remove all debris and rubbish resulting from his work from time to time, as directed or required, a completion of the work leave the premises in a neat unobstructed condition, broom clean, and in satisfactory order and repair;

d. To store equipment, supplies, and material at the site only upon approval by the City of Pawtucket, and at his own risk;

e. To perform all work so as to cause the least inconvenience to the City of Pawtucket, and with proper consideration for the rights of other contractors and workmen;

f. To acquaint themselves with conditions to be found at the site, and to assume responsibility for the appropriate dispatching of equipment and supervision of his employees during the conduct of the work;

g. To ensure that his employees are instructed with respect to special regulations, policies, and procedures in effect for any City of Pawtucket facility or site, and that they comply with such rules, including but not limited to security policies or practices and/or criminal background checks for any employees and/or subcontractors;

h. The contractor shall ensure that its employees or agents are experienced and fully qualified to engage in the activities and services required under the contract;

i. The contractor shall ensure that at all times while services are being performed under this contract at least one of its employees or agents on the premises has a good command of the English language and can effectively communicate with the City of Pawtucket and its staff;

j. The contractor and contractor's employees or agents shall comply with all applicable licensing and operating requirements required by federal or state law and shall meet accreditation and other generally accepted standards of quality in the applicable field of activity;

k. The contractor shall secure and retain all employee-related insurance coverage for its employees and agents as required by law; and

l. The contractor, subcontractor, and his or her employees and agents shall not disclose any confidential information of the City of Pawtucket to a third party. Confidential information means:

(1) any information of a sensitive or proprietary nature, whether or not specially identified as confidential or proprietary; or

(2) any information about the City of Pawtucket gained during the performance of a contract that
is not already lawfully in the public domain.

36. FORCE MAJEURE

All orders shall be filled by the contractor with reasonable promptness, but the contractor shall not be held responsible for any losses resulting if the fulfillment of the terms of the contract shall be delayed or prevented by wars, acts of public enemies, strikes, fires, floods, acts of God, or for any other acts not within the control of the contractor and which by the exercise of reasonable diligence, the contractor is unable to prevent.

Appendix C

General Wage Rate Decision
Davis Bacon

The current wage determination (Heavy Construction, Providence County), as obtained from the Rhode Island Department of Labor and Training on today's date, is bound as part of this Project Manual.

"General Decision Number: RI20260001 10/01/2026

State: Rhode Island

Construction Types: Building, Heavy and Highway

Counties: Rhode Island Counties of
Bristol, Kent, Newport, Providence and
Washington

Includes Marine Construction Projects

Modification Number	Publication Date
2	01/30/2026
3	05/18/2026
4	07/30/2026
5	10/01/2026

ASBE0006-006 09/01/2024

	Rates	Fringes
HAZARDOUS MATERIAL HANDLER (INCLUDES PREPARATION, WETTING, STRIPPING, REMOVAL SCRAPPING, VACUUMING, BAGGING & DISPOSING OF ALL INSULATION MATERIALS, WHETHER THEY CONTAIN ASBESTOS OR NOT, FROM MECHANICAL SYSTEMS).....	$ 49.91	36.63

ASBE0006-008 09/01/2024

	Rates	Fringes
ASBESTOS WORKER/INSULATOR (INCLUDES APPLICATION OF ALL INSULATING MATERIALS, PROTECTIVE COVERINGS, COATINGS & FINISHES TO ALL TYPES OF MECHANICAL		

SYSTEMS).....$ 49.91 36.63

BOIL0029-001 01/01/2025

	Rates	Fringes
BOILERMAKER	$ 50.62	28.82

BRRI0003-001 06/01/2022

	Rates	Fringes
BRICKLAYER, STONEMASON, POINTER, CAULKER & CLEANER	$ 46.86	29.14

BRRI0003-002 09/01/2022

	Rates	Fringes
MARBLE SETTER, TERRAZZO WORKER & TILE SETTER	$ 46.54	30.34

BRRI0003-003 09/01/2022

	Rates	Fringes
MARBLE, TILE & TERRAZZO FINISHER	$ 38.78	29.61

CARP0330-001 06/02/2025

	Rates	Fringes
DIVER (WHEN NOT DIVING OR TENDING THE DIVER, THE DIVER AND DIVER TENDER SHALL RECEIVE THE PILEDRIVER RATE. DIVER TENDERS SHALL RECEIVE $1.00 PER HOUR ABOVE THE PILE DRIVER RATE WHEN TENDING THE DIVER.)	$ 60.83	30.50
DIVER TENDER (WHEN NOT DIVING OR TENDING THE DIVER, THE DIVER AND DIVER TENDER SHALL RECEIVE THE PILEDRIVER RATE. DIVER TENDERS SHALL RECEIVE $1.00 PER HOUR ABOVE THE PILE DRIVER RATE WHEN TENDING THE DIVER.)	$ 48.68	30.50
CARPENTER: INCLUDES SOFT FLOOR LAYER (WORK ON FREE-STANDING STACKS, CONCRETE SILOS & PUBLIC UTILITY ELECTRICAL POWER HOUSES, WHICH ARE OVER 35 FT. IN HEIGHT WHEN CONSTRUCTED: $.50 PER HOUR ADDITIONAL. WORK ON EXTERIOR CONCRETE SHEAR WALL GANG FORMS, 45 FT. OR MORE ABOVE GROUND ELEVATION OR ON SETBACK: $.50 PER HOUR ADDITIONAL.)	$ 47.88	30.50
PILEDRIVER (WORK ON FREE-STANDING STACKS, CONCRETE SILOS & PUBLIC UTILITY ELECTRICAL POWER HOUSES, WHICH ARE OVER 35 FT. IN HEIGHT WHEN CONSTRUCTED: $.50 PER HOUR ADDITIONAL. WORK ON EXTERIOR CONCRETE SHEAR WALL GANG FORMS, 45 FT. OR MORE ABOVE GROUND ELEVATION OR ON SETBACK: $.50 PER HOUR ADDITIONAL. THE DESIGNATED PILEDRIVER, KNOWN AS THE ""MONKEY"":		

$1.00 PER HOUR ADDITIONAL.....$ 41.53 29.35
WELDER (WORK ON FREE-STANDING STACKS, CONCRETE SILOS & PUBLIC UTILITY ELECTRICAL POWER HOUSES, WHICH ARE OVER 35 FT. IN HEIGHT WHEN CONSTRUCTED: $.50 PER HOUR ADDITIONAL. WORK ON EXTERIOR CONCRETE SHEAR WALL GANG FORMS, 45 FT. OR MORE ABOVE GROUND ELEVATION OR ON SETBACK: $.50 PER HOUR ADDITIONAL.) .....$ 48.68 30.50

CARP1121-002 04/21/2025

	Rates	Fringes
MILLWRIGHT	$ 45.72	31.50

ELEC0099-002 06/01/2025

	Rates	Fringes
ELECTRICIAN (WORK OF A HAZARDOUS NATURE, OR WHERE THE WORK HEIGHT IS 30 FT. OR MORE FROM THE FLOOR, EXCEPT WHEN WORKING OSHA-APPROVED LIFTS: 20% PER HOUR ADDITIONAL. WORK IN TUNNELS BELOW GROUND LEVEL IN COMBINED SEWER OUTFALL: 20% PER HOUR ADDITIONAL.)	$ 56.11	24.74
TELEDATA SYSTEM INSTALLER (WORK OF A HAZARDOUS NATURE, OR WHERE THE WORK HEIGHT IS 30 FT. OR MORE FROM THE FLOOR, EXCEPT WHEN WORKING OSHA-APPROVED LIFTS: 20% PER HOUR ADDITIONAL. WORK IN TUNNELS BELOW GROUND LEVEL IN COMBINED SEWER OUTFALL: 20% PER HOUR ADDITIONAL.)	$ 42.09	19.71

ELEV0039-001 01/01/2025

	Rates	Fringes
ELEVATOR MECHANIC (ADDTIONAL FRINGE TO BE PAID A. PAID HOLIDAYS: NEW YEARS DAY; MEMORIAL DAY; INDEPENDENCE DAY; LABOR DAY; VETERANS' DAY; THANKSGIVING DAY; THE FRIDAY AFTER THANKSGIVING DAY; AND CHRISTMAS DAY. B. EMPLOYER CONTRIBUTES 8% BASIC HOURLY RATE FOR 5 YEARS OR MORE OF SERVICE OF 6% BASIC HOURLY RATE FOR 6 MONTHS TO 5 YEARS OF SERVICE AS VACATION PAY CREDIT.)	$ 64.52	38.44

ENGI0057-001 12/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 1: CRANES, LIGHTERS, BOOM TRUCKS AND		

DERRICKS. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $ 2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 51.30 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 2: DIGGING MACHINE, ROSS CARRIER, LOCOMOTIVE, HOIST, ELEVATOR, BIDWELL-TYPE MACHINE, SHOT & WATER BLASTING MACHINE, PAVER, SPREADER, GRADERS, FRONT END LOADER (3 YDS. AND OVER), VIBRATORY HAMMER & VACUUM TRUCK, ROADHEADERS, FORKLIFTS, ECONOMOBILE TYPE EQUIPMENT, TUNNEL BORING MACHINES, CONCRETE PUMP AND ON SITE CONCRETE PLANTS. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $ 2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 49.30 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 3: OILERS ON CRANES. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $ 2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY,

THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 44.92 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 4: OILER ON CRAWLER BACKHOE. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $ 2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.) ...$ 42.07 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 5: BULLDOZER, BOBCATS, SKID STEER LOADER, TRACTOR, SCRAPER, COMBINATION LOADER BACKHOE, ROLLER, FRONT END LOADER (LESS THAN 3 YDS.), STREET AND MOBILE-POWERED SWEEPER (3-YD. CAPACITY), 8-FT. SWEEPER MINIMUM 65 HP). (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 48.35 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 6: WELL-POINT INSTALLATION CREW. (BOOM

LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $ 2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 39.15 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 7: UTILITY ENGINEERS AND SIGNAL PERSONS. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $ 2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 33.15 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 8: HEATER, CONCRETE MIXER, STONE CRUSHER, WELDING MACHINE, GENERATOR AND LIGHT PLANT, GAS AND ELECTRIC DRIVEN PUMP AND AIR COMPRESSOR. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $ 2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL.

TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 45.00 29.95
POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 9: BOAT & TUG OPERATOR. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + $ 2.00; 180 FEET AND OVER + $ 3.00; 210 FEET AND OVER + $ 4.00; 240 FEET AND OVER + $ 5.00; 270 FEET AND OVER + $ 7.00; 300 FEET AND OVER + $ 8.00; 350 FEET AND OVER + $ 9.00; 400 FEET AND OVER + $10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 48.92 29.95

ENGI0057-003 12/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 1: CRANES, LIGHTERS, BOOM TRUCKS AND DERRICKS. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + $ 2.00; 180 FT. AND OVER: + $ 3.00; 210 FT. AND OVER: + $ 4.00; 240 FT. AND OVER: + $ 5.00; 270 FT. AND OVER: + $ 7.00; 300 FT. AND OVER: + $ 8.00; 350 FT. AND OVER: + $ 9.00; 400 FT. AND OVER: + $10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....	$ 50.57	29.95
POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 2: DIGGING MACHINE, ROSS CARRIER, LOCOMOTIVE, HOIST, ELEVATOR, BIDWELL-TYPE MACHINE, SHOT & WATER BLASTING MACHINE, PAVER, SPREADER, FRONT END LOADER (3 YDS. AND OVER), VIBRATORY HAMMER AND VACUUM TRUCK. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + $ 2.00; 180 FT. AND OVER: + $ 3.00; 210 FT. AND OVER: + $ 4.00; 240 FT. AND OVER: + $ 5.00; 270 FT. AND OVER: + $ 7.00; 300 FT. AND OVER: + $ 8.00; 350 FT. AND OVER: + $ 9.00; 400 FT. AND OVER: + $10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL		

DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.)

.....$ 48.57 29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 3: TELEHANDLER EQUIPMENT, FORKLIFT, CONCRETE PUMP & ON-SITE CONCRETE PLANT. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + $ 2.00; 180 FT. AND OVER: + $ 3.00; 210 FT. AND OVER: + $ 4.00; 240 FT. AND OVER: + $ 5.00; 270 FT. AND OVER: + $ 7.00; 300 FT. AND OVER: + $ 8.00; 350 FT. AND OVER: + $ 9.00; 400 FT. AND OVER: + $10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 48.35 29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 4: FIREMAN & OILER ON CRANES. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + $ 2.00; 180 FT. AND OVER: + $ 3.00; 210 FT. AND OVER: + $ 4.00; 240 FT. AND OVER: + $ 5.00; 270 FT. AND OVER: + $ 7.00; 300 FT. AND OVER: + $ 8.00; 350 FT. AND OVER: + $ 9.00; 400 FT. AND OVER: + $10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 44.35 29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 5: OILER ON CRAWLER BACKHOE. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + $ 2.00; 180

FT. AND OVER: + $ 3.00; 210 FT. AND OVER: + $ 4.00; 240 FT. AND OVER: + $ 5.00; 270 FT. AND OVER: + $ 7.00; 300 FT. AND OVER: + $ 8.00; 350 FT. AND OVER: + $ 9.00; 400 FT. AND OVER: + $10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 41.50 29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 6: BULLDOZER,SKID STEER LOADERS,BOBCATS, TRACTOR, GRADER, SCRAPER,COMBINATION LOADER BACKHOE, ROLLER, FRONT END LOADER (LESS THAN 3 YDS.), STREET AND MOBILE POWERED SWEEPER (3 YDS. CAPACITY), 8-FT. SWEEPER (MINIMUM 65 HP). (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + $ 2.00; 180 FT. AND OVER: + $ 3.00; 210 FT. AND OVER: + $ 4.00; 240 FT. AND OVER: + $ 5.00; 270 FT. AND OVER: + $ 7.00; 300 FT. AND OVER: + $ 8.00; 350 FT. AND OVER: + $ 9.00; 400 FT. AND OVER: + $10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 47.65 29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 7: WELL POINT INSTALLATION CREW. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + $ 2.00; 180 FT. AND OVER: + $ 3.00; 210 FT. AND OVER: + $ 4.00; 240 FT. AND OVER: + $ 5.00; 270 FT. AND OVER: + $ 7.00; 300 FT. AND OVER: + $ 8.00; 350 FT. AND OVER: + $ 9.00; 400 FT. AND OVER: + $10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 47.22 29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 8: HEATER, CONCRETE MIXER, STONE CRUSHER, WELDING MACHINE, GENERATOR FOR LIGHT PLANT, GAS AND ELECTRIC DRIVEN PUMP & AIR COMPRESSOR. (BOOM

LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + $ 2.00; 180 FT. AND OVER: + $ 3.00; 210 FT. AND OVER: + $ 4.00; 240 FT. AND OVER: + $ 5.00; 270 FT. AND OVER: + $ 7.00; 300 FT. AND OVER: + $ 8.00; 350 FT. AND OVER: + $ 9.00; 400 FT. AND OVER: + $10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: $2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: $5.00 PER HOUR ADDITIONAL.).....$ 44.54 29.95

ENGI0057-005 12/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 1: CRANES, PILE DRIVERS, LIGHTERS, BOOM TRUCKS, HOISTS, DERRICKS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....	$ 46.45	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 2: DIGGING MACHINES, EXCAVATORS, LOCOMOTIVES, JOHN HENRY'S, DIRECTIONAL DRILLING MACHINES, COLD PLANERS, RECLAIMERS, PAVERS, SPREADERS, GRADERS, FRONT-END LOADERS (3YDS & OVER), VACUUM TRUCK, DRILL/BORING MACHINE OPERATORS, VERMEER SAW, WATER BLASTER, HYDRAULIC-DEMOLITION ROBOT, ROSS CARRIERS, CONCRETE PUMP OPERATORS, ASPHALT/MATERIAL TRANSFER MACHINES, ROTATING TELEHANDLERS, SPMT TYPE EQUIPMENT. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.) DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.....	$ 44.45	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION		

PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 3: WELLPOINT INSTALLATION AND DRILL/BORING MACHINE ASSISTANTS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....$ 39.15 29.95

POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 4: UTILITY ENGINEERS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....$ 25.75 29.95

POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 5: SIGNAL PERSONS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....$ 33.15 29.95

POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 6: OILERS ON CRANES AND DECKHANDS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....$ 39.73 29.95

POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 7: COMBINATION LOADER / BACKHOES, FRONT-END LOADERS (LESS THAN 3 YDS.), FORKLIFT, BULLDOZERS, SCRAPERS, BOATS, ROLLERS, SKID STEER LOADERS (REGARDLESS OF ATTACHMENTS), STREET SWEEPERS, MECHANICS, WELDERS, OPERATORS IN MATERIALS YARDS, SHOPS AND GARAGES.

(ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....$ 43.43 29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 8: GAS AND ELECTRIC DRIVE HEATERS, CONCRETE MIXERS, LIGHT PLANTS, WELDING MACHINES, PUMPS AND COMPRESSORS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....$ 38.70 29.95

IRON0037-001 09/16/2025

	Rates	Fringes
IRONWORKER	$ 43.03	33.53

LABO0271-001 12/03/2023

	Rates	Fringes
LABORER (BUILDING CONSTRUCTION): GROUP 1: Laborer, Carpenter Tender, Mason Tender, Cement Finisher Tender, Scaffold Erector, Wrecking Laborer, Asbestos Removal [Non-Mechanical Systems	$ 37.00	26.90
LABORER (BUILDING CONSTRUCTION): GROUP 2: Asphalt Raker, Adzemen, Pipe Trench Bracer, Demolition Burner, Chain Saw Operator, Fence & Guard Rail Erector, Setter of Metal Forms for Roadways, Mortar Mixer, Pipelayer, Riprap & Dry Stonewall Builder, Highway Stone Spreader, Pneumatic Tool Operator, Wagon Drill Operator, Tree Trimmer, Barco-Type Jumping Tamper, Mechanical Grinder Operator	$ 37.00	26.90
LABORER (BUILDING CONSTRUCTION): GROUP 3: Pre-Cast Floor & Roof Plank Erectors	$ 37.00	26.90
LABORER (BUILDING CONSTRUCTION): GROUP 4: Air Track Operator, Hydraulic & Similar Self-Powered Drill, Block Paver, Rammer, Curb Setter, Powderman & Blaster	$ 37.00	26.90
LABORER (BUILDING CONSTRUCTION): GROUP 5: Toxic Waste Remover	$ 39.00	26.90

LABO0271-002 11/27/2022

	Rates	Fringes
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): COMPRESSED AIR: GROUP 1:Mucking machine operator, tunnel laborer, brake person, track person, miner, grout person, lock tender, gauge tender, miner: motor person & all others in compressed air	$ 55.40	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): COMPRESSED AIR: GROUP 2: Change house attendant, powder watchperson, top person on iron	$ 52.93	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): COMPRESSED AIR: GROUP 3: Hazardous waste work within the ""HOT"" zone.....	$ 42.45	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): FREE AIR: GROUP 1: Grout person - pumps, brake person, track person, form mover & stripper (wood & steel), shaft laborer, laborer topside, outside motorperson, miner, conveyor operator, miner welder, heading motorperson, erecting operator, mucking machine operator, nozzle person, rodperson, safety miner, shaft & tunnel, steel & rodperson, mole nipper, concrete worker, form erector (wood, steel and all accessories), cement finisher (this type of work only), top signal person, bottom person (when heading is 50' from shaft), burner, shield operator and TBM operator.....	$ 46.00	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): FREE AIR: GROUP 2: Change house attendant, powder watchperson	$ 45.00	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): FREE AIR: GROUP 3: Hazardous waste work within the ""HOT"" zone.	$ 42.45	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 1: Laborer; Carpenter tender; Cement finisher tender; Wrecking laborer; Asbestos removers [non-mechanical systems]; Plant laborer; Driller in quarries.....	$ 33.05	24.05
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 2: Adzeperson; Asphalt raker; Barcotype jumping tamper; Chain saw operators; Concrete and power buggy operator; Concrete saw operator; Demolition burner; Fence and guard rail erector; Highway stone spreader; Laser beam operator; Mechanical grinder operator; Mason tender; Mortar mixer; Pneumatic tool operator; Riprap and dry stonewall builder; Scaffold erector; Setter of metal forms for roadways; Wagon drill operator; Wood chipper operator; Pipelayer; Pipe trench bracer	$ 35.75	24.85
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 3: Air track drill operator; Hydraulic and similar powered drills; Brick paver; Block paver; Rammer and curb setter; Powderperson and blaster.....	$ 36.50	24.85
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 4: Flagger & signaler.....	$ 29.00	24.85

LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 5:
Toxic waste remover .....$ 37.50 24.85
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): OPEN AIR CAISSON, UNDERPINNING WORK AND BORING CREW: BOTTOM MAN.....$ 41.50 24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): OPEN AIR CAISSON, UNDERPINNING WORK AND BORING CREW: TOP MAN & LABORER.....$ 35.60 24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): TEST BORING: DRILLER.....$ 41.95 24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): TEST BORING: LABORER.....$ 41.95 24.15

PAIN0011-005 06/01/2025

	Rates	Fringes
PAINTER (BRUSH AND ROLLER)	$ 39.57	26.60
PAINTER (EPOXY, TANKS, TOWERS, SWING STAGE & STRUCTURAL STEEL)	$ 41.57	26.60
PAINTER (SPRAY, SAND & WATER BLASTING)	$ 42.57	26.60
PAINTER (TAPER)	$ 38.82	25.80
PAINTER (WALL COVERER)	$ 38.57	25.80

PAIN0011-006 06/01/2024

	Rates	Fringes
GLAZIER (SWING STAGE: $1.00 PER HOUR ADDITIONAL. PAID HOLIDAYS: LABOR DAY & CHRISTMAS DAY.)	$ 41.63	26.15

PAIN0011-011 06/01/2024

	Rates	Fringes
PAINTER (BRIDGE WORK)	$ 57.85	26.40

PAIN0035-008 06/01/2011

	Rates	Fringes
SIGN PAINTER	$ 24.79	13.72

PLAS0040-001 01/01/2025

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (BUILDING CONSTRUCTION) (CEMENT MASON: WORK ON FREE SWINGING SCAFFOLDS UNDER 3 PLANKS WIDTH AND WHICH IS 20 OR MORE FEET ABOVE GROUND AND ANY OFFSET STRUCTURE: $.30 PER HOUR ADDITIONAL.)	$ 44.75	29.10

PLAS0040-002 01/01/2025

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (HEAVY AND HIGHWAY CONSTRUCTION)	$ 40.45	25.30

PLAS0040-003 01/01/2025

	Rates	Fringes
PLASTERER	$ 45.52	29.43

PLUM0051-002 08/25/2025

	Rates	Fringes
PLUMBERS AND PIPEFITTERS	$ 54.34	34.50

ROOF0033-004 12/01/2025

	Rates	Fringes
ROOFER	$ 47.49	31.44

SFRI0669-001 04/01/2025

	Rates	Fringes
SPRINKLER FITTER	$ 53.76	33.44

SHEE0017-002 06/01/2025

	Rates	Fringes
SHEET METAL WORKER	$ 44.42	41.94

TEAM0251-001 05/01/2025

	Rates	Fringes
TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 1: PICK-UP TRUCKS, STATION WAGONS, & PANEL TRUCKS (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB		

SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) .....$ 31.86 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 2: TWO-AXLE ON LOW BEDS (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) .....$ 32.01 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 3: TWO-AXLE DUMP TRUCK (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) .....$ 32.06 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 4: THREE-AXLE DUMP TRUCK (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR

OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) .....$ 32.11 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 5: FOUR- AND FIVE-AXLE EQUIPMENT. (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) .....$ 32.21 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 6: LOW-BED OR BOOM TRAILER. (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) .....$ 32.61 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP

7: TRAILERS WHEN USED ON A DOUBLE HOOK UP (PULLING 2 TRAILERS). (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.)
.....$ 32.81 34.51
TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 8: SPECIAL EARTH-MOVING EQUIPMENT, UNDER 35 TONS.(ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) .....$ 32.31 34.51
TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 9: SPECIAL EARTH-MOVING EQUIPMENT, 35 TONS OR OVER. (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED

150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) .....$ 32.56 34.51
TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 10: TRACTOR TRAILER. (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR ($100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS ($500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF $2.00 PER HOUR OVER APPLICABLE RATE.) ...$ 32.36 34.51

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information

on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than SU, UAVG, SA, or SC denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the

classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The SU identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

SU wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The SA identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination.

The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the SA identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative

Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

"

“END OF GENERAL DECISION"

Appendix D

Remedial Action Work Plan

REMEDIAL ACTION WORK PLAN

Division Street Property
45 Division Street
Pawtucket, Rhode Island

Prepared for:
Fortuitous Tidewater OZ, LLC

SLR #: 141.16222.00005.0106

March 2023

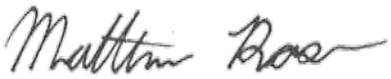
SIGNATURE PAGE

This document has been prepared by SLR International Corporation.

QUALIFICATIONS

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property.

Prepared by:



Matthew Rose
Project Environmental Scientist

Reviewed by:

Peter Shea, LEP
Principal Environmental Scientist

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Figure 1 Site Location Map
Figure 2 Site Map

APPENDICES

Appendix A Preliminary Construction Plans
Appendix B Construction Soil Management Plan
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1. INTRODUCTION

1.1 PROJECT INFORMATION

SLR International Corporation (SLR) has prepared this Remedial Action Work Plan (RAWP) on behalf of Fortuitous Tidewater OZ, LLC (Fortuitous) and the City of Pawtucket (City) for three contiguous parcels totaling 15.8 acres (Plat 23A, Lot 0599, Lot 0672, and Lot 0673). The parcels abut the east shore of the Seekonk River in Pawtucket, Rhode Island (the "Site" or "property") (Figure 1).

This RAWP was prepared to address concentrations of total petroleum hydrocarbons (TPH) polycyclic aromatic hydrocarbons (PAHs), total lead and total arsenic that are present in soils across the Site that exceed the applicable Rhode Island Department of Environmental Management (RIDEM) Method 1 numeric criteria for Residential Direct Exposure (RDEC) and/or the Industrial/Commercial DEC (ICDEC).

This work has been funded through the Brownfields Remediation and Economic Development Fund Grant Agreement between the RIDEM Office of Land Revitalization and Sustainable Materials Management and Fortuitous for the period of January 29, 2021, to January 29, 2024. The purpose of the grant was for the Brownfield remediation and assessment of the property.

The City of Pawtucket will implement the remedial action based on the following phases of construction as part of the Tidewater Landing Project, which includes the Town Landing property located directly west, across the Seekonk River. Note that the Division Street activities are confined to Step 5:

- Step 1: National Grid remediation work on its properties as approved by RIDEM under separate authorizations. This construction work is currently in progress.
- Step 2: Repair of the river wall at Town Landing as part of the approved STRAP by the City at the direction of the RIDEM. This phase is already approved by the RIDEM and is not part of this Site Investigation Report (SIR) evaluation. Construction is currently in progress. (Phase I STRAP, 2019)
- Step 3: Construction of the stadium and associated structures on the National Grid site with use of the subject site for construction staging.
- Step 4: Construction of the riverwalk portion of the subject site with associated landscaping areas connecting the Town Landing boat launch area to the riverwalk adjacent to the stadium.
- Step 5: Development and construction of Division Street parcels, located east of the Seekonk River.
- Step 6: Development of the Taft Street Site as a mixed-use residential/retail building after the temporary staging for the stadium project is complete.

This RAWP has been prepared in accordance with Section 9.0 of the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations) and will detail the remedial work under Step 5 for construction at the Site, and for detailed construction activities as the construction sequence is developed. The preferred remedial alternative is a combination of the placement of an engineered cap to limit potential future exposure to soils, followed by the recording of an Environmental Land Use Restriction (ELUR). The ELUR will be recorded on the Site with a Post-Construction Soil Management Plan (SMP). The ELUR will ensure that the established engineered barriers remain in place and that the Site will be maintained with commercial and restricted residential (i.e., apartments and condominiums) land use.

1.2 SITE DESCRIPTION

The Site consists of three contiguous parcels totaling 15.8 acres lined along the east shore of the Seekonk River in Pawtucket, Rhode Island. The Site is currently owned by the City of Pawtucket.

The northernmost Site parcel is approximately 9.15 acres (Plat 23A, Lot 599, or "Lot 599") in size and is addressed as 45 Division Street. Lot 599 is bordered to the northwest by River Street and by the Seekonk River to the west. To the south is Lot 673 and to the east is Lot 672 and Water Street. The north portion of Lot 599 abuts Division Street.

Access to Lot 599 is on the north side via a driveway along Division Street. The north and east sides of Lot 599 are fence-bordered. This portion of the Site is currently a gravel lot, which has been used as a staging area for equipment storage by the Rhode Island Department of Transportation (RIDOT). Staged materials included stockpiled construction materials such as stone, sand, and concrete.

The second parcel associated with the Site, located southeast of Lot 59, is Lot 672 with an address of School Street, per the City of Pawtucket Assessor records, and is comprised of approximately 1.03 acres. This parcel is densely wooded and steeply slopes in the westerly direction from School Street downward toward the Seekonk River. A significant area of fill material is present across the eastern-central portion. This fill material was observed to contain coal ash, glass, brick, wood, asphalt, and rubber, along with other windblown refuse. A concrete retaining wall and access ramp led to an unpaved roadway through the woods and along the river. Stone structures are visible in this portion of the Site.

The southern portion of the Site is comprised by the parcel Lot 673 with the same address as Lot 672, "School Street." This parcel consists of approximately 2.28 acres of wooded land. Vagrant activity was observed on the lower plain near the river on the west side. The topography of Lot 673 is steeply sloped downward in the westerly direction toward the Seekonk River. A marshy river floodplain exists in the southwesterly corner of Lot 673 and was observed to be heavily overgrown with knotweed and other invasive vegetation.

1.1 SITE HISTORY SUMMARY

The Site was historically used as a coal and lumber company and storage yard from the mid-1800s until the early-1960s with some residential development along the eastern border (School Street). From the

1960s to the early-1970s, the Site was used as a storage yard for scrap automobiles. From 1973 until approximately 1995, the Site operated as an auto sales and service facility with one large building, which was abandoned and razed sometime between 1998 and 2003. Except for sparse RIDOT construction material storage on the northern portion, the Site has remained vacant and unused since that time.

1.2 TOPOGRAPHY AND DRAINAGE

The Subject Property has a sitewide, general westerly slope toward the Seekonk River. The northern portion closer to Division Street is mostly flat while the remainder of the Site has a mix of moderate-to-steep slopes. Site topography is mapped at a high elevation of approximately 50 feet above mean sea level (ft amsl) in the eastern-central portion to a low elevation of approximately five ft amsl along the western border at the Seekonk River.

The nearest surface waterbody is the south-flowing Seekonk River, which abuts the western border of the subject parcels. Surface runoff (stormwater) is expected to follow the topographical gradient westerly toward the Seekonk River.

The Seekonk River ultimately discharges into the Providence River at a confluence approximately four miles to the south of the subject parcels. The Seekonk River is classified by the RIDEM as an “SB1 estuarine” waterbody. These types of waterbodies are generally defined by the RIDEM as waters designated for primary and secondary contact recreational activities and fish and wildlife habitat. In addition, Class SB1 waters shall also be suitable for aquacultural uses, navigation, and industrial cooling. It is noted that this section of the Seekonk River (part of the Narragansett Basin RI0007019E-01) is reported to be impaired for fecal coliform, total nitrogen, and dissolved oxygen.

1.3 GROUNDWATER

According to the RIDEM Environmental Resource Map (ERM), groundwater quality beneath the Site is classified as "GB." The RIDEM Office of Water Resources generally defines "GB" as groundwater that may not be suitable for drinking water use without treatment due to known or presumed degradation.

Previous investigations indicated that groundwater was encountered on the northeast side of the Site between 16 and 18 feet below grade (ft bg). Groundwater was not encountered in any other areas of the Site. Groundwater flow is mapped to flow in the west-southwest direction, toward the Seekonk River.

A previous investigation conducted by GZA in 2005 included the collection and analysis of three groundwater samples collected from wells installed at the northeast portion of the Site. The results indicated that no total petroleum hydrocarbons (TPH) were detected at concentrations above the laboratory reporting limits and that traces of two volatile organic compounds (VOCs), cis-1,2-dichloroethylene and trichloroethene, were detected in one of the samples at 0.0012 milligrams per liter (mg/L) and 0.028 mg/L, respectively, which are both well below the GB-Groundwater Objective (GB-GO) and the GB Upper Concentration Limits for both constituents.

During April and May 2021, SLR installed four overburden monitoring wells and one bedrock monitoring well at the Site. In addition to the installations, SLR also gauged the wells and collected groundwater samples from the newly installed bedrock well and an existing bedrock well (SLR-MW-3 (MW-3) and SLR-218 (MW-6)). The overburden wells were found to be dry and therefore were not sampled. Based on a review of historical groundwater investigations and the recent groundwater depth measurements made, the inferred groundwater flow was determined to be southwesterly toward the Seekonk River.

In order to provide more information on overburden groundwater quality, a piezometer (PZ-1) was installed on May 25, 2022, at the base of the slope intersecting groundwater near SLR-219. The piezometer is constructed of a 3-foot stainless steel screen with a drive-point and 2-inch diameter steel pipe. The piezometer was driven to a depth of 5 ftbg with groundwater observed at 2.5 ftbg during installation. The piezometer was developed using a surging block and bailed until all visible sediment was removed. On December 29, 2022, groundwater was measured at 3.5 ftbg, purged and sampled using a bailer method, and submitted to a certified laboratory for analysis of VOCs. Additionally, MW-4D was installed in November 2022 to a depth of 24 ftbg to help reproduce the findings of the previous groundwater results at B-2. The well was completed as a 1-inch PVC micro-well using direct-push methods, screened from 14 to 24 ftbg, and subsequently developed prior to sampling. Groundwater was measured at 16.49 ftbg, which is consistent with the findings in pervious borings by GZA (B-1, B-2 and B-3).

The groundwater samples were analyzed for VOCs by EPA Method 8260. There were no detections of VOCs at concentrations above the laboratory reporting limits in any of the groundwater samples.

A review of the historical and recent groundwater investigations revealed that groundwater at the Site does not appear to require further investigation.

1.4 SURFACE WATER

According to RIDEM's *Water Quality Classification Descriptions*, dated August 6, 1997, the Seekonk River is a Class B1a surface waterbody, indicating that it is considered appropriate for boating and other secondary contact recreational activities, fish and wildlife habitat, and industrial processes and cooling. Surface water was not evaluated as the development of the Site will be limited to upland areas beyond the proposed bridge crossing.

1.5 PROPOSED SITE DEVELOPMENT

Fortuitous is preparing the final documents for Phase 5 of the Division Street Tidewater Landing project, which includes the event center construction on Lot 599, mixed commercial and residential development along School Street on Lot 672, and riverfront improvements along the east side of the Seekonk River throughout the entire Site. The riverfront improvements include a riverwalk from the municipal boat launch property located south of the Site, extending northward across Lots 673 and 672, and ending at a pedestrian bridge on Lot 599, which leads west over the Seekonk River to the Taft Street development and stadium.

As part of Phase 5, the Site will be cleared and graded with construction access from Division Street. The gravel area in Lot 599 will serve as a parking area and will accommodate the placement of job trailers. The construction in Phase 5 will incorporate the remedial alternatives selected as part of the SIR and will not commence until permitting and approval are obtained from RIDEM and the City.

A copy of the current version of the construction plans is provided in Appendix A. The plan set includes the first phase of the overall project with the event center and associated structures depicted and the Site as part of the construction staging and riverwalk buildout. Future construction plans will include a detail on the proposed soil removal, capping with clean fill, and use of impervious surfaces.

The proposed remedy will include excavation of lead-impacted soil in the eastern portion of Lot 672, engineered caps utilizing permanent foundations, hardscapes (asphalt parking lots, paved walkways, concrete walkways, patios, etc.), and two types of soil caps (one foot thick with geotextile layer and a two-foot cap of clean fill). These engineering controls will be implemented to prevent direct exposure to the remaining underlying impacted soil in the southwest portion of Lot 673.

Based on the proposed design, there will be vegetation grubbing, grading and relocation of impacted soils, and removal of solid waste debris, and an export of approximately 1,500 cubic yards of impacted soil.

2. PREVIOUS SITE INVESTIGATIONS

The following section is a summary of the methods and findings of previous assessments or investigations on record with the RIDEM.

2.1 1998 INVESTIGATIONS

Fluor Daniel GTI (FDGTI) performed a June 9, 1998, Phase II Environmental Site Assessment (ESA) on June 9, 1998. This investigation consisted of sampling activities conducted at below grade hydraulic lift locations to assist in determining if soils and groundwater at the Site were affected by past uses. The report noted that there was a TPH detection of 73,800 milligrams per kilogram (mg/kg) in a soil sample which exceeded the RIDEM TPH criteria of 500 mg/kg. As a result, a release report was completed and submitted to the RIDEM on June 22, 1998. In addition to the summary of sampling activities, the FDGTI Phase II ESA report also included a review of an environmental database search and a review of historical Sanborn maps. The reviews indicated that the 23 hydraulic lifts were considered as potential areas of concern and recommended further investigation of those areas.

A total of 23 soil borings were installed to a depth of 10 ft bg. One boring each was placed adjacent to each of the 23 hydraulic lifts and were labeled GP-1 through GP-15 and GP-18 through GP-24. In general, the samples were collected at depths ranging between six and 10 ft bg. TPH was detected in 11 of the 23 soil samples at concentrations above the laboratory reporting limit, ranging between 4.1 mg/kg to 120 mg/kg. An outlier was the detection of 73,800 mg/kg TPH in the GP-3 (6' – 10') sample. TPH was not detected above the laboratory reporting limits in any of the samples collected from borings installed in the southwest portion of the former building. The GP-3 soil sample was collected on the southeast side of the former building which was closest to a former 500-gallon waste oil underground storage tank (UST) located just outside the former building. Groundwater was not encountered during the explorations. FDGTI recommended that the USTs be removed, that the hydraulic lifts near the GP-3 sample be emptied and removed, and that the remaining hydraulic lifts be emptied.

FDGTI oversaw the removal of five former USTs on during August and September 1998. A total of 10 soil samples were collected in locations surrounding the former Eddy Chevrolet building at the Site during closure activities. Approximately 70 tons of encountered impacted soil generated from the heating oil UST (the 10,000-gallon UST located on the southeast exterior of the former Site building) was excavated and removed from the Site following the UST removals. No other impacted soil was encountered surrounding any of the other former USTs. Two soil samples were collected from the grave of each of the five USTs.

All of the 10 soil samples were analyzed for TPH, and one sample collected from each UST grave (five total samples) was also analyzed for polyaromatic hydrocarbons (PAHs). TPH was detected in all of the UST grave samples except for Tank 1 at concentrations ranging between 56.4 mg/kg and 212 mg/kg, which are below the RIDEM Soil Objective criteria for TPH of 2,500 mg/kg. TPH was not detected above the

laboratory reporting limit in the samples collected in the Tank 1 UST grave. PAHs were detected in three of the soil samples (Tanks 3, 4, and 5) at concentrations between 0.43 mg/kg to 3.83 mg/kg. These detections were below the respective RIDEM Soil Objective criteria for PAHs. PAHs were not detected above the laboratory reporting limits in the samples collected from the graves of Tanks 1 and 2.

Groundwater was not encountered during this subsurface investigation. It was noted in this report that an RIDEM representative was on-Site during the removal activities and had considered the UST removals closed cases. Since the Agency (RIDEM) confirmed that the former USTs had been officially removed, these former USTs are considered a historic REC (HREC).

FDGTI also oversaw the decommissioning of 23 former hydraulic lifts, and the removal of two of those lifts near the GP-3 location between August and September 1998. During the removals, FDGTI identified impacted soil in the area of GP-3 and subsequently had approximately 70 tons of impacted soil removed from the area. Approximately 1,200-gallons of hydraulic lift fluid was removed from the hydraulic lifts at the Site. Five closure samples were collected, and three of the five exceeded the RIDEM Soil Objective criteria of 2,500 mg/kg at 3,760 mg/kg, 2,620 mg/kg, and 4,720 mg/kg. FDGTI indicated that no further action was warranted based on the removal of the source and that there were constraints to the excavation area by the building frame.

The excavation in the southeast area at GP-3 was reported to have been 20 feet long by five feet wide by 13 feet in depth. There was additional follow-up correspondence (letters) clarifying some of the details listed above between FDGTI and RIDEM. One of which included the mention of a prior Phase II Subsurface Investigation completed at the Site by Briggs Associates (BA) on May 7, 1993. FDGTI noted that the 1993 BA investigation report revealed that groundwater at the Site was present at approximately 20 ft bg. No other information was provided regarding the 1993 BA Subsurface Investigation report.

2.2 2004 INVESTIGATIONS

GZA GeoEnvironmental Inc., (GZA) completed a Phase I/Phase II Environmental Site Assessment for Lot 599 in July 2004. This investigation consisted of the advancement of 12 soil borings, including borings within the five former UST areas. Select soil samples were analyzed for VOCs, PAHs, and/or Resource Conservation and Recovery Act list of eight metals (RCRA 8 Metals). None of the samples analyzed for VOCs reported concentrations above the RIDEM RDEC, the I/CDEC, or the GB-Leachability Criteria (GB-LC). One sample had detections of six PAHs at concentrations above the RDEC and one PAH constituent above the I/CDEC. One sample reported one PAH constituent above the RDEC. No metals were detected at concentrations above the RDEC or I/CDEC.

2.3 2005 INVESTIGATIONS

GZA completed a Site Investigation Report (SIR) in February 2005, a revision of a prior report submitted by GZA to the RIDEM in November 2005. This investigation was completed subsequent to the May 2004 through October 2005 Site investigation activities. A total of eight soil borings were installed in areas downgradient and adjacent to the former USTs and three of the borings were completed as monitoring wells.

A total of five soil samples were collected and were analyzed for VOCs, TPH, PAHs, and RCRA 8 Metals. No VOCs or TPH were detected at concentrations above the RIDEM soil criteria (RDEC, I/CDEC, or GB-LC) in any of the soil samples. PAHs were present in three soil samples at concentrations exceeding the RDEC and I/CDEC. Arsenic was detected at a concentration exceeding the RDEC and I/CDEC. It was determined that, based on the arsenic and PAH exceedances, a release had occurred at the Site due to the presence of impacted fill materials. This is considered an REC.

Groundwater samples were collected from the three wells and were analyzed for VOCs and TPH. The laboratory results indicated that no VOCs or TPH were detected at concentrations above the RIDEM Method 1 GB-GO or the GB Upper Concentration Limits.

The RIDEM approved this SIR on April 11, 2006 and required a submission of a RAWP for review of the detailed proposed plan of remedial actions to be completed during proposed redevelopment of the Site as a hotel and restaurant. The RIDEM also requested that a draft Environmental Land Use Restriction (ELUR) along with a Post Construction Soil Management Plan (SMP) be submitted.

GZA submitted a RAWP on December 29, 2006, that was later revised February 13, 2007, as final version following RIDEM comments and GZA responses. This report detailed the proposed remedial actions to be completed during the proposed redevelopment of the Site as a hotel and restaurant. The RAWP was approved on March 27, 2007, by the RIDEM.

The RAWP indicated that the remedial action would involve the implementation of engineering and institutional controls, including the capping of two feet of soil over the existing impacted Site soils by laying permanent surfaces over the impacted soils such as building foundations, walkways, parking lots, and landscaped areas to prevent direct exposure. The landscaped areas were to be developed by the placement of geosynthetic permeable textile over a minimum of 12 inches of off-Site soil, or two feet of off-Site soil without geosynthetic permeable textile.

Off-Site soil was to be characterized/sampled for contaminants ahead of time to ensure the use of clean fill only, at a rate of one sample per 1,000 cubic yards. It was noted that the removal of the existing foundations would require the removal of excess soils for off-Site disposal at a licensed disposal facility. The RIDEM indicated in their March 27, 2007, acceptance letter that within 30 days of completion a draft ELUR and a Post Construction SMP was to be submitted. The ELUR was to limit the type of Site use to commercial, industrial, and restricted residential (such as condominiums or apartments) only. In addition, the RIDEM requested the submittal of a Closure Report including any disposal documentation following the completion of redevelopment.

2.4 2017 INVESTIGATIONS

Woodard and Curran (W&C) submitted a RAWP on February 2, 2017. This RAWP summarized previous investigations performed at the Site and provided an updated approach to bring the Site to compliance while the Site undergoes newly planned redevelopment for the construction of three commercial

buildings on the northern portion and two large apartment buildings on the southern portion with paved parking and landscaping in the remaining areas.

The RAWP presented the engineered control of two types of cap options: a one-foot – thick cap consisting of at least four inches of clean soil/loam to sustain vegetation over a minimum of eight inches of clean and permeable drainage material, underlain by a geotextile lining, or a two-foot – thick cap consisting of the same four-inch clean soil/loam over at least 20 inches of clean permeable drainage material. This RAWP included the submittal of a Construction Phase SMP, a draft ELUR, and a Post Construction SMP which were modified from the originals previously submitted to reflect the implementation and maintenance of the newly presented cap options.

2.1 JUNE 2021 PHASE I ENVIRONMENTAL SITE ASSESSMENT - SLR

SLR completed a Phase I ESA for the Site and present the conclusions in a report dated June 2021. The Phase I ESA concluded with the findings of one recognized environmental condition (REC) and one historical REC (HREC). The REC included the presence of existing impacted fill material across the Site due to past operations as a former coal and lumber yard, a former auto salvage yard, and a former auto sales and service facility. The HREC included the former presence of five USTs, one of which was determined to have had a release. The USTs were confirmed to have been removed and the identified release from the one UST was investigated and remediated to the satisfaction of the RIDEM, per RIDEM Site documentation, thereby requiring no follow-up investigation.

2.2 MARCH 2022 SUPPLEMENTAL SITE INVESTIGATION REPORT - SLR

SLR and GZA coupled efforts to complete a subsurface investigation (SI) at the Site from March 2021 through May 2021 to further assess the REC of the remaining presence of impacted fill material across the Site identified in the June 2021 Phase I ESA report.

The SI included the following tasks:

- Geotechnical soil borings and evaluation
- Environmental soil borings
- Soil sampling
- Groundwater monitoring well installation and sampling

New England Boring Contractors, located Taunton, Massachusetts, was contracted to clear routes to the proposed soil boring and groundwater monitoring locations and complete drilling activities with oversight by SLR and GZA personnel.

SLR developed an additional SI scope of work as outlined in Exhibit B of the Brownfield Grant to supplement the findings of the previous Site investigations, such as the Phase II performed by Fluor Daniel in 1998, and the November 2005 SIR performed by GZA. The subsurface investigation was designed to

help determine the current soil and groundwater quality, evaluate the RECs identified in the SLR 2021 Phase I ESA, help evaluate remedial alternatives to achieve compliance with RIDEM regulations, and help design the eventual SMP for the proposed development.

On March 5, 2021, public notice mailings, signage, and community outreach with flyers were distributed for public review. On March 9, 2021, SLR mobilized to the Site to mark out the proposed soil and groundwater well installation locations. SLR developed a Site-specific Health and Safety Plan for its workers and contractors and retained GZA for oversight of geotechnical soil borings and well installation as part of the conceptual Site model (CSM). SLR retained Underground Surveying, LLC (Underground) to clear the proposed locations for potential unknown underground utilities or USTs. None of these features were identified during the ground penetrating radar (GPR) survey performed by Underground.

SLR oversaw the advancement of 21 environmental soil borings between March 22 to March 24, 2021, designated as SLR-200 through SLR-205, SLR-207 through SLR-215, SLR-218 through SLR-221, and SLR-223 and SLR-224. Exploration depths ranged from approximately 4.5± to 26± ft bg. In general, observations of encountered materials included a layer of fill material between grade and approximately 4.5± to 21.8± ft bg, followed by a layer of river deposits.

A total of 31 soil samples were collected and were analyzed for one or more of the following parameters: TPH, total metals, leachable metals, polychlorinated biphenyls (PCBs), PAHs, semivolatile organic compounds (SVOCs), and/or VOCs. The analyses varied for select samples based upon Select analyses were requested for samples based upon the depth of anticipated impact.

The laboratory analytical results for soil indicated several exceedances of RDEC, and I/CDEC. RDEC exceedances included the detections of lead and arsenic; TPH, and PAH constituents benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. Exceedances of the I/CDEC included lead and arsenic; and PAHs (benzo(a)anthracene), benzo(a)pyrene, and dibenzo(a,h)anthracene.

PAHs and SVOCs were detected in 15 of the 22 soil borings. Several compounds that were analyzed, especially VOCs, had laboratory reporting limits that exceeded their respective regulatory criteria. None of the detections exceeded the GB-LC.

Groundwater was evaluated with the installation of four overburden and one bedrock groundwater monitoring wells in April 2021. At the request of RIDEM, an additional overburden well (MW-4D) and piezometer were installed to help evaluate historical impacts observed in previous assessments at the Site (refer to Figure 2 for depiction of the well locations). Groundwater samples were collected and submitted for VOC analysis by EPA Method 8260. Based on the laboratory results there were no detections above the reporting limits in groundwater at the Site.

3. REMEDIAL OBJECTIVES (RULE 9.02)

In accordance with Section 9.02 of the Remediation Regulations, this RAWP addresses remedial objectives for all impacted media at the Site in a manner consistent with Section 8.0 (Risk Management) for groundwater, surface water and sediment, soil, and air objectives.

3.1 GROUNDWATER OBJECTIVE

Based on a review of the groundwater investigation findings, there were no exceedances of the RIDEM GB-LC or detected concentrations of TPH, SVOCs, or VOCs in the bedrock or overburden aquifers. There appears to be no off-Site release(s) on-Site impacting groundwater quality; therefore, no remedial objectives have been established for groundwater.

3.2 SURFACE WATER AND SEDIMENT OBJECTIVE

The Seekonk River abuts the Site to the west; however, the phases of the development project covered under this RAWP do not include uncontrolled discharge to, realignment of, or dredging of the river. Therefore, no remedial action objectives (beyond best management practices during construction) have been established for surface water or sediment. The objective may be revisited under separate cover for the completion of the proposed footbridge but is not proposed as part of this phase of the development.

3.3 SOIL OBJECTIVE

The primary objectives outlined in the March 2022 SI report were to evaluate the existing quality of Site environmental media (i.e., soil and groundwater) compared to those identified in during previous investigations and determine the level of impacts to existing fill material across the Site (REC).

Based on an evaluation of the supplemental data results, there are concentrations of COCs in soil, including arsenic, lead, TPH, and SVOCs that exceed the RDEC. In general, the exceedances were concentrated in soil samples collected from the layer of urban fill across the Site and appeared to decrease in concentration with depth toward the underlying outwash deposits of silty sand or sand and gravel. The results indicated no evidence of a release creating a plume migrating through the Site.

The sources of contamination are likely attributed to the historical placement of fill containing asphalt, ash, and other anthropogenic material with substances intermixed within the fill. The selected remedial approach, engineered cap and institutional controls, is consistent with the intent of the Remediation Regulations and in keeping with the planned construction/development activities for the property.

The implementation of the remedial action will be completed as part of the overall Tidewater project (refer to Appendix A for Site plans). During Step 5 of the overall Tidewater Project, the final remedial action will be implemented at the Site with final buildout of the proposed structures, landscaping, and hardscape.

The management of Site soil will be closely controlled through each phase of construction with best management construction practices, establishment of soil and erosion controls, use of fencing and signage to limit public access until final development is complete, layout of a demarcation layer and a clean soil cap as the project progresses, and ongoing monitoring to ensure stabilization of soil during construction to prevent off-Site migration. The planned construction/development will prevent direct contact to the public and workers during all phases of construction until the final incorporation of the engineered cap and development buildout. A construction SMP has been prepared as part for the bid package for contractors that will detail these best management practices and describe the controls for implementation during construction. A copy of the construction SMP is provided in Appendix B.

The establishment of an ELUR in conjunction with the SMP will provide guidelines for addressing the observed conditions and assure the long-term effectiveness of this strategy and maintenance of the engineered control cap and cover material.

3.4 AIR OBJECTIVE

No impacts to air are anticipated as the COCs at the Site are either nonvolatile (i.e., metals) or of low volatility (PAHs or TPH). Therefore, no remedial action objectives have been established for air. Dust control air monitoring will be employed during the construction process, and the excavation of lead-impacted soils on the southeastern edge of Lot 672 and will be detailed in the construction SMP provided in Appendix B.

4. PROPOSED REMEDY (RULE 9.03)

The proposed remedy for the Site has been developed to control and/or evaluate known conditions that represent regulatory exceedances as established in the Remediation Regulations. This section details the proposed remedy for the Site and justifies the ability of the remedy to meet the remedial objectives discussed in Section 3.0. of this report. A copy of the proposed development plans that includes details on the sequence for the proposed remedy is provided in Appendix A.

The proposed remedy will be completed in phases as part of the Tidewater Stadium project, which includes the redevelopment of the Site. The following is a summary of the construction sequence referenced in Section 1.1 where the proposed remedy will be implemented for the Site:

- Step 5: Development and construction of Division Street parcels located east of the Seekonk River

The proposed remedy for this RAWP is currently limited to Step 5 for the development and construction of the event center, mixed commercial and residential use structures, recreational structures, and the River Walk trails. In general, the proposed remedy is the placement of a cap of clean fill or impervious concrete cover over affected areas of the Site. In a limited area in the eastern portion of the Site, approximately 1,500 cubic yards of contaminated fill will be removed from Site and disposed at an approved facility. The ELUR will be instituted upon final redevelopment of the Site and, for the purposes of this RAWP, will cover work completed as part of the Tidewater Stadium project by Fortuitous on behalf of the City. The City will ultimately be responsible for the completion of the ELUR for the entirety of the Site.

4.1 CONTRACTORS AND/OR CONSULTANTS

The following table provides a list of contractors and consultants involved in the implementation of the remedy:

FIRM	ROLE	CONTACT	ADDRESS	PHONE NUMBER
DIMEO CONSTRUCTION	Construction Manager	Curtis Ruotolo	75 Chapman Street Providence, RI 02905	401.781.9800
FORTUITOUS	Developer	Dan Kroeber	953 Chattanooga Avenue Los Angeles, CA 90272	203.464.3071
SLR	Environmental & Engineering & Air Monitoring	Peter Shea	45 Glastonbury Boulevard Glastonbury, CT 06033	860.400.5680

SLR will be present at the Site during periods of construction activities that involve the remedial components described herein. Consistent with our practice, daily field summaries describing these construction activities will be prepared. Photographic evidence of the placement and thickness of engineered cap (soil and or impervious surfaces) will be provided in the Remedial Action Completion Report. Air monitoring will be overseen by SLR with the Contractor retained during earthwork activities.

The Contractor has not yet been selected for the completion of the project.

4.2 DESIGN STANDARDS AND TECHNICAL SPECIFICATIONS (RULE 9.10)

The design performance standard for the engineered cap is to prevent direct contact with the surface and subsurface soils. The proposed design plans are provided in Appendix A, which detail the locations and phasing of Site redevelopment and implementation of the proposed remedy. While the cap types and capping details are not anticipated to change, the in-the field locations may vary from the design due to change in conditions.

The final cap areas will be limited to the work completed as part of the Division Street project, which includes the entirety of Lot 599, Lot 672, and Lot 673.

Descriptions of each type of engineered control cap is provided in the following sections. The design provides the requirements to prevent direct contact with Site soils within each project area and additional capping materials or relocation of impacted soils may be used to increase or maintain the minimum cap thickness to accommodate final Site grading.

All off-Site clean fill imported and used as part of cap construction must not contain contaminants at concentrations above the Method 1 RDEC. Each source for the clean fill must be sampled by the contractor and submitted to a certified laboratory for analysis of total metals (Priority Pollutant Metals [PP-13]), VOCs, SVOCs, and TPH at a rate of one sample per 1,000 cubic yards (cy) to determine acceptance of that source. If a new source is utilized or secondary source (etc.,), then the same sample protocol will be completed and approved by the City and engineer prior to acceptance for use at the Site. All sources of clean fill must be approved by the City and/or engineer prior to mobilization to the Site.

Upon approval of the source or sources, the contractor will sample the material at a rate of one sample per 500 tons for imported clean fill for the PP-13 metals and PAHs. Soils or sources not meeting the Method 1 RDEC will be rejected from the Site. All final laboratory reports, as well as weight totals and weight slips for each type of material used on-Site, the source of the material, and approval notification from the City and engineer, will be provided to RIDEM as part of the Remedial Action Completion Report.

4.2.1 BUILDING CAP

The proposed permanent buildings will be constructed as shown on the design plans and will provide an engineered barrier to serve as a cap to prevent direct access and infiltration to the underlying soils.

4.2.2 IMPERVIOUS SURFACE CAP

The proposed hardscape, including building footprints, asphalt parking lots, concrete walking paths, brick patios, or other impervious surface, will serve as a cap to prevent direct access to the soils beneath. The base material consisting of process stone or other clean material in conjunction with the hardscape finished surface will provide a permanent barrier to the underlying soil.

4.2.3 ONE-FOOT-THICK SOIL CAP

The one-foot-thick soil cap (Type I) will be placed within landscaped areas as depicted on the provided Site plans. The soil cap will be constructed using a minimum of four inches of clean soil/loam (topsoil) that is suitable to sustain vegetation, on top of eight inches of clean, permeable drainage material (subsoil). The ratio of topsoil to subsoil can fluctuate; however, the thickness must be a total of at least one foot thick, constructed of approved clean material from an off-Site source, and must be underlain by a geotextile material (demarcation layer).

The geotextile material must have a minimum puncture strength of 120 pounds and minimum burst strength of 400 pounds per square inch (psi). The contractor shall provide the engineer and City a copy of the proposed geotextile specification for approval prior to ordering, mobilization, or placement at the Site. A cross section of the soil cap is provided on the plans in Appendix A.

4.2.4 2-FOOT-THICK SOIL CAP

The two-foot-thick soil cap (Type II) will be placed where landscaping includes trees, shrubs, or other elements that require root development or access that the demarcation layer would impede growth or maintenance. The Type II soil cap will be constructed using a minimum of four inches of clean topsoil that is suitable for vegetation, on top of a minimum of 20 inches of clean, permeable drainage material, or a minimum of 24 inches of clean, permeable drainage material where vegetation is not planned as part of the design (i.e., mulched areas or other surface that does not require vegetation for stabilization). The ratio of topsoil to clean drainage material can fluctuate; however, Type II soil caps must be a total of at least two feet in thickness and constructed of clean material from an off-Site source.

4.3 ENVIRONMENTAL LAND USE RESTRICTION

As part of the overall remedy for the Site, an ELUR will be recorded on the deed for the parcels that comprise the Site. The ELUR will specify that the engineered caps are to be kept in place and in good condition; prohibit use of Site groundwater for human consumption, and that the property use will remain as commercial/restricted residential. The ELUR will further require that the cap not be disturbed without prior approval of RIDEM except for emergency situations defined by the ELUR and in the Postconstruction SMP. The ELUR will require annual inspections which will be recorded and submitted as part of an annual ELUR report to the RIDEM.

A Postconstruction SMP will be prepared and implemented during any planned and/or unplanned subsurface activities beneath the engineered control layers of which the remaining impacted soils would become an exposure hazard. A draft ELUR and Postconstruction SMP for the Site are provided in Appendix C. The final ELUR and SMP will be submitted to the RIDEM after the remedy has been installed and in conjunction with the RAWP Completion Report. The City will be responsible for placement of the ELUR and recording of the deed following the completion of Site work covered in this RAWP.

4.4 REMEDIATION OF IMPACTED GROUNDWATER (RULE 0.04)

Groundwater was not encountered in the overburden in most areas of the Site that will be developed. Groundwater impacts were limited to areas directly adjacent to the river and are not expected to be encountered during Site redevelopment; therefore, the remediation of impacted groundwater is not proposed as part of this RAWP.

4.5 LIMITED DESIGN INVESTIGATION (RULE 9.05)

A Limited Design Investigation was not determined to be necessary and therefore was not conducted for the purpose of this RAWP.

4.6 POINTS OF COMPLIANCE (RULE 9.06)

The engineered caps described in Section 4.0 are designed to act as physical barriers to the underlying impacted soil and meet the performance-based objective of preventing exposure to contaminants documented at the Site within the development work area. Therefore, the point of compliance established for the Site will involve an inspection and evaluation of these engineered caps. The inspection will be documented and included in the annual ELUR report to the RIDEM.

4.7 PROPOSED SCHEDULE FOR REMEDIATION (RULE 9.07)

The construction of the overall Tidewater Stadium project has commenced in December 2021 with Step 1 of the process underway at the former National Grid site to the west of the Seekonk River. The first phase of construction within the Site for Step 5 (Division Street construction) is planned for early 2023.

The final schedule will be based on economic factors and final available funding for Site development. Site controls will be implemented (fencing, etc.) throughout the construction process to limit public access to the subject property. These controls will be removed as the Site achieves final implementation of the engineered controls through each phase of development.

The anticipated Site activities are as follows:

1. Construction and implementation of the proposed remedy for the Division Street mixed use area.
2. Construction of development buildings and landscape for final buildout of the Site covered under this RAWP
3. Filing of ELUR
4. Filing of the RAWP Completion Report

4.8 SITE PLANS (RULE 9.09)

A Site location map and a basic Site Features map are provided as Figure 1 and Figure 2, respectively. The design plan for the redevelopment project is provided in Appendix A. The plans provided in Appendix A

include the preconstruction staging areas and/or construction areas, pads, liners, berms, etc. The capping details for the engineered controls and aerial extents are included in the plan set in Appendix A and in the appendix of the Construction Soil Management Plan provided in Appendix B.

4.9 SETUP PLANS (RULE 9.11)

The design plans provided in Appendix A include the initial use as a temporary construction laydown as part of Step 5 (Division Street Construction) in the overall Tidewater Landing project.

The design plans provide details where construction activities will occur with the location of temporary Site access points, Site controls, erosion control construction, and grading. Gravel access roads will be constructed as a temporary cap to prevent exposure to the underlying soil, where necessary. Wooded areas that are undisturbed will remain vegetated, and where tree removal and grubbing is needed, the areas will be stabilized to prevent mobilization of soil from the Site.

Clean backfill that is laboratory-tested and approved as described in Section 4.2, may be stockpiled on-Site using erosion controls to prevent sediment runoff and minimization of cross contamination with impacted Site soil. These materials will be stockpiled on an impervious surface or on polyethylene sheeting and placed in locations that will not interfere with Site activities. These materials will be temporarily covered with polyethylene sheeting when not in use.

All temporary stockpiled material from the existing soils through grading or excavation activities will be covered with polyethylene to prevent further exposure until placed into open excavations or relocated to areas that will be capped as directed by the engineer. All reworked soils will be managed to prevent sediment and runoff.

4.10 EFFLUENT DISPOSAL (RULE 9.12)

Grading plans for Site redevelopment include the generation of approximately 1,500 yards of excess soil from the Site as part of the remedial activities. Solid waste including concrete, general refuse, and construction debris that is not covered under this RAWP is expected to be exported and will be disposed of at an off-Site facility according to applicable regulations. Impacted soils are to be reworked, excavated, and used as fill across the Site to meet final grades., and then covered in the engineered cap as described in Section 4.2. All remaining disturbed soils encountered during redevelopment will also be placed beneath the engineered cap to achieve the remedial objective of preventing access to the underlying soils at the Site.

Soil to be exported off-Site shall be stockpiled, placed on and under polyethylene sheeting, characterized, and transported off-Site for disposal as approved by the RIDEM.

4.11 CONTINGENCY PLAN (RULE 9.13)

SLR has provided an example Site-specific Health and Safety Plan (HASP) as Appendix D. The HASP defines the Site-specific safety requirements and designates preventative safety protocols that will be implemented at the Site during remediation. Contractors involved in implementing the RAWP will prepare a HASP for their personnel specific to the task that they are conducting. The Construction SMP details the base requirements of the HASP for the contractor. A copy of the HASP will be made available on-Site during all remediation activities.

The Contingency HASP is applicable to SLR personnel and will be made available at the Site during the implementation of the remedial actions. The HASP summarizes potential constituents of concern, describes the protective measures, designates Site personnel roles and contact information, and includes an assessment of risks associated with each remedial activity. The HASP will include the names and contact details for local emergency coordinators and responders.

4.12 OPERATIONAL LOG (RULE 9.14)

An Operational Log will be kept on-Site by an environmental professional for each day that remedial actions are being completed. The log will be retained for a minimum of three years post-construction. The Operating Log will include, at a minimum, the following information:

- Personnel on-Site; date and hours worked
- Summary of remedial actions conducted that day
- Records of any laboratory analysis and/or field screening results as part of the remedial action
- Volume and weight tickets for import of clean fill or other construction materials as part of the remedial action
- Inspection reports detailing compliance with the remedial specifications provided in the design plans and the actions taken to address noncompliant practices or conditions
- Description of instances under which the Contingency Plan was implemented

A copy of the Operational Log will be provided to the RIDEM at the completion of the project as part of the Remedial Action Completion Report.

4.13 SECURITY PROCEDURES (RULE 9.15)

Access to the Site will be limited to specified contractors, consultants, or other designated representatives through the use of construction and safety fencing and gates, yellow barrier tape, warning signs, and/or other barricades. It will be the responsibility of the contractor to address the following:

- Traffic control at the Site entrance(s);
- Removal and disposal of debris that may impede the ability to secure the site.
- Daily Site maintenance of the construction area
- Inspection and repair of Site fencing to prevent public access

5. SHUTDOWN, CLOSURE, AND POST-CLOSURE REQUIREMENTS (RULE 9.16)

Security fencing will remain in place during all phases of construction at the Site. If development plans or the proposed schedule is delayed, the RIDEM will be notified, and the contractor will ensure that Site barriers are adequately maintained to prevent public access during prolonged shutdown.

As mentioned previously, the post-closure requirements include the preparation and submittal of a Remedial Action Completion Report and a final ELUR with a Post Construction SMP. In conjunction with the ELUR, the owner will implement monitoring and maintenance procedures which will also include the requirement to inspect impervious surfaces (sidewalks, patios, and asphalt) and repair any significant erosion, including but not limited to the surfaces of capped areas. The Post Construction SMP will outline specific procedures for conducting any activity that may involve the disturbance of the engineered controls and the procedures for soil characterization and disposal.

Annual inspections of the engineered controls (soil cap and hardscapes) will be completed in accordance with the ELUR. An evaluation report detailing the findings of the annual inspection noting compliance violations will be submitted annually to the RIDEM.

6. INSTITUTIONAL CONTROLS AND NOTICES (RULE 9.17)

As detailed in Section 4.3, an ELUR will be filed on the deed to legally protect the long-term effectiveness of the remedy. The ELUR will be specific to the areas at the Site where the STRAP and this RAWP are applicable. The extent of the area to be covered under the ELUR is depicted on the design plans provided in Appendix A. The draft ELUR and post-construction SMP is provided in Appendix C.

The ELUR will prohibit activities that interfere with the integrity of the engineered controls and those that may result in human exposure to the impacted soils underlying the cap. In addition, the ELUR will also prohibit the use of Site groundwater for consumption and will limit Site use to commercial and restricted residential. The Post Construction SMP will establish procedures should any future work at the Site involve disturbance of the surfaces and excavation of the underlain soils.

The ELUR will be recorded for the Site with the City of Pawtucket Land Evidence Records once the physical components of the remedy are completed, after the Remedial Action Completion Report has been approved by the RIDEM. A copy of the final ELUR will be submitted to the RIDEM within 10 days of the filing. A Site plan showing the area pertaining to the ELUR will be referenced and attached to the ELUR (as an exhibit).

7. COMPLIANCE DETERMINATION (RULE 9.18)

The remedial objectives will be considered compliant when the remedial measures described in this RAWP are implemented and maintained through each step of the construction process at the Site. SLR will prepare a Remedial Action Completion Report that describes the construction activities and documents Site compliance with the remedial objectives and points of compliance. The RIDEM will issue a Letter of Compliance for the Site once these conditions have been met.

Maintenance procedures will include requirements to maintain pavement, hardscapes (i.e., sidewalks, patios, etc.,), and/or soil caps in good condition and procedures to be followed to notify contractors of existing Site conditions in the event of utility repair or other activities that might disturb potentially contaminated soils.

The owner will institute annual monitoring and maintenance procedures to ensure the capped soils remain secure as part of the ELUR to maintain long-term compliance. A qualified environmental professional will conduct annual compliance inspection of the area developed as part of this RAWP. The evaluation will include apparent changes in the nature of the Site use, apparent changes to the physical condition of the property (with respect to alterations that may affect the integrity of the engineered controls), and overall condition of the cap materials (landscaped areas for indications of erosion, pavement, and hardscapes used as cap materials). An annual inspection report will be prepared based on the observations and submitted to the RIDEM.

8. CERTIFICATION REQUIREMENTS (RULE 9.19)

In accordance with Section 9.19A of the RIDEM Remediation Regulations, I hereby certify that to the best of my knowledge, the information contained in this Remedial Action Work Plan is complete and accurate.

3/27/23

Peter Shea, LEP
SLR International Corporation
Principal Environmental Scientist

Date

In accordance with Section 9.19B of the RIDEM Remediation Regulations, as an authorized representative of the Performing Party, I hereby certify that to the best of my knowledge, the information contained in this Remedial Action Work Plan is complete and accurate representation of the Site and the releases and contains all known facts surrounding the releases identified.

4-7-23

Date

City of Pawtucket

9. LIMITATIONS

The services described in this work product were performed in accordance with generally accepted professional consulting principles and practices. No other representations or warranties, expressed or implied, are made. These services were performed consistent with our agreement with our client. This work product is intended solely for the use and information of our client unless otherwise noted. Any reliance on this work product by a third party is at such party's sole risk.

Opinions and recommendations contained in this work product are based on conditions that existed at the time the services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. The data reported and the findings, observations, and conclusions expressed are limited by the scope of work. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this work product.

The purpose of an environmental assessment is to reasonably evaluate the potential for, or actual impact of, past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an appropriate level of analysis for each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation can be thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, practical limitations, and cost of the work performed.

Environmental conditions that are not apparent may exist at the site. Our professional opinions are based in part on interpretation of data from a limited number of discrete sampling locations and therefore may not be representative of the actual overall site environmental conditions.

The passage of time, manifestation of latent conditions, or occurrence of future events may require further study at the site, analysis of the data, and/or reevaluation of the findings, observations, and conclusions in the work product.

This work product presents professional opinions and findings of a scientific and technical nature. The work product shall not be construed to offer legal opinion or representations as to the requirements of, nor the compliance with, environmental laws rules, regulations, or policies of federal, state or local governmental agencies.

division street rawp report.docx

FIGURES

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Date Saved: 12/1/2021

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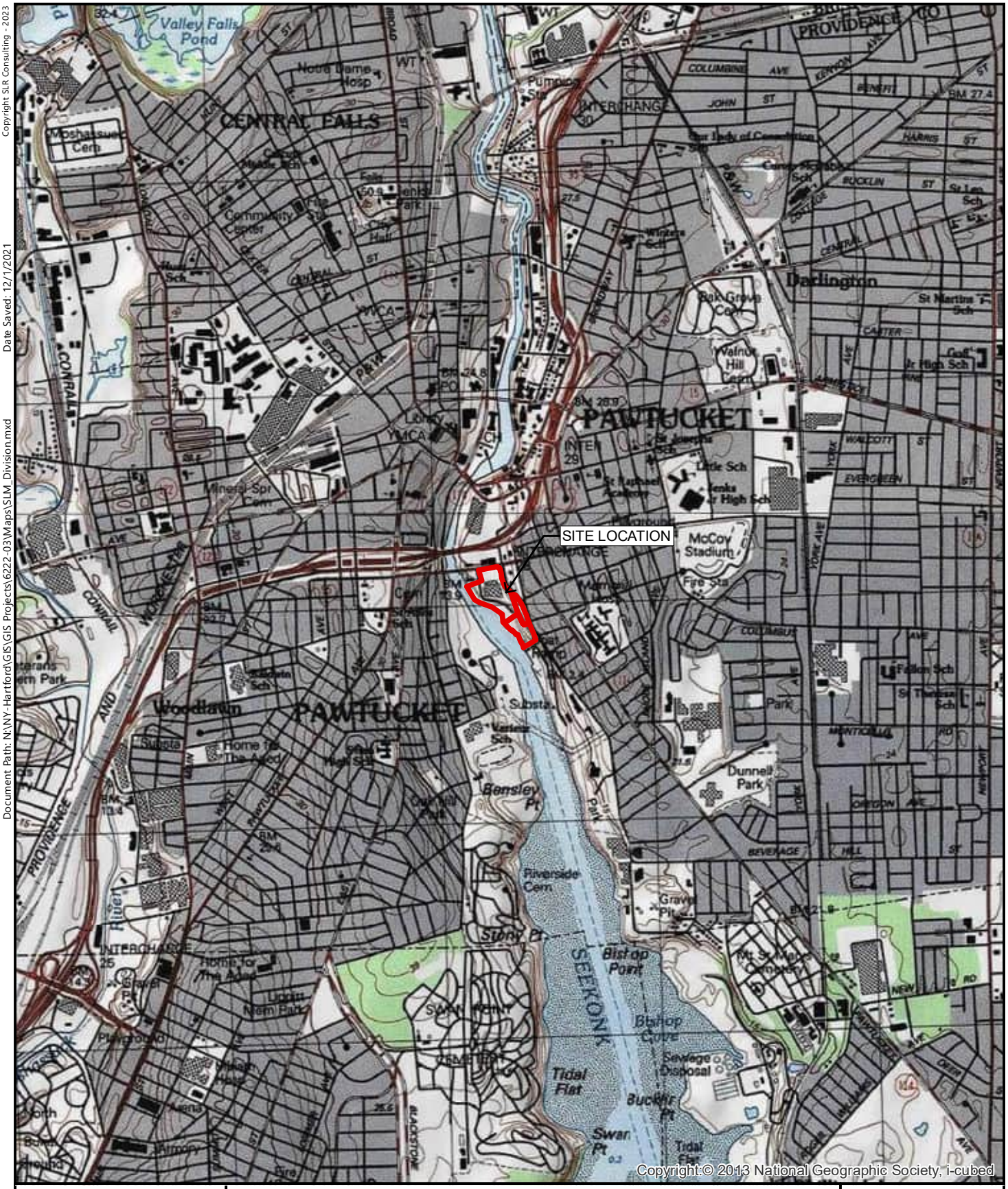

SLR
45 GLASTONBURY BLVD
1ST FL
GLASTONBURY, CT 06033
860.400.5680

SITE LOCATION MAP

DIVISION STREET PARCELS
FORTUITOUS TIDEWATER
DIVISION STREET
PAWTUCKET, RHODE ISLAND

N

0 500 1,000
Feet

SCALE 1 " = 2,000 '

DATE 3/22/2023

16222.0005
PROJ. NO.

FIG. 1

Notes:
Aerial - RIDEM, April 2018 flight, ArcGis Image Service
Contours - RIDEM, 2020, ArcGisOnline
Parcels - RIDEM, 2020, ArcGisOnline

Date Saved: 3/22/2023 MXD: N:\NY-Hartford\GIS\GIS Projects\6222-03\Maps\figure2_divisionst.mxd

SLR
45 GLASTONBURY BLVD
1ST FL
GLASTONBURY, CT 06033
860.400.5680

SITE MAP

DIVISION STREET PROPERTY
FORTUITOUS TIDEWATER
45 DIVISION STREET & SCHOOL STREET
PAWTUCKET, RHODE ISLAND

SCALE	1" = 100'
DATE	3/22/2023
PROJECT NO.	16222.0005

FIG. 2

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APPENDIX A

PRELIMINARY CONSTRUCTION PLANS

Remedial Action Work Plan

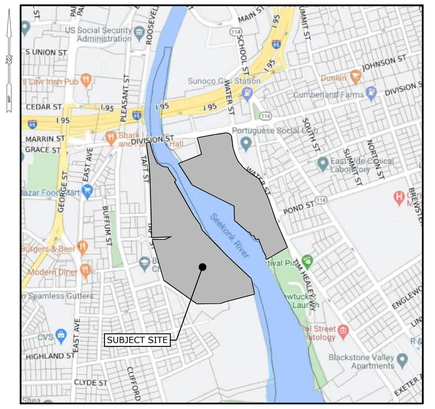
Fortuitous Tidewater OZ, LLC

March 2023

TIDEWATER LANDING
SPORTS ANCHORED MIXED-USE DEVELOPMENT

TAFT STREET, DIVISION STREET, SCHOOL STREET
PAWTUCKET, RHODE ISLAND

CRMC PRELIMINARY DETERMINATION APPLICATION
FEBRUARY 9, 2021



LOCATION MAP:

SCALE 1" = 600'

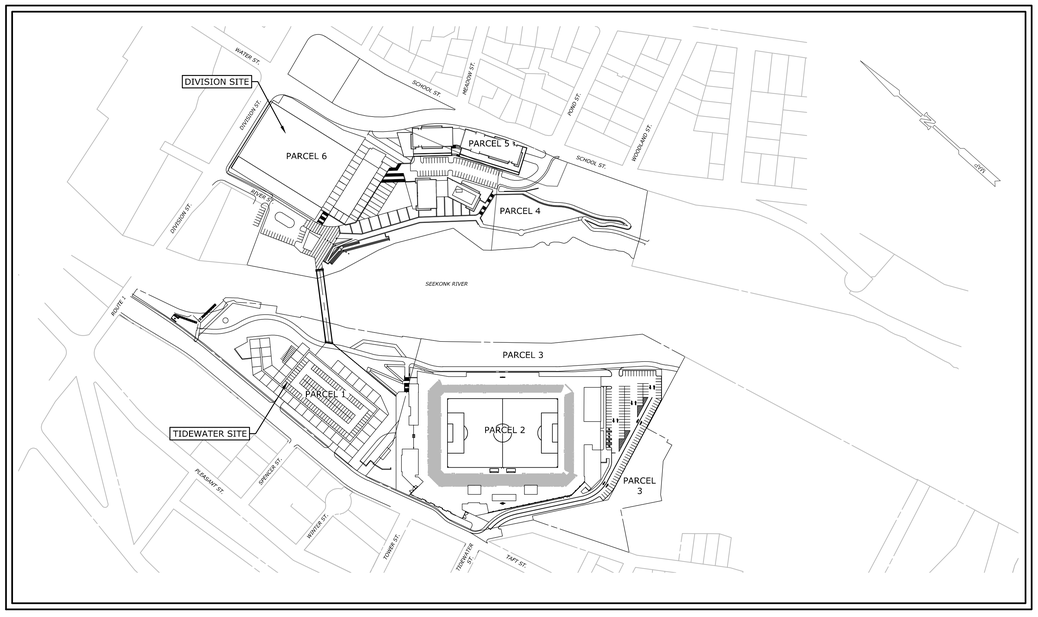
OWNER:

DEVELOPMENT PARCEL #	PARCEL DESCRIPTION	OWNER	PARCEL AREA (AC.)	ADDRESS	MAP # / LOT #
1	TIDEWATER - NORTH SITE	CITY OF PAWTUCKET	5.17	TAFT STREET	54 / 0827
2*	TIDEWATER - STADIUM SITE 1	THE NARRAGANSETT ELECTRIC CO.	8.50	TAFT STREET	58 / 0826
3*	TIDEWATER - STADIUM SITE 2	THE NARRAGANSETT ELECTRIC CO.	3.30	200 TAFT STREET	65 / 0662
		TOTAL	16.97		
4	DIVISION STREET SITE - 1	CITY OF PAWTUCKET	2.52	SCHOOL STREET	23 / 0673
5	DIVISION STREET SITE - 2	CITY OF PAWTUCKET	1.03	SCHOOL STREET	23 / 0672
6	DIVISION STREET SITE - 3	CITY OF PAWTUCKET	7.48	45 DIVISION STREET	23 / 0599
		TOTAL	11.03		

*ACREAGE REPRESENTS RECONFIGURED PARCELS AFTER PROPOSED LOT LINE RECONFIGURATION COMPLETED

APPLICANT:

FORTUITOUS TIDEWATER OZ, LLC
321 SOUTH MAIN STREET, SUITE 400,
PROVIDENCE, RI 02903



PROJECT SITE VICINITY MAP:

SCALE 1" = 200'

PREPARED BY:

MILONE & MACBROOM
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Engineers Planners Surveyors
Two Stafford Court Cranston, Rhode Island 02920

811
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LIST OF DRAWINGS

NAME	TITLE
TIDEWATER SITE	
EX-1	EXISTING CONDITIONS
EXST-1	EXISTING CONDITIONS SURFACE TYPES
PDST-1	POST-DEVELOPMENT SURFACE TYPES
LA-1	LAYOUT PLAN
GR-1	GRADING PLAN
UT-1	UTILITY PLAN
DIVISION SITE	
EX-2	EXISTING CONDITIONS
EXST-2	EXISTING CONDITIONS SURFACE TYPES
PDST-2	POST-DEVELOPMENT SURFACE TYPES
LA-2	LAYOUT PLAN
GR-2	GRADING PLAN
UT-2	UTILITY PLAN

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TIDEWATER STADIUM

Pawtucket, Rhode Island

FORTUITOUS PARTNERS

TRUE

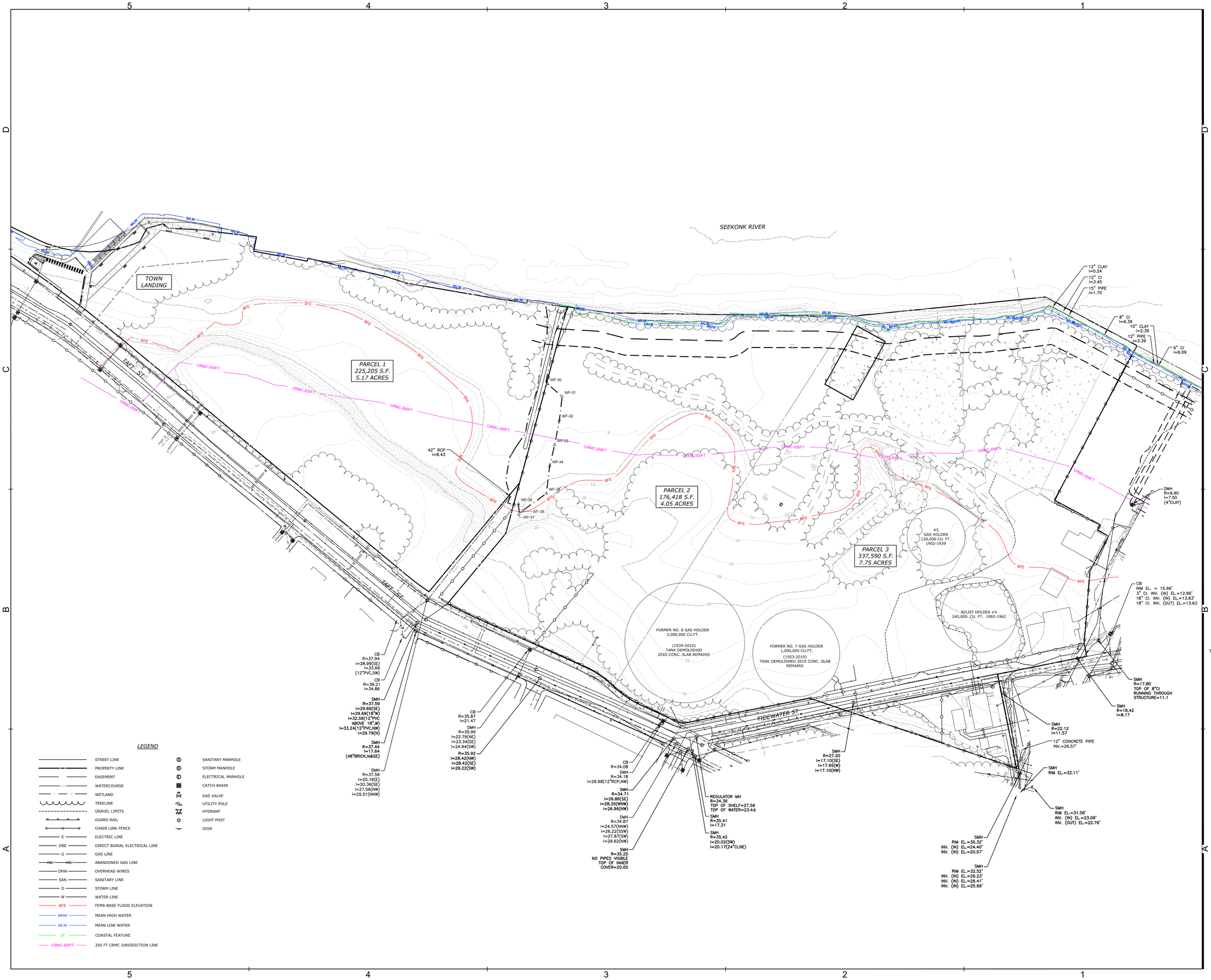
REVISION	DATE	DESCRIPTION
ADDENDA OR MODIFICATION		
	02/09/2021	CRMC PRELIMINARY DETERMINATION APPLICATION
ISSUE	DATE	DESCRIPTION
FULL SET ISSUES		

PROJECT NO:	6222-03
P.I.C.	DJK
P MGR.	-
P ARCH.	-
DESIGN BY	DJK
JOB CAPTAIN	JDL
DRAWN BY	JDL
CHECKED BY	DJK

SHEET TITLE

TITLE SHEET

SHEET IDENTIFIER



LEGEND

- STREET LINE
- PROPERTY LINE
- EASEMENT
- WATERCOURSE
- WETLAND
- TREELINE
- GRAVEL LIMITS
- GUARD RAIL
- CHAIN LINK FENCE
- E — ELECTRIC LINE
- DBE — DIRECT BURIAL ELECTRICAL LINE
- G — GAS LINE
- /IGI/ — /IGI/ — ABANDONED GAS LINE
- OHW — OVERHEAD WIRES
- SAN — SANITARY LINE
- D — STORM LINE
- W — WATER LINE
- BFE — FEMA BASE FLOOD ELEVATION
- MHW — MEAN HIGH WATER
- MLW — MEAN LOW WATER
- CF — COASTAL FEATURE
- CRMC-200FT — 200 FT CRMC JURISDICTION LINE

- SANITARY MANHOLE
- STORM MANHOLE
- ELECTRICAL MANHOLE
- CATCH BASIN
- GAS VALVE
- UTILITY POLE
- HYDRANT
- LIGHT POST
- SIGN

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TIDEWATER STADIUM

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SCALE: 1"=50'

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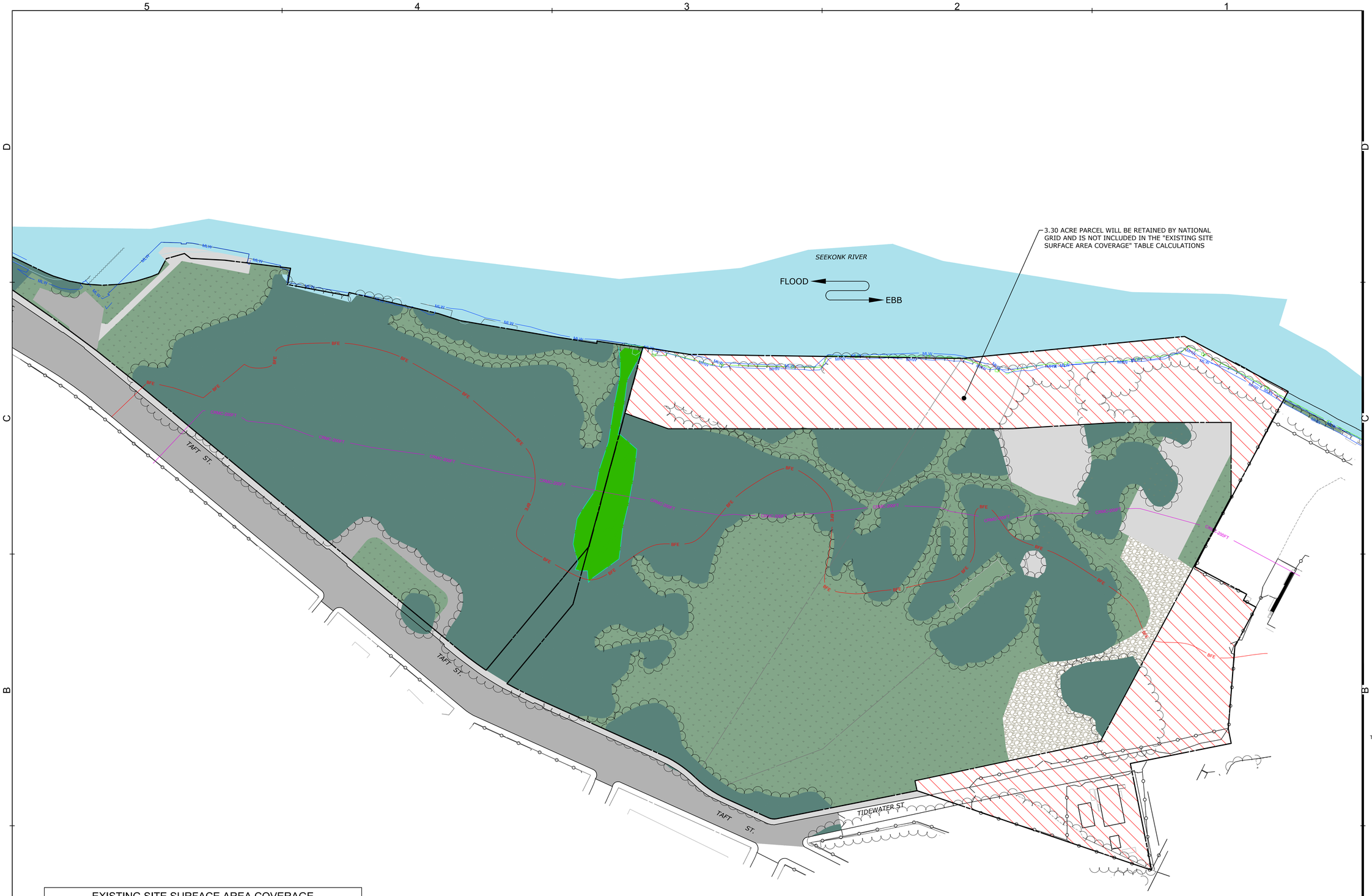
CHECKED BY	**DJK**

SHEET TITLE

EXISTING CONDITIONS

SHEET IDENTIFIER

EX-1



EXISTING SITE SURFACE AREA COVERAGE

SURFACE TYPE	AREA (sf)	AREA (ac.)	COVERAGE (%)	PERVIOUS (%)	IMPERVIOUS (%)
BUILDING	0	0.00	0	0	0
BRUSH LOW VEGETATION	197,472	4.53	33	33	0
WOODS	349,723	8.03	58	58	0
PAVEMENT	9,116	0.21	2	0	2
CONCRETE SURFACES	9,438	0.22	2	0	2
COMPACTED GRAVEL	18,589	0.43	3	0	3
WETLAND	11,127	0.26	2	2	0
TOTAL SITE AREA	595,465	13.67	100	93	7

NOTE:
AREA LIMITS ALONG THE SEEKONK RIVER ARE BASED ON MEAN HIGH WATER LINE.

EXISTING SURFACE TYPES

- BUILDING
- BRUSH LOW VEGETATION
- WOODS
- PAVEMENT
- CONCRETE SURFACES
- COMPACTED GRAVEL
- WETLAND

LEGEND

- WETLAND LINE
- BFE — FEMA BASE FLOOD ELEVATION
- MHW — MEAN HIGH WATER EL.=2.12
- MLW — MEAN LOW WATER EL.=-2.29
- CF — COASTAL FEATURE
- CRMC-200FT — 200 FT CRMC JURISDICTION LINE

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TIDEWATER STADIUM

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FORTUITOUS PARTNERS

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0' 25' 50'
0 1/2" 1"
SCALE: 1"=50'

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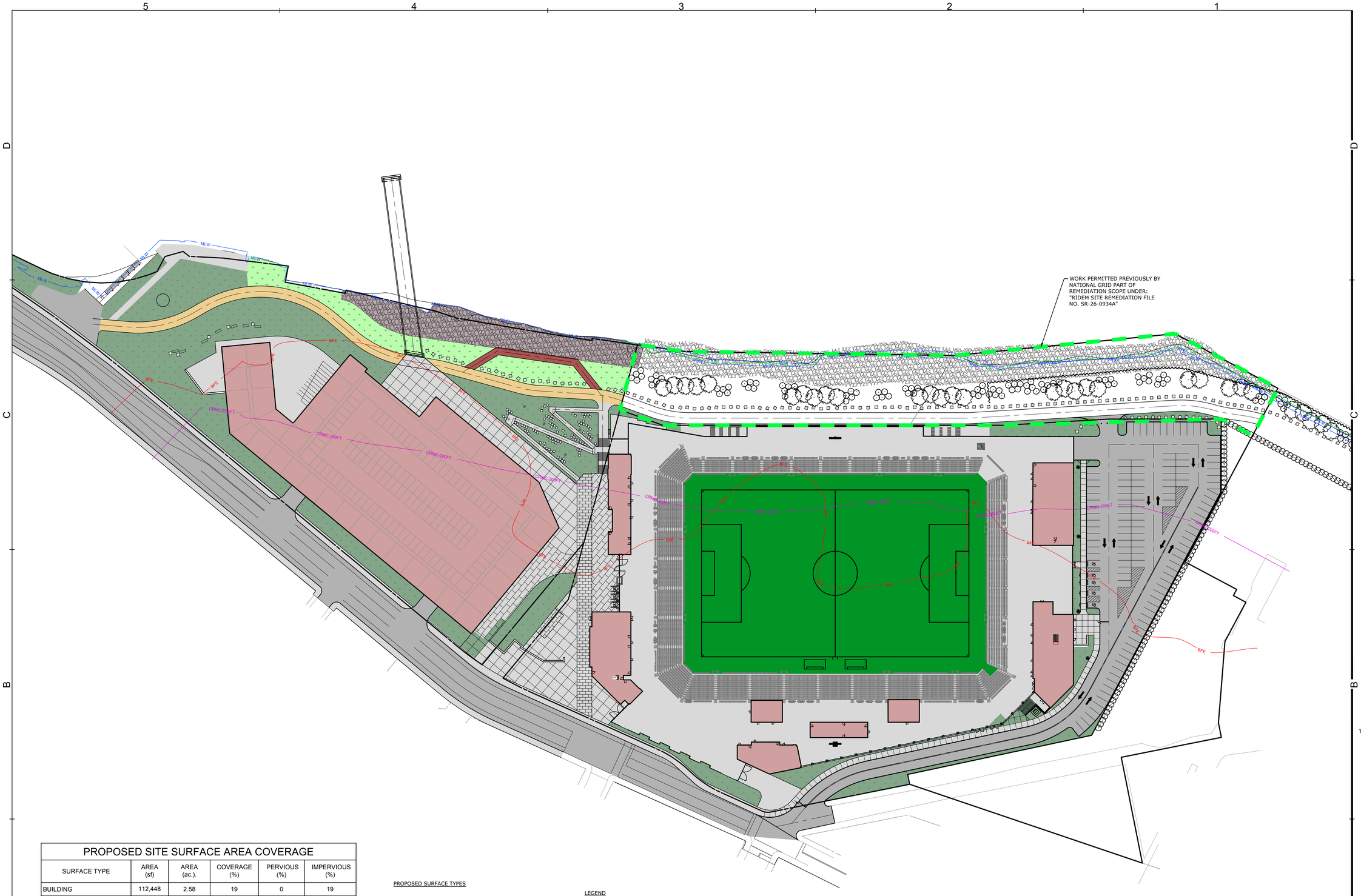
JOB CAPTAIN	JDL
DRAWN BY	JDL
CHECKED BY	DJK

SHEET TITLE

EXISTING CONDITIONS SURFACE TYPES

SHEET IDENTIFIER

EXST-1



PROPOSED SITE SURFACE AREA COVERAGE

SURFACE TYPE	AREA (sf)	AREA (ac.).	COVERAGE (%)	PERVIOUS (%)	IMPERVIOUS (%)
BUILDING	112,448	2.58	19	0	19
VEGETATED	93,348	2.14	16	16	0
PAVEMENT	60,740	1.39	10	0	10
POROUS PAVEMENT	11,304	0.26	2	2	0
CONCRETE SURFACES	190,841	4.38	32	0	32
RIP-RAP	14,499	0.33	2	2	0
SYNTHETIC TURF	110,257	2.53	19	19	0
WOOD	2,028	0.05	0	0	0
TOTAL SITE AREA	595,465	13.67	100	39	61

NOTE:
AREA LIMITS ALONG THE SEEKONK RIVER ARE BASED ON MEAN HIGH WATER LINE.

PROPOSED SURFACE TYPES

- BUILDING
- VEGETATED
- CRMC 25 FOOT BUFFER AREA
- PAVEMENT
- POROUS PAVEMENT
- CONCRETE SURFACES
- RIP-RAP
- SYNTHETIC TURF
- WOOD

LEGEND

- WETLAND LINE
- BFE — FEMA BASE FLOOD ELEVATION
- MHW — MEAN HIGH WATER EL.=2.12
- MLW — MEAN LOW WATER EL.=-2.29
- CF — COASTAL FEATURE
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SCALE: 1"=50'

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P MGR.	-
P ARCH.	-
DESIGN BY	DJK
JOB CAPTAIN	JDL
DRAWN BY	JDL
CHECKED BY	DJK

SHEET TITLE

POST DEVELOPMENT SURFACE TYPES

SHEET IDENTIFIER

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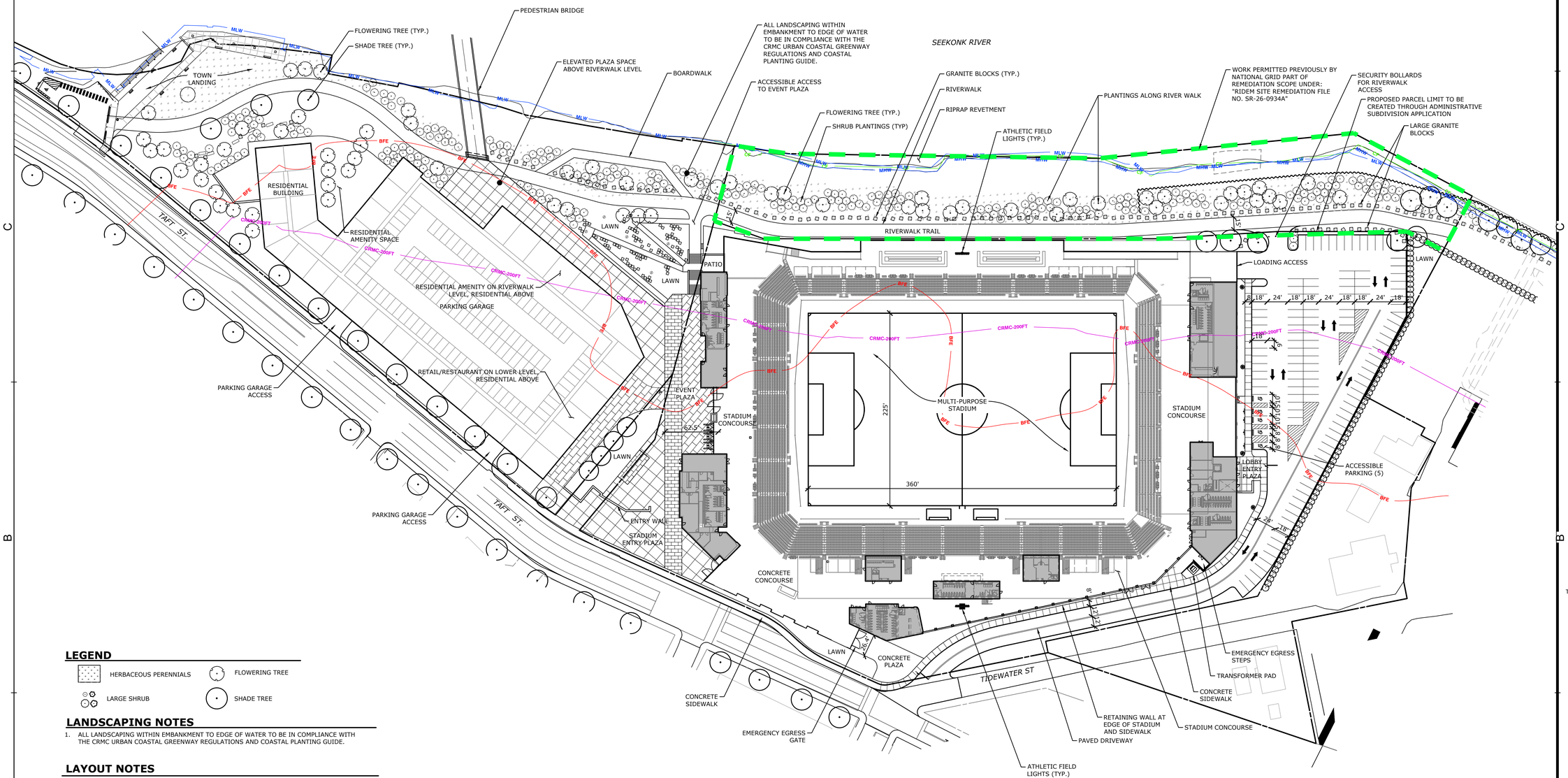

LEGEND

HERBACEOUS PERENNIALS
FLOWERING TREE
LARGE SHRUB
SHADE TREE

LANDSCAPING NOTES

1. ALL LANDSCAPING WITHIN EMBANKMENT TO EDGE OF WATER TO BE IN COMPLIANCE WITH THE CRMC URBAN COASTAL GREENWAY REGULATIONS AND COASTAL PLANTING GUIDE.

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TIDEWATER STADIUM

Pawtucket, Rhode Island

FORTUITOUS PARTNERS

TRUE

SCALE: 1"=50'

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DRAWN BY	JDL
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SHEET TITLE

LAYOUT PLAN

SHEET IDENTIFIER

LA-1

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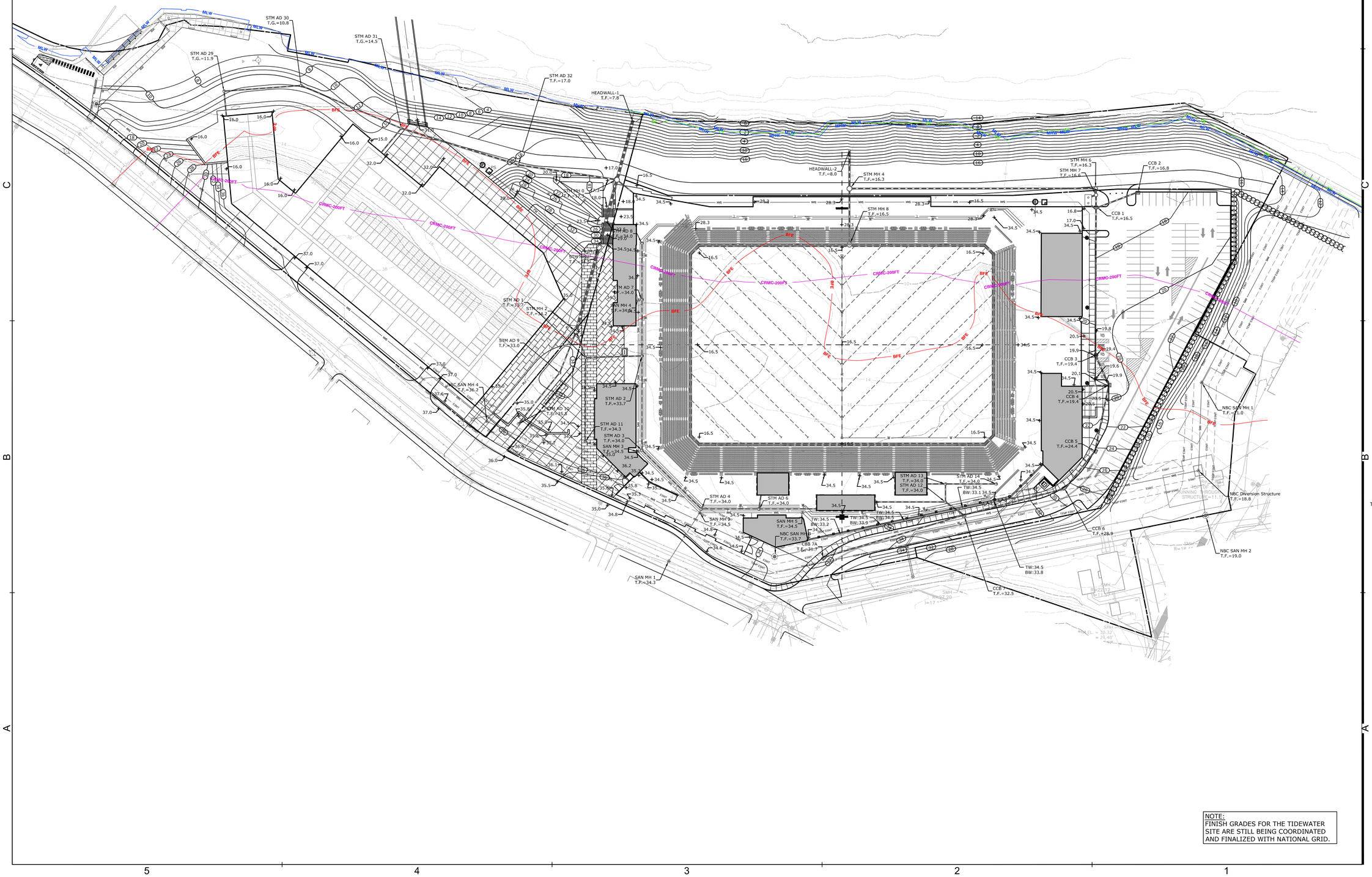

NOTE:
FINISH GRADES FOR THE TIDEWATER SITE ARE STILL BEING COORDINATED AND FINALIZED WITH NATIONAL GRID.

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GRADING PLAN

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GR-1

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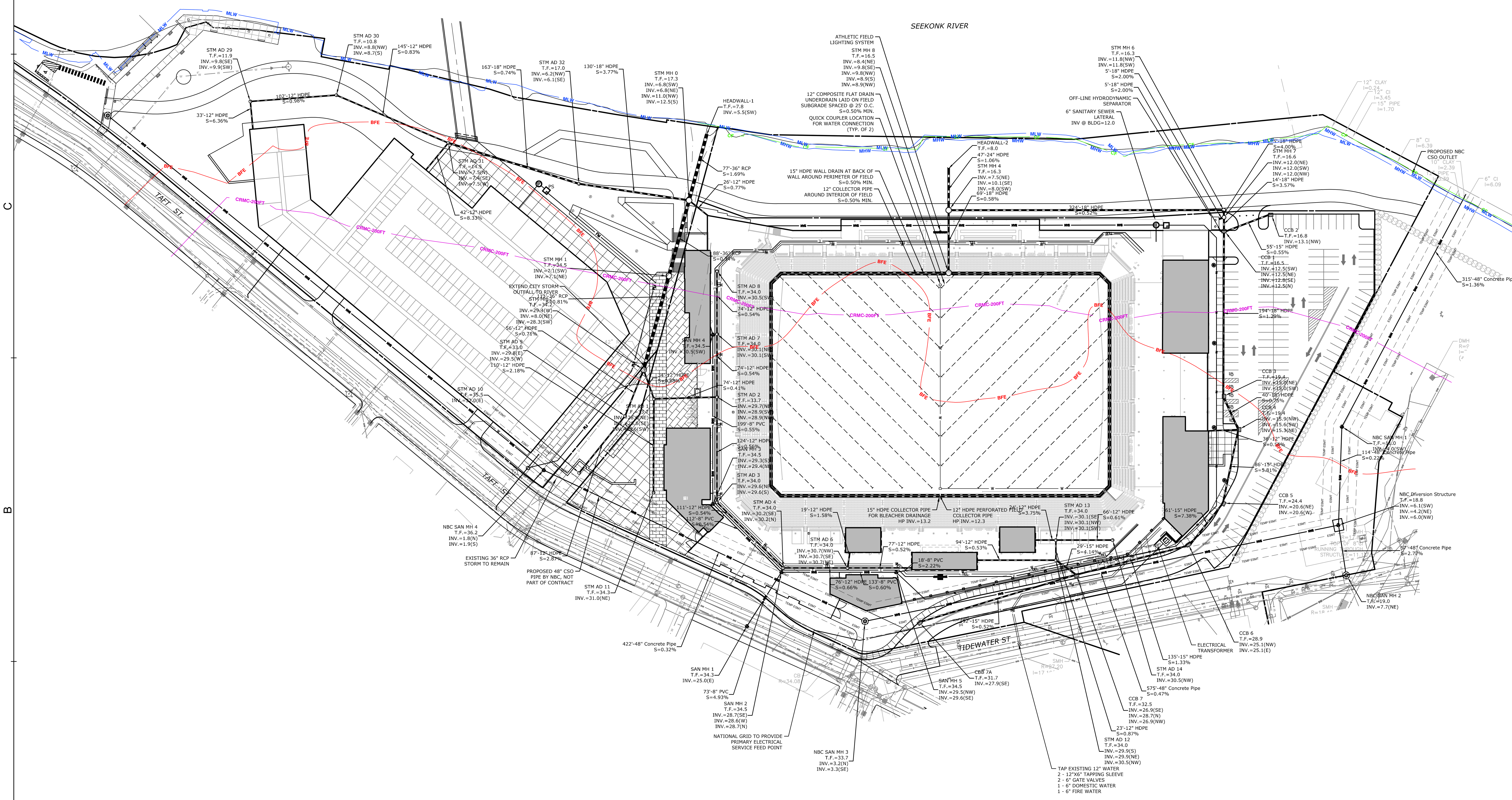

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UTILITY PLAN

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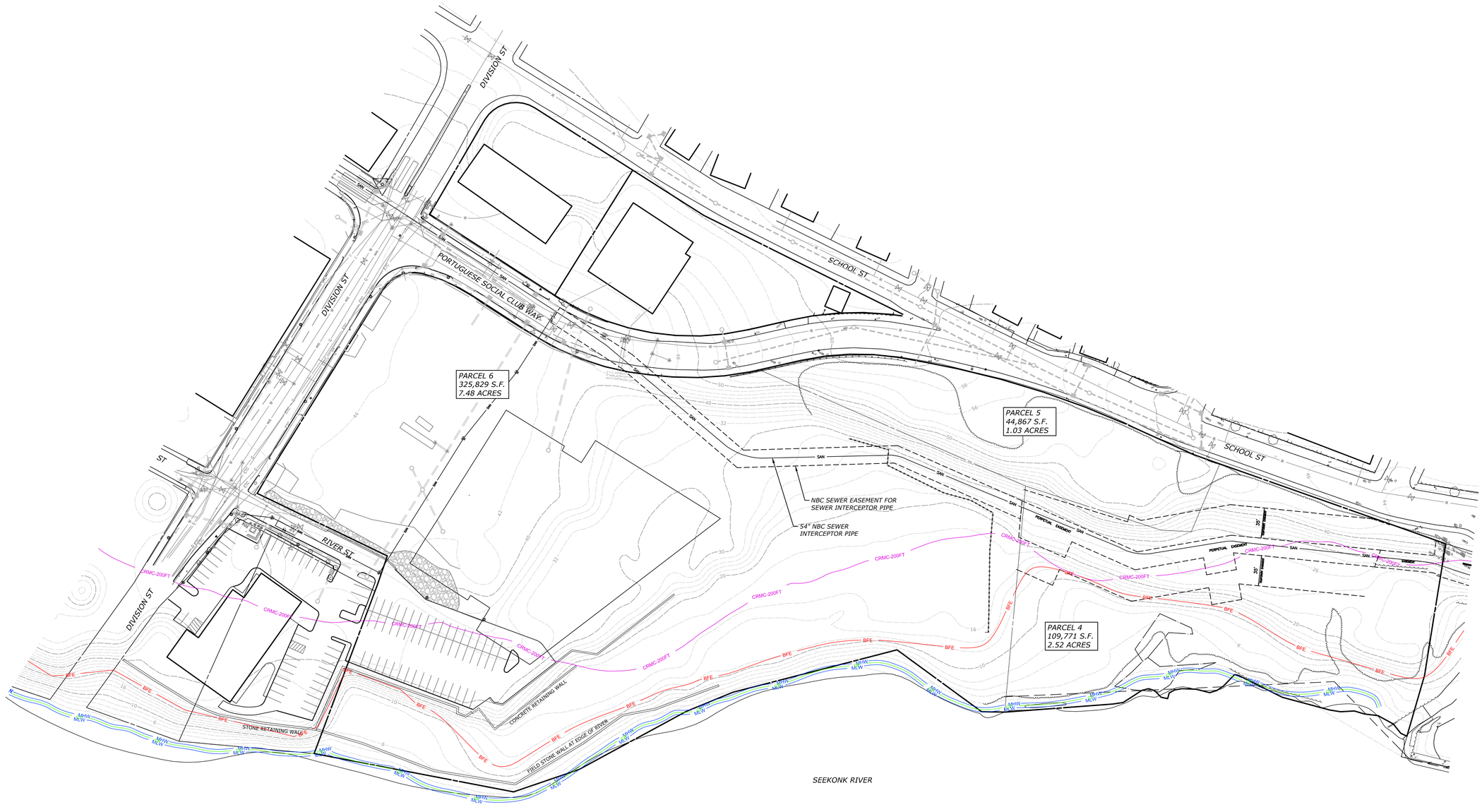

LEGEND

BFE	FEMA BASE FLOOD ELEVATION
MHW	MEAN HIGH WATER EL.=2.12
MLW	MEAN LOW WATER EL.=-2.29
CF	COASTAL FEATURE
CRMC-200FT	200 FT CRMC JURISDICTION LINE

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EXISTING CONDITIONS

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EX-2

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EXISTING SURFACE TYPES

- BRUSH LOW VEGETATION
- WOODS
- PAVEMENT
- CONCRETE SURFACES
- COMPACTED GRAVEL
- RIP-RAP
- WETLAND

LEGEND

- WETLAND LINE
- BFE — FEMA BASE FLOOD ELEVATION
- MHW — MEAN HIGH WATER EL.=2.12
- MLW — MEAN LOW WATER EL.=-2.29
- CF — COASTAL FEATURE
- CRMC-200FT — 200 FT CRMC JURISDICTION LINE

EXISTING SITE SURFACE AREA COVERAGE

SURFACE TYPE	AREA (sf)	AREA (ac.)	COVERAGE (%)	PERVIOUS (%)	IMPERVIOUS (%)
BRUSH LOW VEGETATION	87,368	2.0	18	18	0
WOODS	293,966	6.7	61	61	0
PAVEMENT	20,912	0.5	5	0	5
CONCRETE SURFACES	604	0.0	0	0	0
COMPACTED GRAVEL	68,923	1.6	14	0	14
RIP-RAP	4,543	0.1	1	1	0
WETLAND	3,187	0.1	1	1	0
TOTAL SITE AREA	479,503	11.0	100	81	19

NOTE:
AREA LIMITS ALONG THE SEEKONK RIVER ARE BASED ON MEAN HIGH WATER LINE.

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EXISTING CONDITIONS SURFACE TYPES

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EXST-2

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EXISTING SURFACE TYPES

- BUILDING
- VEGETATED
- PAVEMENT
- CONCRETE SURFACES
- DECORATIVE PAVERS
- WOOD
- CRMC 25 FOOT BUFFER AREA

LEGEND

- WETLAND LINE
- BFE — FEMA BASE FLOOD ELEVATION
- MHW — MEAN HIGH WATER EL.=2.12
- MLW — MEAN LOW WATER EL.=-2.29
- CF — COASTAL FEATURE
- CRMC 200FT — 200 FT CRMC JURISDICTION LINE

PROPOSED SITE SURFACE AREA COVERAGE

SURFACE TYPE	AREA (sf)	AREA (ac.)	COVERAGE (%)	PERVIOUS (%)	IMPERVIOUS (%)
BUILDING	166,852	3.8	35	0	35
VEGETATED	159,770	3.7	33	33	0
PAVEMENT	35,483	0.8	7	0	7
CONCRETE SURFACES	84,223	1.9	18	0	18
DECORATIVE PAVERS	29,697	0.7	6	0	6
WOOD	3,478	0.1	1	0	1
TOTAL SITE AREA	479,503	11.0	100	33	67

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POST DEVELOPMENT SURFACES TYPES

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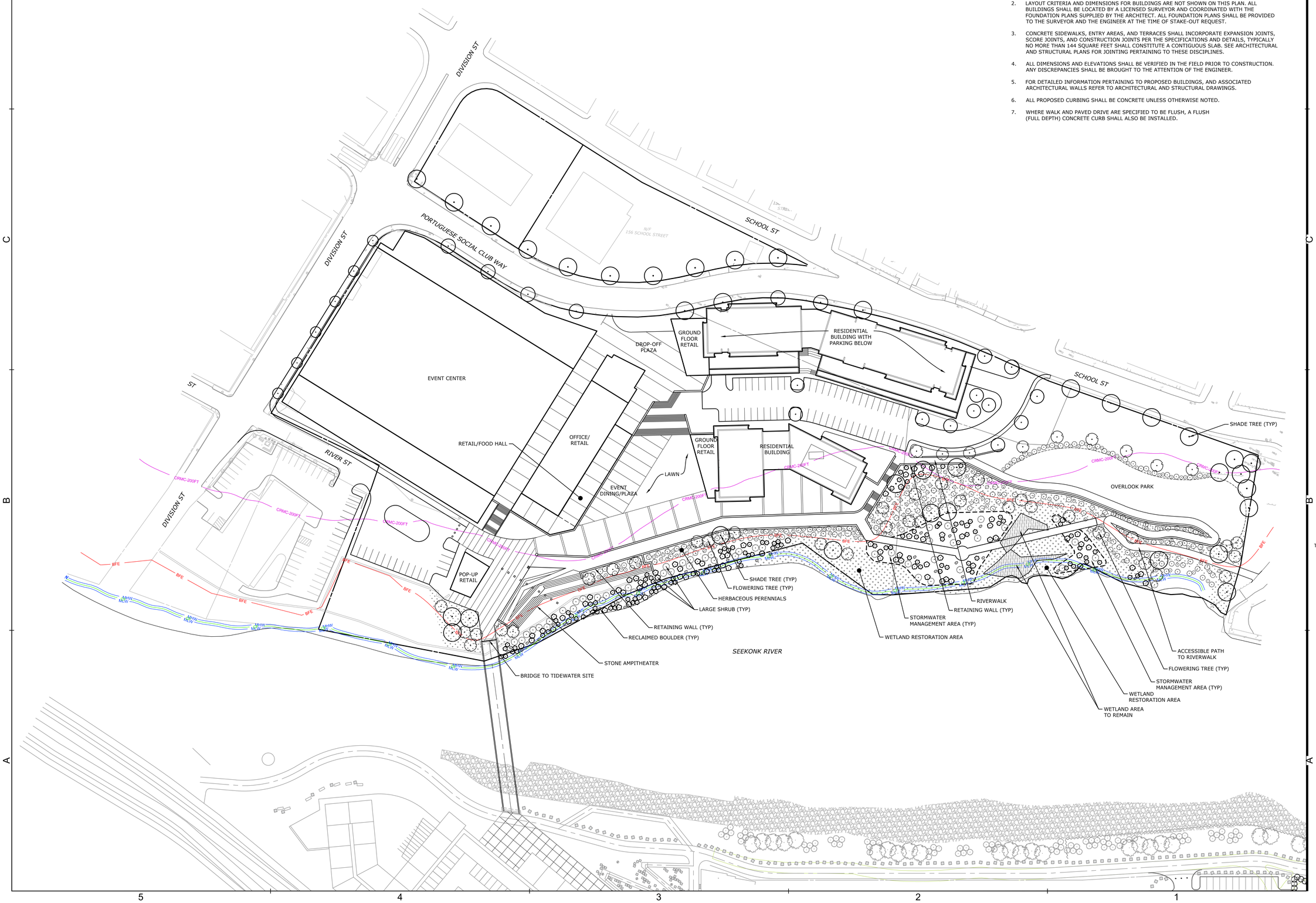

LEGEND

- HERBACEOUS PERENNIALS
- FLOWERING TREE
- LARGE SHRUB
- SHADE TREE

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LAYOUT PLAN

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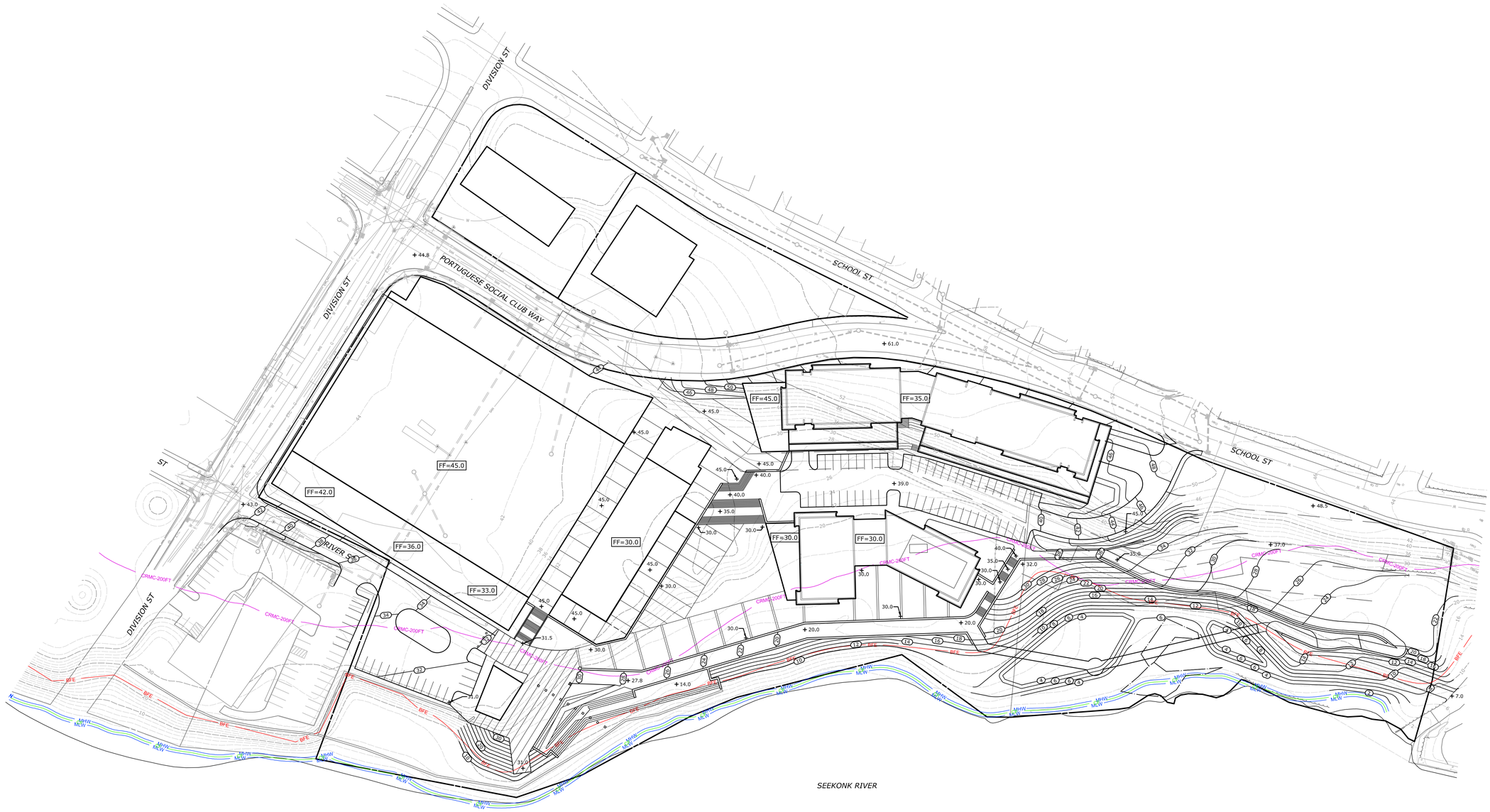
LA-2



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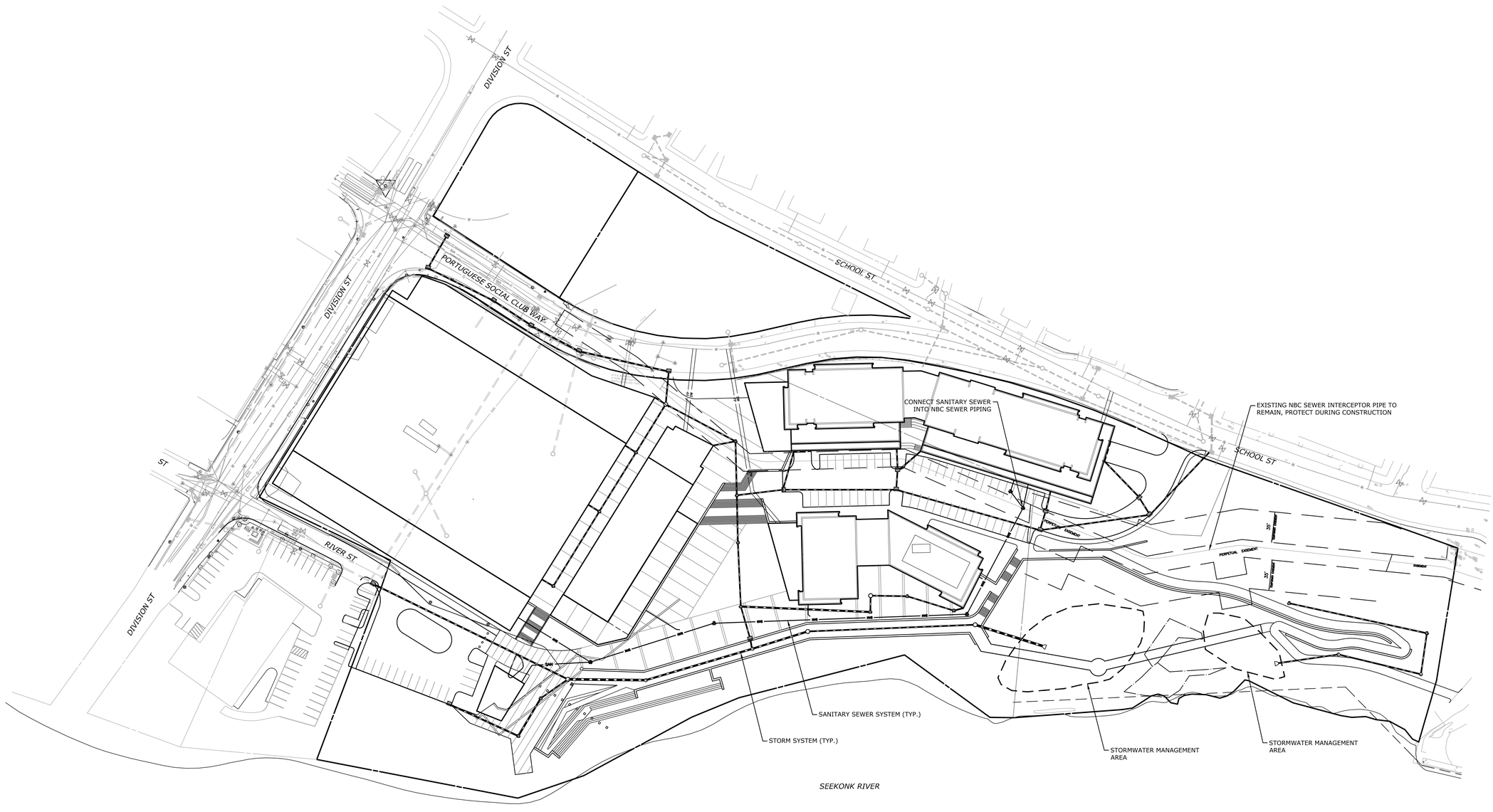

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APPENDIX B

CONSTRUCTION SOIL MANAGEMENT PLAN

Remedial Action Work Plan

Fortuitous Tidewater OZ, LLC

March 2023

CONSTRUCTION SOIL MANAGEMENT PLAN

45 Division Street Property
Division Street
Pawtucket, Rhode Island

Prepared for:

Fortuitous Tidewater OZ, LLC

SLR #141.16222.00005

July 1, 2022

Construction Soil Management Plan
45 Division Street Property
Pawtucket, Rhode Island

Prepared for:
Fortuitous Tidewater OZ, LLC

This document has been prepared by SLR International Corporation (SLR). The material and data in this report were prepared under the supervision and direction of the undersigned.

Peter Shea, LEP
Senior Environmental Scientist

Matthew Rose
Project Environmental Scientist

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FIGURES

Figure 1 Site Location Map

APPENDICES

Appendix A Limitations

Appendix B Draft SIR Summary Tables & Figures

1. INTRODUCTION

SLR International Corporation (SLR) has prepared this Soil Management Plan (SMP) to establish an approach for proper planning and management of soils for the Division Street project during construction activities. This SMP is specific to the activities that are proposed for the subject property (the Site), which consists of three contiguous parcels of land totaling 15.8-acres. The Division Street Site abuts the west shore of the Seekonk River in Pawtucket, Rhode Island (the "Site" or "property) (Figure 1).

Phase 5 of the Tidewater Landing project includes the Division Street event center and mixed commercial use construction in addition to the surrounding parking and riverfront improvements on the east side of the Seekonk River. The riverfront improvements include the riverwalk from the southern Division Street parcel (Lot 673), north through Lot 672, and terminating at the event center footbridge which leads west over the Seekonk River to the Taft Street and finally terminating at Town Landing on the subject Site.

While the exact construction sequencing of the Site has not been developed, the development of the property will involve the capping, excavation, and in some cases, removal of contaminated soils. This SMP will apply to all soils encountered across the Site and includes the management of non-soil material such as debris, ash, and other materials that are intermixed with predominantly soil matrix to the extent they cannot be reasonably segregated.

Previous environmental investigations have documented the presence of widespread urban fill containing detectable concentrations of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), and certain metals (arsenic and lead) in soil within the proposed construction areas. Several areas had concentrations of one or more of these compounds above the RIDEM numeric criteria in the Remediation Regulations. The SMP will not apply to clean soils that may be imported to the Site during development and does not address specific remediation activities that might be performed. The SMP is subject to the Limitations included in Appendix A.

1.1 INTENT AND APPLICABILITY

This SMP addresses general construction-related activities that are expected to disturb soil and/or require management of soil, field assessment of soil for management purposes, and characterization for waste disposal or re-use. The SMP applies to the entirety of the Site.

Other soil-related media that will be managed in accordance with this SMP includes soil mixed with anthropogenic debris (i.e., glass, concrete, wood, etc.) and miscellaneous urban fill materials. The SMP also addresses impacted or potentially impacted groundwater handling procedures as it is anticipated to be encountered during construction activities.

This SMP is not intended to address specific remediation activities that might be required. The intent is to guide general construction activities where soil disturbance is to occur and provide minimum health and safety requirements for working with potentially impacted soils. A Site-specific health and safety plan

(HASP) that considers the contaminants of concern (COC) should be prepared by the individual Contractor prior to initiating work at the Site.

2. SITE CONDITIONS

The following section provides a summary of Site conditions for general knowledge pertaining to potential impacted soil to be encountered during construction activities. Refer to the construction specifications and plans for detailed information on sequencing and work areas.

2.1 SUBSURFACE CONDITIONS

The subsurface conditions described below are based on various borings completed at the property as part of previous environmental investigations, and geotechnical assessments completed by SLR and GZA in 2021.

Based on the geotechnical information from GZA collected in March, 2021, the fill observed throughout the site ranged in thicknesses of 0 to 19 ft, consisting of various concentrations of anthropogenic materials (i.e., concrete fragments, asphalt) overlying native outwash deposits ranging from silty sand to sand and gravel. The thickest layers of fill were observed along School Street at the edge of the east to west slope towards the Seekonk River. Bedrock was encountered across the site ranging from 3.5 fbg in the northeast corner of the site to approximately 50 feet below grade along the Seekonk River.

2.2 GROUNDWATER

On May 3, 2021, SLR measured the depth to water in the existing overburden groundwater monitoring wells and collected groundwater samples from four of wells to help understand the current groundwater quality at the site. Groundwater was largely absent from the overburden wells. The water level in bedrock well MW-3 located along School Street was measured at 46.61 feet below top of casing. Water levels were again measured on May 5, 2022. During this visit, the depth to water at MW-3 was 50.95 feet below top of casing. A second bedrock well, MW-6, presented with a water level of 44.53 feet below top of casing. Groundwater flow was assumed to be to northeast and east to west towards the Seekonk River.

In order to provide more information on overburden groundwater quality, a piezometer (PZ-1) was installed on May 25, 2022, at the base of the slope intersecting groundwater near SLR-219. The piezometer is constructed of a 3-foot stainless steel screen with a drive-point and 2-inch diameter steel pipe. The piezometer was driven to a depth of 5 ftbg with groundwater observed at 2.5 ftbg during installation. The piezometer was developed using a surging block and bailed until all visible sediment was removed. On December 29, 2022, groundwater was measured at 3.5 ftbg, purged and sampled using a bailer method, and submitted to a certified laboratory for analysis of VOCs. The location of the piezometer is shown on the attached figure. Additionally, MW-4D was installed in November 2022 to a depth of 24 ftbg to help reproduce the findings of the previous groundwater results at B-2. The well was completed as a 1-inch PVC micro-well using direct-push methods, screened from 14 to 24 ftbg, and subsequently

developed prior to sampling. Groundwater was measured at 16.49 ftbg, which is consistent with the findings in B-1, B-2 and B-3.

Based on the groundwater laboratory results there were no detections for TPH, semi-volatile organic compounds (SVOCs), or volatile organic compounds (VOCs) in any of the samples collected by SLR. Based on these results groundwater at the site does not appear to be impacted by an active release and will likely not require management outside of normal best management practices for development of the site.

2.3 ENVIRONMENTAL CONDITIONS

SLR and GZA coupled efforts to complete a subsurface investigation (SI) at the Site from March 2021 through May 2021 to further assess the REC of the remaining presence of impacted fill material across the Site identified in the June 2021 Phase I ESA report.

The SI included the following tasks:

- Geotechnical soil borings and evaluation
- Environmental soil borings
- Soil sampling
- Groundwater monitoring well installation and sampling

New England Boring Contractors, located Taunton, Massachusetts, was contracted to clear routes to the proposed soil boring and groundwater monitoring locations and complete drilling activities with oversight by SLR and GZA personnel.

SLR developed an additional SI scope of work as outlined in Exhibit B of the Brownfield Grant to supplement the findings of the previous Site investigations, such as the Phase II performed by Fluor Daniel in 1998, and the November 2005 SIR performed by GZA. The subsurface investigation was designed to help determine the current soil and groundwater quality, evaluate the RECs identified in the SLR 2021 Phase I ESA, help evaluate remedial alternatives to achieve compliance with RIDEM regulations, and help design the eventual SMP for the proposed development.

On March 5, 2021, public notice mailings, signage, and community outreach with flyers were distributed for public review. On March 9, 2021, SLR mobilized to the Site to mark out the proposed soil and groundwater well installation locations. SLR developed a Site-specific Health and Safety Plan for its workers and contractors and retained GZA for oversight of geotechnical soil borings and well installation as part of the conceptual Site model (CSM). SLR retained Underground Surveying, LLC (Underground) to clear the proposed locations for potential unknown underground utilities or USTs. None of these features were identified during the ground penetrating radar (GPR) survey performed by Underground.

SLR oversaw the advancement of 21 environmental soil borings between March 22 to March 24, 2021, designated as SLR-200 through SLR-205, SLR-207 through SLR-215, SLR-218 through SLR-221, and SLR-223

and SLR-224. Exploration depths ranged from approximately 4.5± to 26± ft bg. In general, observations of encountered materials included a layer of fill material between grade and approximately 4.5± to 21.8± ft bg, followed by a layer of river deposits.

A total of 31 soil samples were collected and were analyzed for one or more of the following parameters: TPH, total metals, leachable metals, polychlorinated biphenyls (PCBs), PAHs, semi volatile organic compounds (SVOCs), and/or VOCs. The analyses varied for select samples based upon Select analyses were requested for samples based upon the depth of anticipated impact.

Four overburden and one bedrock groundwater monitoring wells were installed in April 2021 with 10-foot – long screens of depths ranging from 14 to 56 ft bg. The wells were gauged in a subsequent Site visit on May 3, 2021, and all were found to be dry except for the one bedrock well, SLR-MW-3, which had a depth-to-water measurement of approximately 46.61± ft bgs. On May 25th, 2022, SLR revisited the Site to gauge and attempt to sample the wells. SLR found that SLR-MW-3 and the existing bedrock well located southeast of Lot 673, SLR/GZA-218, were the only wells with groundwater and collected samples from both these wells. The samples were submitted for VOC analysis. The results indicated that VOCs were not detected above the laboratory reporting limits.

The laboratory analytical results for soil indicated several exceedances of RDEC, and I/CDEC. RDEC exceedances included the detections of lead and arsenic; TPH, and PAH constituents benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. Exceedances of the I/CDEC included lead and arsenic; and PAHs (benzo(a)anthracene), benzo(a)pyrene, and dibenzo(a,h)anthracene.

PAHs and SVOCs were detected in 15 of the 22 soil borings. Several compounds that were analyzed, especially VOCs, had laboratory reporting limits that exceeded their respective regulatory criteria. None of the detections exceeded the GB-LC.

The analytical results do not support the presence of a release creating a plume or vertical migration through the site. The sources of contamination are likely attributed to the historical placement of fill containing asphalt, ash and other anthropogenic material with substances intermixed within the fill.

The groundwater assessment was consistent with previous investigations. There were no exceedances of the RIDEM criteria for the COCs. Based on these results there appears to be no off-site or release areas on-site impacting groundwater quality at the Site. The soil results are summarized in Appendix B.

These conclusions are consistent with previous investigations conducted at the Site and remedial response actions will be required to bring the site into compliance with the RIDEM Remediation Regulations. SLR is currently in the process of obtaining RIDEM approvals for the remedial actions for the Site. This SMP is subject to be modified based on RIDEM final approval for the Site.

3. HEALTH AND SAFETY

The Contractor will be required to prepare a HASP covering all project Site work regulated by 29 CFR 1910.120(b)/1926.65(b) to be performed by the Contractor and all subcontractors under this Contract. The HASP will establish in detail, the protocols necessary for the recognition, evaluation, and control of anticipated hazards associated with each task to be performed. The HASP will address site-specific safety and health hazards of each phase of *Site* operation and include the requirements and procedures for employee protection. The level of detail provided in the HASP will be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted. Therefore, the HASP will address, in as much detail as possible, all anticipated tasks, their related hazards and anticipated control measures.

The HASP will interface with the Contractor's Safety and Health Program. Any portions of the Health and Safety Program that are referenced in the HASP should be included as appendices to the HASP. All topics regulated by the 29 CFR 1910.120(b)(4) and those listed below should be addressed in the HASP. Where the use of a specific topic is not applicable to the project, the HASP should include a statement to justify its omission or reduced level of detail and establish that adequate consideration was given the topic. The HASP should consider the potential for previously documented, Site-specific environmental contamination, including TPH, PAHs, arsenic, and lead.

3.1 SITE-WIDE HASP ELEMENTS

The following items should be included in the Contractor HASP associated with any project work at the *Site*:

a. Site Description and Contamination Characterization

The Contractor should provide a Site description and contaminant characterization in the HASP that meets the requirements of 29 CFR 1910.120/1926.65.

b. Safety and Health Risk Analysis/Activity Hazard Analysis

The HASP will address the safety and health hazards on this Site for every operation to be performed. The Contractor will review existing records and data to identify potential chemical and physical hazards associated with the Site and will evaluate their impact on field operations. Sources, concentrations (if known), potential exposure pathways, and other factors as noted in CFR 1910.120/126.65, paragraph (c)(7) employed to assess risk will be described. The Contractor will develop and justify action levels for implementation of engineering controls and personal protective equipment (PPE) upgrades and downgrades for controlling worker exposure to the identified hazards. If there is no permissible exposure limit (PEL) or published exposure level for an identified hazard, available information from other published studies may be used as guidance. Any modification of an established PEL must be fully documented.

The HASP will include a comprehensive section that discusses the tasks and objectives of the *Site* operations and logistics and resources required to complete each task. The hazards associated with each task will be identified. Hazard prevention techniques, procedures and/or equipment will be identified to mitigate each of the hazards identified.

c. Staff Organization, Qualifications and Responsibilities

The Contractor will assign responsibilities for safety activities and procedures. An outline or flow chart of the safety chain of command will be provided in the HASP. Qualifications, including education, experience, certifications, and training in safety and health for all personnel engaged in safety and health functions will be documented in the HASP. Specific duties of each on-*Site* team member should be identified. Typical team members may include, but are not limited to, Team Leader, Excavation Competent Person, *Site* Safety Officer, Security Officer, Record Keeper, Field Team Leader, and Field Team members.

The HASP will also include the name and qualifications of the individual proposed to serve as Health and Safety Officer (HSO). The HSO will have full authority to carry out and ensure compliance with the HASP. The Contractor will provide a competent HSO onsite who is capable of identifying existing and potential hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate or control them. The qualifications of the HSO will include completion of the Occupational Safety and Health Administration (OSHA) 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training, including current 8-hour refresher training, and 8-hour HAZWOPER supervisory training; a minimum of one year of working experience with the regulated compounds that have been documented to exist within Project limits; a working knowledge of federal and state safety regulations; specialized training or documented experience (one year minimum) in personal and respiratory protective equipment program implementation; the proper use of air monitoring instruments, air sampling methods and procedures; and certification training in first aid and CPR by a recognized, approved organization such as the American Red Cross.

The primary duties of the HSO will be those associated with worker health and safety. The Contractor's HSO responsibilities will be detailed in the written HASP and will include, but not be limited to the following:

i. Directing and implementing the HASP.

ii. Ensuring that all Project personnel have been adequately trained in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to illness or injury (29 CFR 1926.21). All personnel will be adequately trained in procedures outlined in the Contractor's written HASP.

iii. Authorizing Stop Work Orders, which will be executed upon the determination of an imminent health and safety concern.

iv. Contacting the Contractor's HSM and the Engineer immediately upon the issuance of a Stop Work order when the HSO has made the determination of an imminent health and safety concern.

v. Authorizing work to resume, upon approval from the Contractor's HSM.

vi. Directing activities, as defined in the Contractor's written HASP, during emergency situations; and

vii. Providing personal monitoring where applicable, and as identified in the HASP.

d. Employee Training Assignments

The Contractor will develop a training program to inform employees, supplier's representatives, and official visitors of the special hazards and procedures (including PPE, its uses and inspections) to control these hazards during field operations. This program will be consistent with the requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

e. Pre-Entry Briefings

The HASP will provide for pre-entry briefings to be held prior to initiating any *Site* activity and at such other times as necessary to alert workers to the potential for environmental hazards at the *Site* and ensure that employees are apprised of the HASP and that this plan is being followed.

f. Inspections/Audits

The HSM or HSO will conduct Inspections or audits to determine the effectiveness of the HASP. The Contractor will correct any deficiencies in the effectiveness of the HASP.

g. Communications

Written procedures for routine and emergency communications procedures will be included in the Contractor's HASP.

h. Confined Space Entry Procedures

Confined space entry is not anticipated as part of the scope of work.

i. Exposure Monitoring / Air Sampling Program

The Contractor will submit an Air Monitoring Plan as part of the HASP, specific to monitoring for airborne dust with the potential for containing lead above the PEL. This air monitoring plan will be consistent with 29 CFR 1910.120, paragraphs (b)(4)(ii)(E), (c)(6), and (h). The Contractor will identify specific air sampling

equipment, locations, and frequencies in the air monitoring plan. Air and exposure monitoring requirements will be specified in the Contractor's HASP. The Contractor's will specify any other recommended exposure monitoring/air sampling requirements after a careful review of the contaminants of concern and planned *Site* activities.

If dust suppression techniques are unsuccessful in minimizing the presence of airborne dust, in accordance with the prescribed levels in Section 4.1.3, (i.e., dust levels measured at 0.1 – 0.5 mg/m^3 for over two consecutive hourly measurements), the Contractor will implement exposure monitoring under the Air Monitoring Plan.

j. Personal Hygiene, Personal Decontamination and Equipment Decontamination

In general, it is not anticipated that extraordinary equipment decontamination procedures will be required on the Site, except for when working in the disposal site boundary, as indicated in Section 4.3 of this SMP. Equipment will be decontaminated when work is completed and before equipment is moved off-Site. Soil will be physically removed/brushed from equipment and kept on the Site. Washing of equipment will be completed when the soil is observed to contain petroleum or other environmental contaminants. Decontamination facilities and procedures for PPE, sampling equipment, and heavy equipment will be discussed in detail in the HASP.

In the event obviously contaminated material is encountered at the Site during construction (e.g., petroleum product, highly odorous materials, etc.), Disposable PPE (i.e., disposable coveralls, gloves, etc.) that comes in direct contact with hazardous or potentially hazardous material will be placed into 55-gallon USDOT 17-H drums and disposed of in accordance with federal, state, and local regulations. The drums will be temporarily staged and secured within a separate area of the *Site* until the material is appropriately disposed.

k. Emergency Equipment and First Aid Requirements

The Contractor will provide appropriate emergency first aid kits and equipment suitable to treat exposure to the hazards identified, including chemical agents. The Contractor will provide personnel that have certified first aid/CPR training onsite at all times during site operations.

l. Emergency Response Plan and Spill Containment Program

The Contractor will establish procedures in order to take emergency action in the event of immediate hazards (i.e., a chemical agent leak or spill, fire or personal injury). Personnel and facilities supplying support in emergency procedures will be identified. The emergency equipment to be present on-site and the Emergency Response Plan procedures, as required 29 CFR 1910.120, paragraph (1)(1)(ii) will be specified in the Emergency Response Plan. The Emergency Response Plan will be included as part of the HASP. This Emergency Response Plan will include written directions to the closest hospital as well as a map showing the route to the hospital.

m. Logs, Reports and Record Keeping

The Contractor will maintain safety inspections, logs, and reports, accident/incident reports, medical certifications, training logs, monitoring results, etc. All exposure and medical monitoring records are to be maintained according to 29 CFR 1910 and 29 CFR 1926. The format of these logs and reports will be developed by the Contractor to include training logs, daily logs, weekly reports, safety meetings, medical surveillance records, and a phase-out report. These logs, records, and reports will be maintained by the Contractor and be made available to the Engineer. The Contractor will immediately notify the Engineer of any accident/incident. Within two working days of any reportable accident, the Contractor will complete and submit to the Engineer an accident report.

3.2 ADDITIONAL HASP ELEMENTS

In addition to the safety elements indicated above, the health and safety procedures presented in the following subsections will be implemented due to the documented concentrations of COCs above regulatory criteria across the site.

a. Training

The HASP will include a list of personnel expected to be engaged in work within the Site boundary and certify that said personnel have completed the educational requirements stipulated in 29 CFR 1910.120 and 29 CFR 1926.65, are currently monitored under a medical surveillance program (Part c. below) in compliance with those regulations, and that they are fit for work under "Level C" conditions.

b. Personal Protective Equipment

The plan should include the requirements and procedures for employee protection and should include a detailed section on respiratory protection. The Contractor will describe in detail and provide appropriate PPE to ensure that workers are not exposed to levels greater than the action level for identified hazards for each operation stated for each work zone. The level of protection will be specific for each operation and will be in compliance with all requirements of 29 CFR 1910 and 29 CFR 1926.

c. Medical Surveillance Program

All on-site Contractor personnel engaged in 29 CFR 1910.120/1926.65 operations within the Site boundary will have medical examinations meeting the requirements of 29 CFR 1910.120(f) prior to commencement of work. The HASP will include certification of medical evaluation and clearance by the physician for each employee engaged in 29 CFR 1910.120/1926.65 operations at the disposal site.

d. Site Layout and Control

The HASP will include a map, work zone delineation (e.g., support, contamination, reduction, etc.), on/off-site communications, disposal site access controls, and security (physical and procedural).

3.3 HASP IMPLEMENTATION

The Contractor will implement and maintain the HASP throughout the performance of work. In areas identified as having a potential risk to worker health and safety, and in any other areas deemed appropriate by the HSO, the Contractor will be prepared to immediately implement the appropriate health and safety measures, including but not limited to the use of PPE, and engineering and administrative controls.

4. SOIL MANAGEMENT PLAN

This section provides the details for Site controls and soil management that the Contractor will be responsible for through the duration of the project. Refer to project construction-related plans and specifications for details on Site development. These controls will be implemented to limit the potential for a release of environmental hazards during the Project, and potential human exposure to potential hazards, impacted soil within the site boundary, or other impacted environmental media (soil and groundwater) that may be encountered during construction activities as part of the larger project. The controls include the use of appropriate and applicable best management practices (BMPs), good housekeeping at the construction Site, and worker awareness training to minimize the potential for uncontrolled exposures or releases to the environment.

The Owner or Developer will engage a qualified environmental professional to conduct observations of excavation activities within the site boundary.

4.1 SITE CONTROLS

4.1.1 EROSION CONTROLS

Erosion controls should be installed according to construction specifications and inspected by the Engineer prior to ground disturbance at the Site. Erosion controls should be inspected routinely prior to daily activities and following precipitation events as a requirement of National Pollutant Discharge Elimination System (NPDES) General Permit Notice of Intent.

4.1.2 SITE SECURITY

Temporary fencing must be installed around the Site prior to any ground-breaking activities in accordance with project plans. The Contractor will be responsible for Site security and must limit the entrances to the

Site. The entrance must be secured during non-working hours with posted signs restricting access and notifying the area is a restricted construction zone.

4.1.3 DUST CONTROL

Best Management Procedures (BMPs) will be incorporated to minimize the potential for contaminants to be released in particulate form during any work-related activities that may disturb Site soils (i.e. clearing, grading, or excavation). Dust control measures will be implemented if dust is observed during such activities. These measures include the use of water to pre-wet soil to prevent airborne migration when visible dust is observed near the Site boundary.

Based on previous environmental investigations COCs for the Site include TPH, PAHs, arsenic, and lead in soil; therefore, perimeter dust monitoring will be required to monitor for potential off-Site impacts during soil disturbance activities. Dust must be monitored in real-time with a recordable device(s). The Contractor will notify the Engineer prior to mobilization to the Site, of the make and model of the dust monitor(s) that will be used for perimeter monitoring. Dust monitor(s) will be placed prior to daily field activities that include disturbance of soil, calibrated daily before use based on manufacturer's specifications, placed in a location downwind of the activity based on wind direction, and moved, if necessary, based on a change in conditions. Dust levels will be recorded hourly or periodically depending on Site activities, recorded on daily logs, and retained by the Contractor for the duration of the project.

Work will be stopped if dust levels reach above 5 milligrams per cubic meter (mg/m^3) as an action level. The temporary work stoppage will continue until the Contractor mitigates dust generation with the measures previously mentioned. The following action levels will be implemented based on dust levels at monitoring location:

- Background – 0.1 mg/m^3: No Action
- 0.1 – 0.5 mg/m^3 for over two consecutive hourly measurements: Notify Engineer and Site personnel, Contractor will implement dust suppression and exposure monitoring under the Air Monitoring Plan (see Section 3.1).
- >5 mg/m^3 (visible dust) for over two consecutive hourly measurements: Notify Engineer and Site personnel, Contractor to implement work stoppage to review modifications to Site activities and implementation of additional dust control measures.

4.2 EXCAVATION AND SOIL HANDLING

During excavation operations, the Contractor will notify the Engineer (or designated environmental professional (EP)) immediately if there is evidence of apparent soil contamination different than that identified in this SMP. Such conditions may include, but not be limited to, evidence of sheen on groundwater, free-phase petroleum product in soil or groundwater, petroleum odors, soil staining, underground storge tanks, drums, or other sub-structures. If such conditions are discovered, the Contractor will immediately stop work in the area of concern until the Engineer has evaluated the conditions and provided the Contractor express approval to proceed.

4.2.1 EXCAVATION NOTIFICATIONS

The Contractor will notify the Engineer in writing no less than three days prior to any ground disturbance activities. The Engineer will coordinate with the Contractor for an EP to conduct oversight of all excavation activities within the Site boundary.

The written notice will include:

- Schedule start date of the ground disturbance
- Name and credentials of the operator and personnel that will be conducting the activities
- Contact information for coordination of excavation activities

EP oversight is critical to help establish proper implementation of this SMP, the associated RAWP, and to meet regulatory requirements of the RIDEM. The EP will assist the Contractor in identification of impacted soil and implementation of field monitoring, if necessary.

4.2.2 FIELD SCREENING AND SOIL SAMPLING

The Contractor will not be required to conduct field screening or sampling of soil at the Site.

4.2.3 TEMPORARY WASTE STOCKPILES

If applicable, temporary waste stockpiles (TWSs) will be made during soil excavation and planned relocation activities at the Site. Large pieces of stone, concrete, asphalt, or other anthropogenic debris should be generally removed from the soil to the extent practical and be stockpiled separately for off-Site disposal as standard solid waste material or construction debris.

Any single stockpile should be, to the extent practical, no larger than approximately 100 cubic yards in size and should be located nearby to the excavation from which it was generated. Additionally, TWSs must be located within the fenced area of the Site limits and placed to prevent ponding of water in, on, or in contact with the soil piles. Stockpiles in TWSs should be no larger than approximately 500 cubic yards in size. Plastic sheeting (minimum of 10-mil thickness) will be used to cover the TWSs at all times, except when the soil is being handled. The plastic sheeting will be adequately secured with sandbags or other means to prevent the sheeting from being dislodged. The stockpiles will be inspected prior to the start of the day and at the end of the day to ensure covering is property maintained.

To the extent practical, excavated soil will be used as backfill material in the general area in which it was generated. No material is to be transported off-Site for disposal without authorization from the Engineer.

4.2.4 EXCAVATION CONTROL

A Competent Person will oversee excavation work as required by OSHA 1926.650. Entry into any excavation is authorized only in accordance with the HASP and safe work practices, and under the observation of the Competent Person. Open excavations will be demarcated with caution tape during

periods of inactivity and at the end of each workday to help prevent fall ins. Any excavated soil not re-used at the end of the day will be covered with plastic sheeting with sandbags placed to prevent the sheeting from being dislodged.

4.2.5 TEMPORARY CONSTRUCTION DEWATERING

Based on previous measured depths to groundwater at the Site, it is not anticipated that groundwater will be encountered during this phase of work at the Site. Therefore, construction dewatering is not anticipated. Groundwater may be encountered during the final development of the buildings, which is not included as part of this SMP. If groundwater is encountered the Contractor shall notify the Engineer immediately.

4.2.6 EXCAVATION ACTIVITIES

Prior to any ground disturbance the Contractor will notify the Engineer as detailed in Section 4.2.1. A qualified environmental professional will be retained by the Owner/Developer to be on-site during ground disturbance activities for oversight and to ensure work is conducted in accordance with the approved RAWP and this SMP.

Any excavated soil not re-used within the Site boundary will be temporary stored in a TSW as detailed in Section 4.2.3.

Any personnel working within the Site are required to review the HASP and the Contractor will retain daily work logs through the project. In general, the level of protection that will be used by workers within the Site will consist of Level D and the following equipment:

- Appropriate work boots
- Eye protection (safety glasses)
- Nitrile gloves when working with impacted soils
- Protective working gloves when outside of impacted soils or handling debris
- Hard hat.

4.3 DECONTAMINATION

The Contractor will perform decontamination of on-site heavy equipment following excavation activities within the Site to minimize potential for cross-contamination. Physical removal, such as dry brushing may be adequate, unless visual or olfactory observations of gross contamination are encountered. In that instance, high-pressure water, or a steam cleaner should be used for equipment decontamination prior to removal from the disposal site boundary. All decontamination materials will be disposed of as controlled material with fluids discharged to the ground surface within the Site boundary.

Additionally, all equipment will be decontaminated before leaving the Site. A vehicle anti-tracking pad consisting of process gravel or other suitable material will be constructed at the Site entrance. The anti-tracking pad will help to minimize tracking of material from the site onto the surrounding streets.

4.4 ADDITIONAL WASTE CHARACTERIZATION

If excess soils are generated during excavation that cannot be re-used on-Site, then they will be stockpiled in the TWS as detailed in Section 4.2.3. The Contractor will notify the Engineer when all excavation and backfill activities are completed and provide an estimate for soils remaining in the stockpiles. The Engineer will coordinate Waste Characterization with appropriate frequency, depending on the volume of material and requirements of the accepting disposal facility. Based on the site design, excess soil is not anticipated as part of this project.

Due to the nature of the Site and results of the environmental investigations, off-site disposal will require waste characterization results prior to transportation off-Site. No soil will be transported off-Site without first being characterized by the Engineer.

4.5 DEMARCATION LAYER AND ENGINEERED CONTROL

The application of the engineered control will be part of the final approved remedial action detailed in the RAWP (not included as part of this SMP). The remedial action at the site will include a combination of soil removal, relocation and capping with clean fill or use of impervious surfaces to reduce the potential for direct exposure to soil containing COCs. The primary risk associated with the Site is the potential for direct exposure to the impacted soil by the public. For the purposes of this SMP this remedial action is included, however, it may be modified based upon final RIDEM approval.

During the initial construction phase the Site would be utilized for construction staging, followed by construction of the riverwalk near the waterfront, and eventually final redevelopment of the site.

The primary risk associated with the site remains the potential for direct exposure to soil by site users, including construction personnel, and public living in the surrounding area. Access to the Site from the start of construction through the final development of the site will be limited with temporary fencing, and construction entrances.

The construction of the engineered cap (i.e. demarcation layer) will mitigate exposure to site-wide soil by creating a physical barrier between soil and human receptors. The demarcation layer will mitigate risks for air-born migration of contaminants off-site through dust and reduce potential for off-site migration from stormwater runoff to the river.

The soil capping will consist of the following activities:

- Temporary construction access roads will be constructed of clean imported gravel or fill overlying a demarcation layer consisting of geotextile fabric. The roads will remain in-place and maintained until final development actions are completed.

- In landscaped areas, at least one foot of clean fill overlying a demarcation layer (i.e., orange geotextile fabric, or other material that will act as a visual boundary), and at least two-feet of clean fill will be placed from base of roots for tree plantings or potted vegetation without the demarcation layer.
- New paved or other impervious surface (i.e., concrete patio, or walkways) that prevents access to the underlying soil to be maintained.

- New buildings, foundations or other permanent structures that results in the underlying soil to be inaccessible or isolated.

The capping specifications will be provided in the RAWP addendum as part of the new proposed development for the project, in accordance with Section 9.0 of the Remediation Regulations. Refer to the construction plans and specifications for details on the capping materials.

Locations of the site in which no site improvements are proposed, between the construction staging and final development, will be restricted to those areas through the installation of fencing, existing thick vegetation, or other restrictive barriers. A temporary soil cap would only be installed where construction access and staging areas are located until final development of the riverwalk, and remaining portion of the property occurs.

FIGURES

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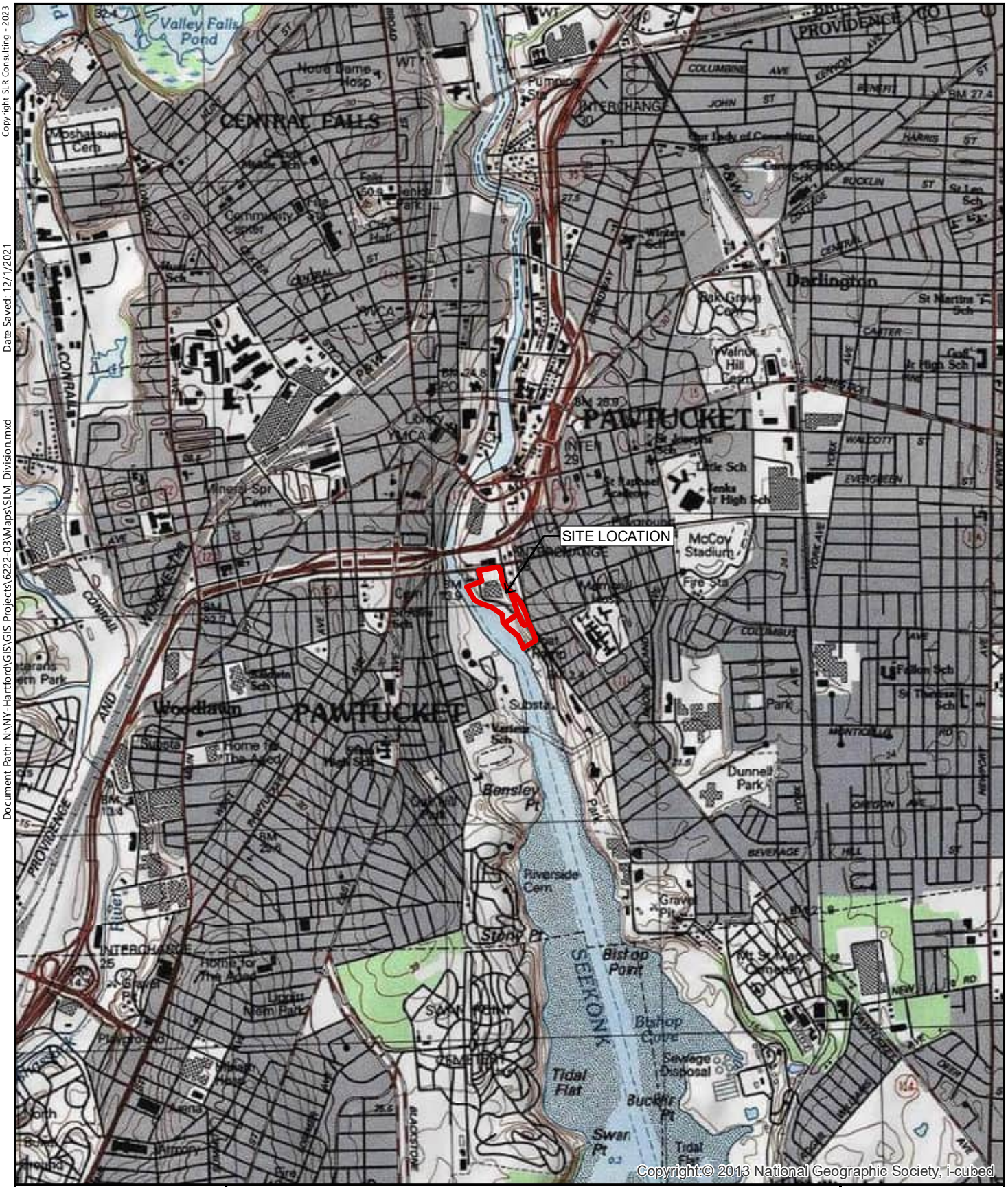

SLR
45 GLASTONBURY BLVD
1ST FL
GLASTONBURY, CT 06033
860.400.5680

SITE LOCATION MAP

DIVISION STREET PARCELS
FORTUITOUS TIDEWATER
DIVISION STREET
PAWTUCKET, RHODE ISLAND

N

0 500 1,000
Feet

SCALE 1 " = 2,000 '

DATE 3/22/2023

16222.0005
PROJ. NO.

FIG. 1

APPENDIX A

LIMITATIONS ON WORK PRODUCT

Town Landing Property
Taft Street

Fortuitous Tidewater OZ, LLC

LIMITATIONS

The services described in this work product were performed in accordance with generally accepted professional consulting principles and practices. No other representations or warranties, expressed or implied, are made. These services were performed consistent with our agreement with our client. This work product is intended solely for the use and information of our client unless otherwise noted. Any reliance on this work product by a third party is at such party's sole risk.

Opinions and recommendations contained in this work product are based on conditions that existed at the time the services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. The data reported and the findings, observations, and conclusions expressed are limited by the scope of work. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this work product.

The purpose of an environmental assessment is to reasonably evaluate the potential for, or actual impact of, past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an appropriate level of analysis for each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation can be thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, practical limitations, and cost of the work performed.

Environmental conditions that are not apparent may exist at the site. Our professional opinions are based in part on interpretation of data from a limited number of discrete sampling locations and therefore may not be representative of the actual overall site environmental conditions.

The passage of time, manifestation of latent conditions, or occurrence of future events may require further study at the site, analysis of the data, and/or reevaluation of the findings, observations, and conclusions in the work product.

This work product presents professional opinions and findings of a scientific and technical nature. The work product will not be construed to offer legal opinion or representations as to the requirements of, nor the compliance with, environmental laws rules, regulations, or policies of federal, state or local governmental agencies.

APPENDIX B

DRAFT SIR SUMMARY TABLES & FIGURES

Town Landing Property
Taft Street

Fortuitous Tidewater OZ, LLC

Notes:
Aerial - RIDEM, April 2018 flight, ArcGis Image Service
Contours - RIDEM, 2020, ArcGisOnline
Parcels - RIDEM, 2020, ArcGisOnline

Date Saved: 3/22/2023 MXD: N:\NY-Hartford\GIS\GIS Projects\6222-03\Maps\figure2_divisionst.mxd

SLR
45 GLASTONBURY BLVD
1ST FL
GLASTONBURY, CT 06033
860.400.5680

SITE MAP

DIVISION STREET PROPERTY
FORTUITOUS TIDEWATER
45 DIVISION STREET & SCHOOL STREET
PAWTUCKET, RHODE ISLAND

SCALE	1" = 100'
DATE	3/22/2023
PROJECT NO.	16222.0005

FIG. 2

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Table 1
Summary of Soil Results
45 Division Street and School Street Parcels
Pawtucket, Rhode Island

Parameter	Rhode Island Remediation Regulations				SLR-200	SLR-200	SLR-201	SLR-202	SLR-203	SLR-203	SLR-204	SLR-205	SLR-207	SLR-208	SLR-208	SLR-209	SLR-210	SLR-211	DUP001 (SLR-211)	SLR-211	SLR-212	SLR-213	DUP002 (SLR-213)	SLR-213	SLR-214	SLR-215
					(0-2 ft)	(3.5-4.5 ft)	(1-3 ft)	(3-5 ft)	(1-3 ft)	(13-15 ft)	(2-4 ft)	(3-5 ft)	(7-9 ft)	(3-4 ft)	(8-10 ft)	(0.5-2 ft)	(3.5-5.5 ft)	(2-4 ft)	(2-4 ft)	(4-6 ft)	(4-6 ft)	(2-4 ft)	(2-4 ft)	(5-7 ft)	(6-8 ft)	(1-3 ft)
	RDEC	I/CDEC	GA LC	GB LC	3/22/2021	3/22/2021	3/22/2021	3/23/2021	3/22/2021	3/22/2021	3/22/2021	3/22/2021	3/23/2021	3/22/2021	3/22/2021	3/22/2021	3/23/2021	3/23/2021	3/23/2021	3/23/2021	3/23/2021	3/24/2021	3/24/2021	3/24/2021	3/23/2021	3/23/2021
Total Petroleum Hydrocarbons (mg/Kg)																										
TPH C9-C36 Hydrocarbons as Diesel	500	2,500	500	2,500	90	ND<8.8	110	ND<8.6	140	ND<8.4	68	59	110	140	ND<8.6	310	63	2,200	2,300	630	94	16	13	ND<8.6	1,200	380
Total Metals (mg/Kg)																										
Arsenic	7.0	7.0	~	~	5.9	ND<3.5	4.5	3.9	ND<3.5	ND<3.4	6.8	4.5	**7.7**	**7.1**	**7.1**	6.2	**9.5**	**7.2**	6.5	**30**	4.3	ND<3.7	ND<3.6	5.4	5.6	4.9
Barium	5,500	10,000	~	~	44	51	34	10	21	17	68	26	85	32	25	51	44	180	140	61	33	22	16	20	75	47
Cadmium	39	1,000	~	~	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.34	ND<0.35	ND<0.35	ND<0.38	ND<0.35	ND<0.33	ND<0.35	ND<0.36	3.6	2.4	0.66	ND<0.35	ND<0.37	ND<0.36	ND<0.34	4.8	0.59
Chromium	1,400/ 390**	10,000/ 10,000**	~	~	8.2	21	7.5	6.7	5.0	3.7	8.9	6.4	8.6	9.4	6.7	10	12	19	16	24	11	6.8	5.7	9.0	13	13
Lead	150	500	~	~	39	14	35	3.1	15	2.0	210	18	75	37	6.1	93	52	**530**	400	**2,600**	33	30	11	7.4	160	270
Mercury	23	610	~	~	0.098	ND<0.027	0.088	ND<0.026	ND<0.027	ND<0.025	0.64	0.044	0.24	0.053	ND<0.027	0.22	0.050	0.25	0.33	0.11	0.17	0.043	0.035	ND<0.026	0.13	0.12
Selenium	390	10,000	~	~	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.4	ND<3.5	ND<3.5	ND<3.8	ND<3.5	ND<3.3	ND<3.5	ND<3.6	ND<3.6	ND<3.5	ND<3.5	ND<3.5	ND<3.7	ND<3.6	ND<3.4	ND<3.6	ND<3.4
Silver	200	10,000	~	~	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.34	ND<0.35	ND<0.35	ND<0.38	ND<0.35	ND<0.33	ND<0.35	ND<0.36	ND<0.36	ND<0.35	ND<0.35	ND<0.35	ND<0.37	ND<0.36	ND<0.34	ND<0.36	ND<0.34
Leachable Metals by Synthetic Precipitation Leaching Procedure (ug/l)																										
Arsenic	~	~	~	~	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11	---	---	---	---	---	---
Chromium	~	~	1,100	~	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lead	~	~	40	~	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	53	---	---	---	---	---	---
Polychlorinated Biphenyls by Soxhlet Extraction (mg/Kg)																										
Aroclor-1016	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	ND<0.22	ND<0.086	---	---	ND<0.089	ND<0.086	---	---	---
Aroclor-1221	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	ND<0.22	ND<0.086	---	---	ND<0.089	ND<0.086	---	---	---
Aroclor-1232	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	ND<0.22	ND<0.086	---	---	ND<0.089	ND<0.086	---	---	---
Aroclor-1242	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	ND<0.22	ND<0.086	---	---	ND<0.089	ND<0.086	---	---	---
Aroclor-1248	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	5.2	1.8	---	---	ND<0.089	ND<0.086	---	---	---
Aroclor-1254	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	ND<0.22	ND<0.086	---	---	ND<0.089	ND<0.086	---	---	---
Aroclor-1260	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	0.82	0.38	---	---	ND<0.089	ND<0.086	---	---	---
Aroclor-1262	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	ND<0.22	ND<0.086	---	---	ND<0.089	ND<0.086	---	---	---
Aroclor-1268	~	~	~	~	---	---	---	---	ND<0.085	---	---	---	---	ND<0.084	---	---	---	ND<0.22	ND<0.086	---	---	ND<0.089	ND<0.086	---	---	---
Total PCBs	10	10	10	10	---	---	---	---	ND	---	---	---	---	ND	---	---	---	6.02	2.18	---	---	ND	ND	---	---	---
Polycyclic Aromatic Hydrocarbons (mg/Kg)																										
Acenaphthylene	23	10,000	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	0.53	---	---	---	ND<0.18	---	---
Anthracene	35	10,000	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	0.51	---	---	---	ND<0.18	---	---
Benzo(a)anthracene	0.9	7.8	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	2.6	---	---	---	ND<0.18	---	---
Benzo(a)pyrene	0.4	0.8	240	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	**2.7**	---	---	---	ND<0.18	---	---
Benzo(b)fluoranthene	0.9	7.8	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	3.1	---	---	---	ND<0.18	---	---
Benzo(g,h,i)perylene	0.8	10,000	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	1.8	---	---	---	ND<0.18	---	---
Benzo(k)fluoranthene	0.9	78	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	1.1	---	---	---	ND<0.18	---	---
Chrysene	0.4	780	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	2.8	---	---	---	ND<0.18	---	---
Dibenzo(a,h)anthracene	0.4	0.8	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	0.43	---	---	---	ND<0.18	---	---
Fluoranthene	20	10,000	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	4.5	---	---	---	ND<0.18	---	---
Fluorene	28	10,000	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	0.18	---	---	---	ND<0.18	---	---
Indeno(1,2,3-cd)pyrene	0.9	7.8	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	1.9	---	---	---	ND<0.18	---	---
Phenanthrene	40	10,000	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	2.9	---	---	---	ND<0.18	---	---
Pyrene	13	10,000	~	~	---	ND<0.18	---	---	---	ND<0.17	---	---	---	---	ND<0.18	---	---	---	---	6.0	---	---	---	ND<0.18	---	---
Semi-Volatile Organic Compounds (mg/Kg)																										
1-Methylnaphthalene	~	~	~	~	ND<0.18	---	ND<0.17	ND<0.18	ND<0.18	---	ND<0.18	ND<0.18	ND<0.19	ND<0.18	---	ND<0.18	ND<0.19	ND<0.18	ND<0.18	---	ND<0.18	ND<0.19	ND<0.18	---	0.93	0.23
2,4-Dinitrotoluene	0.9	8.4	~	~	ND<0.36	---	ND<0.35	ND<0.35	ND<0.35	---	ND<0.36	ND<0.36	ND<0.39	ND<0.35	---	ND<0.36	ND<0.38	ND<0.36	ND<0.36	---	ND<0.35	ND<0.37	ND<0.37	---	ND<1.4 *	ND<0.36
2-Methyl naphthalene	123	10,000	~	~	ND<0.18	---	ND<0.17	ND<0.18	ND<0.18	---	ND<0.18	ND<0.18	ND<0.19	ND<0.18	---	ND<0.18	ND<0.19	ND<0.18	ND<0.18	---	ND<0.18	ND<0.19	ND<0.18	---	1.3	0.29
Acenaphthene	43	10,000	~	~	ND<0.18	---	ND<0.17	ND<0.18	0.28	---	0.33	ND<0.18	ND<0.19	ND<0.18	---	0.58	ND<0.19	0.30	0.27	---	ND<0.18	ND<0.19	ND<0.18	---	5.7	0.77
Acenaphthylene	23	10,000	~	~	ND<0.18	---	ND<0.17	ND<0.18	ND<0.18	---	ND<0.18	ND<0.18	ND<0.19	ND<0.18	---	0.22	ND<0.19	0.36	0.33	---	ND<0.18	ND<0.19	ND<0.18	---	ND<0.71	0.22
Anthracene	35	10,000	~	~	0.24	---	0.40	ND<0.18	0.71	---	0.75	ND<0.18	0.49	0.37	---	1.6	0.31	0.98	0.88	---	ND<0.18	ND<0.19	ND<0.18	---	11	2.4
Benzo(a)anthracene	0.9	7.8	~	~	0.63	---	1.6	ND<0.18	1.9	---	1.7	0.34	2.0	1.1	---	4.9	1.2	3.5	2.9	---	0.55	ND<0.19	ND<0.18	---	**24**	5.8
Benzo(a)pyrene	0.4	0.8	240	~	0.59	---	**1.6**	ND<0.18	**1.6**	---	**1.4**	0.34	**2.1**	**1.1**	---	**5.2**	**1.2**	**4.5**	**3.4**	---	0.59	ND<0.19	ND<0.18	---	**21**	**5.3**
Benzo(b)fluoranthene	0.9	7.8	~	~	0.75	---	1.8	ND<0.18	1.8	---	1.6	0.42	2.5	1.3	---	6.1	1.5	6.2	4.9	---	0.64	ND<0.19	ND<0.18	---	**27**	6.5
Benzo(g,h,i)perylene	0.8	10,000	~	~	0.39	---	0.95	ND<0.18	0.81	---	0.81	ND<0.18	1.3	0.62	---	2.4	0.68	3.8	2.8	---	0.32	ND<0.19	ND<0.18	---	8.4	2.7
Benzo(k)fluoranthene	0.9	78	~	~	0.31	---	0.72	ND<0.18	0.66	---	0.67	ND<0.18	0.96	0.52	---	2.1	0.57	2.2	1.5	---	0.26	ND<0.19	ND<0.18	---	8.9	2.9
Bis(2-chloroethyl)ether	0.6	5.2	~	~	ND<0.36	---	ND<0.35	ND<0.35	ND<0.35	---	ND<0.36	ND<0.36	ND<0.39	ND<0.35	---	ND<0.36	ND<0.38	ND<0.36	ND<0.36	---	ND<0.35	ND<0.37	ND<0.37	---	ND<1.4 *	ND<0.36
Bis(2-ethylhexyl)phthalate/ Diethylhexyl phthalate	46	410	120	~	ND<0.36	---	ND<0.35	ND<0.35	ND<0.35	---	ND<0.36	ND<0.36	ND<0.39	ND<0.35	---	ND<0.36	ND<0.38	0.78	0.87	---	ND<0.35	ND<0.37	ND<0.37	---	ND<1.4	ND<0.36
Butylbenzylphthalate	~	~	~	~	ND<0.36	---	ND<0.35	ND<0.35	ND<0.35	---	ND<0.36	ND<0.36	ND<0.39	ND<0.35	---	ND<0.36	ND<0.38	ND<0.36	1.0	---	ND<0.35	ND<0.37	ND<0.37	---	ND<1.4	ND<0.36
Carbazole	~	~	~	~	ND<0.18	---	ND<0.17	ND<0.18	0.36	---	0.29	ND<0.18	ND<0.19	0.23	---	0.67	0.20	0.57	0.45	---	ND<0.18	ND<0.19	ND<0.18	---	5.4	1.1
Chrysene	0.4	780	~	~	0.63	---	1.5	ND<0.18	1.9	---	1.5	0.34	1.9	1.1	---	4.8	1.2	3.9	3.1	---	0.45	ND<0.19	ND<0.18	---	22	5.4
Dibenzo(a,h)anthracene	0.4	0.8	~	~	ND<0.18	---	0.24	ND<0.18	0.25	---	0.23	ND<0.18	0.30	ND<0.18	---	0.69	ND<0.19	**0.94**	0.68	---	ND<0.18	ND<0.19	ND<0.18	---	**2.2**	0.77
Dibenzofuran	~	~	~	~	ND<0.36	---	ND<0.35	ND<0.35	ND<0.35	---	ND<0.36	ND<0.36	ND<0.39	ND<0.35	---	0.40	ND<0.38	ND<0.36	ND<0.36	---	ND<0.35	ND<0.37	ND<0.37	---	3.1	0.71
Fluoranthene	20	10,000	~	~	1.4	---	3.4	ND<0.18	4.0	---	3.6	0.68	3.9	2.3	---	14	2.6	6.4	5.8	---	1.2	ND<0.19	ND<0.18	---	55	13
Fluorene	28	10,000	~	~	ND<0.18	---	ND<0.17	ND<0.18	0.30	---	0.33	ND<0.18	ND<0.19	ND<0.18	---	0.64	ND<0.19	0.44	0.37	---	ND<0.18	ND<0.19	ND<0.18	---	5.4	1.1
Hexachlorobenzene	0.4	3.6	~	~	ND<0.36	---	ND<0.35	ND<0.35	ND<0.35	---	ND<0.36	ND<0.36	ND<0.39	ND<0.35	---	ND<0.36	ND<0.38	ND<0.36	ND<0.36	---	ND<0.35	ND<0.37	ND<0.37	---	ND<1.4 *	ND<0.36
Indeno(1,2,3-cd)pyrene	0.9	7.8	~	~	0.37	---	1.1	ND<0.18	0.89	---	0.95	0.20	1.4	0.67	---	2.8	0.77	4.3	3.2	---	0.36	ND<0.19	ND<0.18	---	**9.8**	3.1
Naphthalene	54	10,000	0.8	~	ND<0.18	---	ND<0.17	ND<0.18	ND<0.18	---	ND<0.18	ND<0.18	0.20	ND<0.18	---	0.30	0.23	0.28	0.25	---	ND<0.18	ND<0.19	ND<0.18	---	2.4	0.57
Phenanthrene	40	10,000	~	~	1.1	---	1.7	ND<0.18	3.5	---	2.9	0.41	2.5	1.7	---	7.2	2.0	4.5	3.7	---	0.81	ND<0.19	ND<0.18	---	48	9.5
Pyrene	13	10,000	~	~	1.1	---	3.4	ND<0.18	3.7	---	3.6	0.67	4.0	2.4	---	8.8	2.5	8.3	5.9	---	1.4	ND<0.19	ND<0.18	---	46	11
Volatile Organic Compounds (mg/Kg)																										
1,1,2-Trichloroethane	3.6	100	0.1	~	ND<0.0014	---	---	---	ND<0.0014	---	---	---	---	ND<0.0017	---	---	---	ND<0.0019	ND<0.060	---	---	ND<0.0016	ND<0.0015	---	---	ND<0.0031
1,2-Dibromo-3-chloropropane (DBCP)	0.5	4.1	~	~	ND<0.0014	---	---	---	ND<0.0014	---	---	---	---	ND<0.0017	---	---	---	ND<0.0019	ND<0.30	---	---	ND<0.0016	ND<0.0015	---	---	ND<0.0031
1,2-Dichloroethane	0.9	63	0.1	2.3	ND<0.0014	---	---	---	ND<0.0014	---	---	---	---	ND<0.0017	---	---	---	ND<0.0019	ND<0.060	---	---	ND<0.0016	ND<0.0015	---	---	ND<0.0031
1,2-Dichloropropane	1.9	84	0.1	70	ND<0.0014	---	---	---	ND<0.0014	---	---	---	---	ND<0.0017	---	---	---	ND<0.0019	ND<0.060	---	---	ND<0.0016	ND<0.0015	---	---	ND<0.0031
Ethylene dibromide (EDB)/ 1,2-Dibromoethane	0.01	0.07	0.0005	~	ND<0.00068 *	---	---	---	ND<0.00068 *	---	---	---	---	ND<0.00084 *	---	---	---	ND<0.00093 *	**ND<0.030 ***	---	---	ND<0.00078 *	ND<0.00074 *	---	---	ND<0.0015 *
Tetrachloroethene	12	110	0.1	4.2	ND<0.0014	---	---	---	ND<0.0014	---	---	---	---	ND<0.0017	---	---	---	ND<0.0019	ND<0.060	---	---	ND<0.0016	ND<0.0015	---	---	ND<0.0031
Trichloroethene (TCE)	13	520	0.2	20	ND<0.0014	---	---	---	ND<0.0014	---	---	---	---	0.0054	---	---	---	ND<0.0019	ND<0.060	---	---	ND<0.0016	ND<0.0015	---	---	ND<0.0031
Vinyl chloride	0.02	3.0	0.3	~	ND<0.0068	---	---	---	ND<0.0068	---	---	---	---	ND<0.0084	---	---	---	ND<0.0093	ND<0.12 *	---	---	ND<0.0078	ND<0.0074	---	---	ND<0.015

Table 1
Summary of Soil Results
45 Division Street and School Street Parcels
Pawtucket, Rhode Island

Parameter	Rhode Island Remediation Regulations				SLR-218	SLR-219	SLR-219	SLR-220	SLR-221	SLR-221	SLR-223	SLR-224	SLR-224
					(3-5 ft)	(0-2 ft)	(4-6 ft)	(4-6 ft)	(2-4 ft)	(4.5-6.5 ft)	(0-2 ft)	(3-5 ft)	(10-12 ft)
	RDEC	I/CDEC	GA LC	GB LC	3/24/2021	3/24/2021	3/24/2021	3/24/2021	3/24/2021	3/24/2021	3/24/2021	3/24/2021	3/24/2021
Total Petroleum Hydrocarbons (mg/Kg)													
TPH C9-C36 Hydrocarbons as Diesel	500	2,500	500	2,500	140	890	280	450	280	37	150	12	49
Total Metals (mg/Kg)													
Arsenic	7.0	7.0	~	~	**9.5**	**10**	**20**	**25**	**19**	6.3	**8.6**	4.3	**11**
Barium	5,500	10,000	~	~	120	66	75	2,500	490	14	36	57	67
Cadmium	39	1,000	~	~	ND<0.36	2.0	ND<0.40	0.77	2.1	ND<0.38	ND<0.38	ND<0.36	ND<0.35
Chromium	1,400/ 390**	10,000/ 10,000**	~	~	12	51	110	12	27	9.3	23	12	18
Lead	150	500	~	~	450	**1,100**	150	**4,600**	**1,400**	39	90	13	22
Mercury	23	610	~	~	0.32	0.42	0.36	2.3	16	0.078	0.18	0.030	0.057
Selenium	390	10,000	~	~	ND<3.6	ND<4.3	ND<4.0	ND<3.8	ND<4.4	ND<3.8	ND<3.8	ND<3.6	ND<3.5
Silver	200	10,000	~	~	ND<0.36	1.2	ND<0.40	ND<0.38	ND<0.44	ND<0.38	ND<0.38	ND<0.36	ND<0.35
Leachable Metals by Synthetic Precipitation Leaching Procedure (ug/l)													
Arsenic	~	~	~	~	---	---	---	15	6.4	---	---	---	---
Chromium	~	~	1,100	~	---	---	---	5.3	9.7	---	---	---	---
Lead	~	~	40	~	---	---	---	500	190	---	---	---	---
Polychlorinated Biphenyls by Soxhlet Extraction (mg/Kg)													
Aroclor-1016	~	~	~	~	---	ND<0.10	---	---	ND<0.10	---	---	---	---
Aroclor-1221	~	~	~	~	---	ND<0.10	---	---	ND<0.10	---	---	---	---
Aroclor-1232	~	~	~	~	---	ND<0.10	---	---	ND<0.10	---	---	---	---
Aroclor-1242	~	~	~	~	---	ND<0.10	---	---	ND<0.10	---	---	---	---
Aroclor-1248	~	~	~	~	---	ND<0.10	---	---	ND<0.10	---	---	---	---
Aroclor-1254	~	~	~	~	---	0.85	---	---	ND<0.10	---	---	---	---
Aroclor-1260	~	~	~	~	---	0.81	---	---	ND<0.10	---	---	---	---
Aroclor-1262	~	~	~	~	---	ND<0.10	---	---	ND<0.10	---	---	---	---
Aroclor-1268	~	~	~	~	---	0.31	---	---	ND<0.10	---	---	---	---
Total PCBs	10	10	10	10	---	1.97	---	---	ND	---	---	---	---
Polycyclic Aromatic Hydrocarbons (mg/Kg)													
Acenaphthylene	23	10,000	~	~	---	---	ND<0.21	---	---	ND<0.19	---	---	ND<0.18
Anthracene	35	10,000	~	~	---	---	0.25	---	---	ND<0.19	---	---	ND<0.18
Benzo(a)anthracene	0.9	7.8	~	~	---	---	0.81	---	---	ND<0.19	---	---	ND<0.18
Benzo(a)pyrene	0.4	0.8	240	~	---	---	**0.84**	---	---	ND<0.19	---	---	ND<0.18
Benzo(b)fluoranthene	0.9	7.8	~	~	---	---	0.98	---	---	ND<0.19	---	---	ND<0.18
Benzo(g,h,i)perylene	0.8	10,000	~	~	---	---	0.44	---	---	ND<0.19	---	---	ND<0.18
Benzo(k)fluoranthene	0.9	78	~	~	---	---	0.39	---	---	ND<0.19	---	---	ND<0.18
Chrysene	0.4	780	~	~	---	---	0.79	---	---	ND<0.19	---	---	ND<0.18
Dibenzo(a,h)anthracene	0.4	0.8	~	~	---	---	ND<0.21	---	---	ND<0.19	---	---	ND<0.18
Fluoranthene	20	10,000	~	~	---	---	1.4	---	---	ND<0.19	---	---	ND<0.18
Fluorene	28	10,000	~	~	---	---	ND<0.21	---	---	ND<0.19	---	---	ND<0.18
Indeno(1,2,3-cd)pyrene	0.9	7.8	~	~	---	---	0.47	---	---	ND<0.19	---	---	ND<0.18
Phenanthrene	40	10,000	~	~	---	---	0.70	---	---	ND<0.19	---	---	ND<0.18
Pyrene	13	10,000	~	~	---	---	1.7	---	---	ND<0.19	---	---	ND<0.18
Semi-Volatile Organic Compounds (mg/Kg)													
1-Methylnaphthalene	~	~	~	~	ND<0.18	0.79	---	ND<0.19	ND<0.22	---	ND<0.19	ND<0.18	---
2,4-Dinitrotoluene	0.9	8.4	~	~	ND<0.36	ND<0.43	---	ND<0.38	ND<0.44	---	ND<0.38	ND<0.36	---
2-Methyl naphthalene	123	10,000	~	~	ND<0.18	1.3	---	ND<0.19	ND<0.22	---	ND<0.19	ND<0.18	---
Acenaphthene	43	10,000	~	~	0.20	2.3	---	ND<0.19	ND<0.22	---	ND<0.19	ND<0.18	---
Acenaphthylene	23	10,000	~	~	ND<0.18	0.27	---	0.62	ND<0.22	---	ND<0.19	ND<0.18	---
Anthracene	35	10,000	~	~	0.37	4.6	---	1.9	0.22	---	ND<0.19	ND<0.18	---
Benzo(a)anthracene	0.9	7.8	~	~	1.2	7.3	---	5.2	1.1	---	ND<0.19	ND<0.18	---
Benzo(a)pyrene	0.4	0.8	240	~	**1.2**	**6.3**	---	**6.2**	**1.1**	---	ND<0.19	ND<0.18	---
Benzo(b)fluoranthene	0.9	7.8	~	~	1.5	7.5	---	6.3	1.3	---	0.20	ND<0.18	---
Benzo(g,h,i)perylene	0.8	10,000	~	~	0.65	3.9	---	3.3	0.76	---	ND<0.19	ND<0.18	---
Benzo(k)fluoranthene	0.9	78	~	~	0.55	3.6	---	2.6	0.53	---	ND<0.19	ND<0.18	---
Bis(2-chloroethyl)ether	0.6	5.2	~	~	ND<0.36	ND<0.43	---	ND<0.38	ND<0.44	---	ND<0.38	ND<0.36	---
Bis(2-ethylhexyl)phthalate/ Diethylhexyl phthalate	46	410	120	~	ND<0.36	3.8	---	ND<0.38	ND<0.44	---	ND<0.38	ND<0.36	---
Butylbenzylphthalate	~	~	~	~	ND<0.36	ND<0.43	---	ND<0.38	ND<0.44	---	ND<0.38	ND<0.36	---
Carbazole	~	~	~	~	0.25	2.5	---	ND<0.19	ND<0.22	---	ND<0.19	ND<0.18	---
Chrysene	0.4	780	~	~	1.2	6.7	---	5.0	1.1	---	0.19	ND<0.18	---
Dibenzo(a,h)anthracene	0.4	0.8	~	~	ND<0.18	**1.1**	---	0.73	ND<0.22	---	ND<0.19	ND<0.18	---
Dibenzofuran	~	~	~	~	ND<0.36	2.3	---	ND<0.38	ND<0.44	---	ND<0.38	ND<0.36	---
Fluoranthene	20	10,000	~	~	2.5	16	---	8.8	2.0	---	0.26	ND<0.18	---
Fluorene	28	10,000	~	~	0.20	2.8	---	0.20	ND<0.22	---	ND<0.19	ND<0.18	---
Hexachlorobenzene	0.4	3.6	~	~	ND<0.36	ND<0.43 *	---	ND<0.38	ND<0.44 *	---	ND<0.38	ND<0.36	---
Indeno(1,2,3-cd)pyrene	0.9	7.8	~	~	0.73	4.7	---	3.8	0.76	---	ND<0.19	ND<0.18	---
Naphthalene	54	10,000	0.8	~	0.44	2.9	---	0.38	ND<0.22	---	ND<0.19	ND<0.18	---
Phenanthrene	40	10,000	~	~	2.2	18	---	2.7	0.77	---	ND<0.19	ND<0.18	---
Pyrene	13	10,000	~	~	2.1	14	---	11	1.7	---	0.25	ND<0.18	---
Volatile Organic Compounds (mg/Kg)													
1,1,2-Trichloroethane	3.6	100	0.1	~	---	ND<0.13 *	---	---	ND<0.0032	ND<0.0024	---	ND<0.0020	---
1,2-Dibromo-3-chloropropane (DBCP)	0.5	4.1	~	~	---	ND<0.63 *	---	---	ND<0.0032	ND<0.0024	---	ND<0.0020	---
1,2-Dichloroethane	0.9	63	0.1	2.3	---	ND<0.13 *	---	---	ND<0.0032	ND<0.0024	---	ND<0.0020	---
1,2-Dichloropropane	1.9	84	0.1	70	---	ND<0.13 *	---	---	ND<0.0032	ND<0.0024	---	ND<0.0020	---
Ethylene dibromide (EDB)/ 1,2-Dibromoethane	0.01	0.07	0.0005	~	---	ND<0.063 *	---	---	ND<0.0016 *	ND<0.0012 *	---	ND<0.0010 *	---
Tetrachloroethene	12	110	0.1	4.2	---	ND<0.13 *	---	---	ND<0.0032	ND<0.0024	---	ND<0.0020	---
Trichloroethene (TCE)	13	520	0.2	20	---	ND<0.13	---	---	ND<0.0032	ND<0.0024	---	ND<0.0020	---
Vinyl chloride	0.02	3.0	0.3	~	---	ND<0.25 *	---	---	ND<0.016	ND<0.012	---	ND<0.010	---

NOTES:

An asterisk (*) following a detection limit indicates that the minimum laboratory reporting limit exceeds one or more of the regulatory criteria.
ND = Not detected above lab reporting limits.
~ = No Rhode Island Remediation Regulation limit available.
Shaded values exceed one criterion.
Bolded and shaded values exceed multiple criteria.
RES DEC = Residential Direct Exposure Criteria
I/C DEC = Industrial/ Commercial Direct Exposure Criteria
GA LC = GA Leachability Criteria
GB LC = GB Leachability Criteria
DUP### = Duplicate Sample
mg/kg = milligrams per kilogram
ug/l = micrograms per liter
** = Criteria are for trivalent/hexavalent chromium
--- = Not analyzed
Parameters that were not detected in any of the samples are not displayed. For these results, see the analytical laboratory reports

APPENDIX C

DRAFT ELUR AND POST CONSTRUCTION SMP

Remedial Action Work Plan

Fortuitous Tidewater OZ, LLC

March 2023

ENVIRONMENTAL LAND USAGE RESTRICTION

This Declaration of Environmental Land Usage Restriction ("Restriction") is made on this _____ day of _____, 20___ by **the City of Pawtucket**, and its successors and/or assigns (hereinafter, the "Grantor").

WITNESSETH:

WHEREAS, the Grantor the **City of Pawtucket** is the Owner in fee simple of certain real property identified as **Plat 23A, Lot 0599, Lot 0672, and Lot 0673 45 Division Street, Pawtucket** Rhode Island (the "Property"), more particularly described in Exhibit A (Legal Description) which is attached hereto and made a part hereof;

WHEREAS, the Property (or portion thereof identified in the Class I survey which is attached hereto as Exhibit 2A and is made a part hereof) has been determined to contain soil and/or groundwater which is contaminated with certain Hazardous Materials and/or petroleum in excess of applicable **residential or industrial/commercial Direct Exposure Criteria** pursuant to the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases ("Remediation Regulations");

WHEREAS, the Grantor and the Rhode Island Department of Environmental Management ("Department") have determined that the environmental land use restrictions set forth below are consistent with the regulations adopted by the Department pursuant to R.I.G.L. § 23-19.14-1 and that this restriction shall be a Conservation Restriction pursuant to R.I.G.L. § 34-39-1 et. seq. and shall not be subject to the 30-year limitation provided in R.I.G.L. § 34-4-21;

WHEREAS, the Department's written approval of this Restriction is contained in the document entitled: **Remedial Approval Letter** issued pursuant to the Remediation Regulations;

WHEREAS, to prevent exposure to or migration of Hazardous Substances and to abate hazards to human health and/or the environment, and in accordance with the **Remedial Approval Letter**, the Grantor desires to impose certain restrictions upon the use, occupancy, and activities of and at the **Property**;

WHEREAS, the Grantor believes that this Restriction will effectively protect public health and the environment from such contamination; and

WHEREAS, the Grantor intends that such restrictions shall run with the land and be binding upon and enforceable against the Grantor and the Grantor's successors and assigns.

NOW, THEREFORE, Grantor agrees as follows:

A. Restrictions Applicable to the Property: In accordance with the **Remedial Approval Letter**, the use, occupancy and activity of and at the **Property** is restricted as follows:

i. No residential use of the **Property** shall be permitted that is contrary to Department approvals and restrictions contained herein;

ii. No groundwater at the **Property** shall be used as potable water;

iii. No soil at the **Property** shall be disturbed in any manner without written permission of the Department's Office of Land Revitalization & Sustainable Materials Management, except as permitted in the Remedial Action Work Plan (RAWP) or Soil Management Plan (SMP), Exhibit B and attached hereto, approved by the Department in a written approval letter dated _____(date);

[iv. Humans engaged in activities at the **Property** shall not be exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved Direct Exposure Criteria set forth in the Remediation Regulations;

[v. The engineered controls at the **Property** described in the **SMP** contained in Exhibit B attached hereto shall not be disturbed and shall be properly maintained to prevent humans engaged in **commercial or restricted residential (i.e., apartment buildings or condominiums)** activity from being exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department-approved **industrial/commercial** Direct Exposure Criteria in accordance with the Remediation Regulations; and

B. No action shall be taken, allowed, suffered, or omitted at the **Property if such action or omission is reasonably likely to:**

i. Create a risk of migration of Hazardous Materials and/or petroleum;
ii. Create a potential hazard to human health or the environment; or
iii. Result in the disturbance of any engineering controls utilized at the **Property**, except as permitted in the Department-approved **SMP** contained in Exhibit B.

C. Emergencies: In the event of any emergency which presents a significant risk to human health or to the environment, including but not limited to, maintenance and repair of utility lines or a response to emergencies such as fire or flood, the application of Paragraphs A (iii.-viii.) and B above may be suspended, provided such risk cannot be abated without suspending such Paragraphs and the Grantor complies with the following:

i. Grantor shall notify the Department's Office of Land Revitalization & Sustainable Materials Management in writing of the emergency as soon as possible but no more than three (3) business days after Grantor's having learned of the emergency. (This does not remove Grantor's obligation to notify any other necessary state, local or federal agencies.);

ii. Grantor shall limit both the extent and duration of the suspension to the minimum period

reasonable and necessary to adequately respond to the emergency;

iii. Grantor shall implement reasonable measures necessary to prevent actual, potential, present and future risk to human health and the environment resulting from such suspension;

iv. Grantor shall communicate at the time of written notification to the Department its intention to conduct the Emergency Response Actions and provide a schedule to complete the Emergency Response Actions;

v. Grantor shall continue to implement the Emergency Response Actions, on the schedule submitted to the Department, to ensure that the **Property** is remediated in accordance with the Remediation Regulations (or applicable variance) or restored to its condition prior to such emergency. Based upon information submitted to the Department at the time the ELUR was recorded pertaining to known environmental conditions at the **Property**, emergency maintenance and repair of utility lines shall only require restoration of the **Property** to its condition prior to the maintenance and repair of the utility lines; and

vi. Grantor shall submit to the Department, within ten (10) days after the completion of the Emergency Response Action, a status report describing the emergency activities that have been completed.

D. Release of Restriction; Alterations of Subject Area: The Grantor shall not make, or allow or suffer to be made, any alteration of any kind in, to, or about any portion of the **Property** inconsistent with this Restriction unless the Grantor has received the Department's prior written approval for such alteration. If the Department determines that the proposed alteration is significant, the Department may require the amendment of this Restriction. Alterations deemed insignificant by the Department will be approved via a letter from the Department. The Department shall not approve any such alteration and shall not release the **Property** from the provisions of this Restriction unless the Grantor demonstrates to the Department's satisfaction that Grantor has managed the **Property** in accordance with applicable regulations.

E. Notice of Lessees and Other Holders of Interests in the Property: The Grantor, or any future holder of any interest in the **Property**, shall cause any lease, grant, or other transfer of any interest in the **Property** to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Restriction. The failure to include such provision shall not affect the validity or applicability of this Restriction to the **Property**.

F. Enforceability: If any court of competent jurisdiction determines that any provision of this Restriction is invalid or unenforceable, the Grantor shall notify the Department in writing within fourteen (14) days of such determination.

G. Binding Effect: All of the terms, covenants, and conditions of this Restriction shall run with the land and shall be binding on the Grantor, its successors and assigns, and each Owner and any other party entitled to control, possession or use of the **Property** during such period of Ownership or possession.

H. Inspection & Non-Compliance: It shall be the obligation of the Grantor, or any future holder of any interest in the **Property,** to provide for annual inspections of the **Property** for compliance with the ELUR in accordance with Department requirements.

An officer or Director of the company with direct knowledge of past and present conditions of the Property (the "Company Representative"), or a qualified environmental professional will, on behalf of the Grantor or future holder of any interest in the **Property**, evaluate the compliance status of the **Property** on an annual basis. Upon completion of the evaluation, the **Company Representative or** environmental professional will prepare and simultaneously submit to the Department and to the Grantor or future holder of any interest in the **Property** an evaluation report detailing the findings of the inspection and noting any compliance violations at the **Property**. If the **Property** is determined to be out of compliance with the terms of the ELUR, the Grantor or future holder of any interest in the **Property** shall submit a corrective action plan in writing to the Department within ten (10) days of receipt of the evaluation report, indicating the plans to bring the **Property** into compliance with the ELUR, including, at a minimum, a schedule for implementation of the plan.

In the event of any violation of the terms of this Restriction, which remains uncured more than ninety (90) days after written notice of violation, all Department approvals and agreements relating to the **Property**may be voided at the sole discretion of the Department.

I. Terms Used Herein: The definitions of terms used herein shall be the same as the definitions contained in Section 3 (DEFINITIONS) of the Remediation Regulations.

IN WITNESS WHEREOF, the Grantor has hereunto set (his/her) hand and seal on the day and year set forth above.

[**Name of Person(s), company, LLC or LLP**]

By: _____ _____
Grantor (signature)_____ _____Grantor (typed name)

STATE OF RHODE ISLAND
COUNTY OF _____

In (CITY/TOWN), in said County and State, on the _____ day of _____, 20___, before me Personally appeared _____, to me known and known by me to be the party executing the foregoing instrument and (he/she) acknowledged said instrument by (him/her) executed to be (his/her) free act and deed.

Notary Public: _____

My Comm. Expires: _____

Post Remediation Soil Management Plan
Tidewater Landing
45 Division Street, Plat 23A & Lot 0599, Lot 0672, and Lot 0673
Pawtucket, Rhode Island

This Post Remediation Soil Management Plan (SMP) has been prepared to establish procedures that will be followed should future construction/maintenance activities at the Tidewater Landing property require the need to manage soils excavated from the subsurface or when existing site engineered controls (asphalt, concrete, landscaping and/or foundations) are disturbed. The plan serves to supplement, and will be initiated by, the Rhode Island Department of Environmental Management (RIDEM) notification requirement established by the Environmental Land Use Restriction (ELUR) for the property pursuant to the Rules and Regulations for Investigation and Remediation of Hazardous Material Releases (Remediation Regulations).

Background

The subject property consists of three contiguous parcels of land totaling 15.8 acres, located at 45 Division Street, on the eastern side of the Seekonk River, in Pawtucket, Rhode Island. The property is owned by the City of Pawtucket. The Site was historically used as a coal and lumber company and storage yard from the mid-1800s until the early-1960s with some residential development along the eastern border (School Street). From the 1960s to the early-1970s, the Site was used as a storage yard for scrap automobiles. From 1973 until approximately 1995, the Site operated as an auto sales and service facility with one large building, which was abandoned and razed sometime between 1998 and 2003. Except for sparse RIDOT construction material storage on the northern portion, the Site has remained vacant and unused since that time.

Based on multiple environmental investigations the property was found to contain concentrations of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), arsenic, and lead in soil at concentrations that exceed the numeric criteria for direct exposure in the RIDEM Remediation Regulations. Proposed development at the subject property includes an event center on Lot 599, mixed commercial and residential development along School Street on Lot 672, and riverfront improvements along the east side of the Seekonk River throughout the entire Site. The riverfront improvements include a riverwalk from the municipal boat launch property located south of the Site, extending northward across Lots 673 and 672, and ending at a pedestrian bridge on Lot 599, which leads west over the Seekonk River to the Taft Street development and stadium.

The RIDEM approved the remedial remedy that included the excavation and off-site disposal of approximately 1,500 cubic yards of impacted material in the eastern portion of Lot 0672, and the use of engineer controls to prevent direct contact with underlying impacted soils that potentially exceed the Department's Method 1 Direct Exposure Criteria. The RIDEM approved engineer control for the development of the property consisted of the following types:

- Building Cap consisting of the existing structures to prevent direct access or infiltration to the underlying soils.
- Impervious Surface Cap consisting of concrete walkways, asphalt parking areas, or other hardscape that prevents access to the underlying soil.
- Type 1 (1-foot-thick soil cap) consisting of a minimum of one-foot of clean fill (soil) overlying a geotextile demarcation layer.

- Type 2 (2-feet-thick soil cap) consisting of a minimum of two-feet of clean fill (soil) where landscaping requirements were needed to vegetative growth or variable surface where geotextile barrier was not suitable.

Applicable Area

This SMP and affiliated ELUR, which restricts the property to mixed-use commercial and restricted residential (i.e. apartments or condominiums) land use, pertains to the entirety of the subject parcels. See attached site figure for a depiction of the applicable area for this SMP.

RIDEM Approval

In accordance with Section A iii of the ELUR, no soil at the property is to be disturbed in any manner without prior written permission of the RIDEM's Office of Land Revitalization & Sustainable Materials Management, except for minor inspections, maintenance, and landscaping activities that do not disturb the contaminated soil at the Site. As part of the notification process, the site owner shall provide a brief written description of the anticipated site activity involving soil excavation. The notification should be submitted to the RIDEM no later than 60 days prior to the proposed initiation of the start of site activities. The description shall include an estimate of the volume of soil to be excavated, a list of the known and anticipated contaminants of concern, a site figure clearly identifying the proposed areas to be excavated/disturbed, the duration of the project and the proposed disposal location of the soil.

Following written Notification, the Department will determine the post closure reporting requirements. Significant disturbances of regulated soil will require submission of a Closure Report for Department review and approval documenting that the activities were performed in accordance with this SMP and the Department approved ELUR. Minor disturbances of regulated soil may be documented through the annual certification submitted in accordance with Section H (Inspection & Non-Compliance) of the Department approved ELUR. The Department will also make a determination regarding the necessity of performing Public Notice to abutting property owners/tenants concerning the proposed activities. Work associated with the Notification will not commence until written Department approval has been issued. Once Department approval has been issued, the Department will be notified a minimum of two (2) days prior to the start of activities at the site. Shall any significant alterations to the Department approved plan be necessary, a written description of the proposed deviation, will be submitted to the Department for review and approval prior to initiating such changes.

Worker Health and Safety

To ensure the health and safety of on-site workers, persons involved in the excavation and handling of the material on site are required to wear a minimum of Level D personal protection equipment, including gloves, work boots and eye protection. Workers are also required to wash their hands with soap and water prior to eating, drinking, smoking, or leaving the site.

Soil Management

The disturbance of soils below any of the engineered controls (described above) within the ELUR area must do so in accordance with the requirements described as follows. Requirements will vary depending on the vertical extent of excavation or work activities and the type of engineered control. Soil disturbances for landscaping or other surficial maintenance above the "cap" does not require additional handling requirements other than restoration requirements to maintain the cap thickness and to ensure the cap integrity. Any activities that will breach the soils beneath any of the engineered controls will require specific procedures for handling and management of excavated soils as described below.

Shallow Soil Disturbances

Any work within the area of the ELUR that requires disturbance of soil above the cap should take care to maintain the geotextile layer, as applicable, and maintain the required minimum thickness upon restoration of the area. The soil from above the cap may be re-used to backfill the disturbed area, and any excess soil must be disposed off and an off-site licensed facility approved to receive the material. Records of the disposal, if necessary, will be provided to RIDEM as part of the annual inspection report.

Engineered Control Disturbances

The direct exposure pathway is the primary concern at the site. Individuals engaged in activities at the site may be exposed through incidental ingestion, dermal contact, or inhalation of vapors or entrained soil particles if proper precautions are not taken. Therefore, the following procedures will be followed to minimize the potential of exposure.

During site work, the appropriate precautions will be taken to restrict unauthorized access to the property.

During all site/earth work, dust suppression (e.g. watering, etc) techniques must be employed at all times. If it is anticipated due to the nature of the contaminants of concern that odors may be generated during site activities, air monitoring and means to control odors will be utilized, as appropriate (e.g. odor-suppressing foam, etc).

In the event that an unexpected observation or situation arises during site work, such activities will immediately stop. Workers will not attempt to handle the situation themselves but will contact the appropriate authority for further direction.

In the event that certain soils on site were not previously characterized, these soils are presumed to be regulated until such time that it is demonstrated to the RIDEM, through sampling and laboratory analysis that they are not regulated. (For example, presumptive remedies or locations of previously inaccessible soil.)

If excess soil is generated / excavated from the Property, the soil is to remain on-site for analytical testing, to be performed by an environmental professional, to determine the appropriate disposal and/or management options. The soil must be placed on and covered with polyethylene/plastic sheeting during the entire duration of its staging and secured with appropriate controls to limit

the loss of the cover and protect against stormwater and / or wind erosion (e.g. hay bales, silt fencing, rocks, etc).

Excavated soils will be staged and temporarily stored in a designated area of the property. Within reason, the storage location will be selected to limit the unauthorized access to the materials (e.g., away from public roadways/walkways). No regulated soil will be stockpiled on-site for greater than 60 days without prior RIDEM approval.

In the event that stockpiled soils pose a risk or threat of leaching hazardous materials, a proper leak-proof container (e.g. drum or lined roll-off) or secondary containment will be utilized.

Soils excavated from the site may not be re-used as fill on residential property. Excavated fill material shall not be re-used as fill on commercial or industrial properties unless it meets the RIDEM's Method 1 Residential Direct Exposure Criteria for all constituents listed in Table 1 of the Remediation Regulations. Copies of the laboratory analysis results shall be maintained by the site owner and included in the annual inspection report for the site, or the closure report if applicable. If the soil does not meet any of these criteria, the material must be properly managed and disposed of off site at a licensed facility.

Site soils, which are to be disposed of off-site, must be done so at a licensed facility in accordance with all local, state, and federal laws. Copies of the material shipping records associated with the disposal of the material shall be maintained by the site owner and included in the annual inspection report for the site.

Best soil management practices should always be conducted, and regulated soils should be segregated into separate piles (or cells or containers) as appropriate based upon the results of analytical testing, when multiple reuse options are planned (e.g., reuse on-site, reuse at a RIDEM approved Industrial/Commercial property, or disposal at a RIDEM approved licensed facility).

All non-disposable equipment used during the soil disturbance activities will be properly decontaminated as appropriate prior to removal from the site. All disposable equipment used during the soil disturbance activities will be properly containerized and disposed of following completion of the work. All vehicles utilized during the work shall be properly decontaminated as appropriate prior to leaving the site.

At the completion of site work, all exposed soils are required to be recapped with RIDEM approved engineered controls described above (1-ft of clean fill underlain by geotextile fabric, building foundations or other permanent structure, impervious surface, or 2-feet clean fill) and returned to surface conditions prior to the work that took place. These measures must also be consistent with the RIDEM approved ELUR recorded on the property.

Any clean fill material brought on site is required to meet the RIDEM's Method 1 Residential Direct Exposure Criteria or be designated by an Environmental Professional as Non-Jurisdictional under the Remediation Regulations. The Annual Inspection Report for the site, or Closure Report if applicable, should include either analytical sampling results from the fill demonstrating compliance or alternatively include written certification by an environmental professional that the fill is not jurisdictional.

APPENDIX D

EXAMPLE CONTINGENCY HASP

Remedial Action Work Plan

Fortuitous Tidewater OZ, LLC

March 2023

SITE SPECIFIC HEALTH, SAFETY, and ENVIRONMENTAL PLAN

Client: Fortuitous Tidewater OZ, LLC (Fortuitous)	Location: 45 Division Street and School Street Parcels, Pawtucket, Rhode Island
SLR Project No.: 141.16222.00005 Task 102	HSEP effective period: All of 2023
Project Name: Division Street	

(HSEP must be updated if there are any changes in the scope of work)

1.0 Project Emergency Contact List

Local Emergency Numbers	Name	Telephone Numbers (Include AREA Code)	
For life threatening injuries call 911 to summon emergency responders. For non-life threatening injuries call the 24/7 nurse hotline provided through XstremeMD – **(800) 600-9015.** Will help to assess your injury, provide first aid recommendations, and directions to an off-site medical facility near you if warranted. Report any injuries to your Supervisor or Project Manager as soon as it is safe to do so (within 1-hour of occurrence).			
Hospital / Ambulance Services	Rhode Island Hospital: Emergency Services 593 Eddy St, Providence, RI	(401) 444-4000 for non-emergencies or 911 for emergencies	
First Aid Facilities	XstremeMD	XstremeMD – (401) 725-4100 (local) or (800) 600-9015	
Police	City of Pawtucket Police Department	(401) 727-9100 for non-emergencies or 911 for emergencies	
Fire	City of Pawtucket Fire Department	(401) 725-3590 for non-emergencies or 911 for emergencies	
Public utility locate services	One-Call Service: Dig Safe	811 or 1-888-DIG-SAFE (344-7233)	
Private utility locate services	Underground Surveying, LLC	(203) 312-9844	
Client Contacts	**Name**	**Telephone Numbers**	
Corporate and Site Contact	Daniel J. Kroeber, PE	Office	(203) 344-7883
		Cell	(203) 464-3071
SLR Contacts	**Name**	**Telephone Numbers**	
Project Manager	Scott Bristol, LEP, PG	Office	(860) 400-5701
		Cell	(860) 372-2660
Site Safety Officer	Sarah Boison	Office	(860) 400-5719
		Cell	(860) 202-2181
Regional Operations Manager and Local HSE Coordinator	Kevin King, LEP	Office	(860) 558-4656
		Cell	(860) 558-4656
Incident Reporting	Pat Moore, HSE Manager	Cell	(206) 478-6464

Subcontracted Company Role	Name	Telephone Numbers
Private utility markout	Underground Surveying, LLC	(800) 596-9608
Brush clearing, drill soil borings, and install monitoring wells	New England Boring Contractors	(860) 633-4649

2.0 Incident Response and Reporting Guidelines

If an incident or near miss occurs the SLR Site Safety Officer (SSO) will assume charge of the situation in regards to coordination of notification of site emergency response personnel. By default, the SSO is the highest ranking SLR employee on site. The SLR SSO will access the incident situation and make a determination concerning the need to seek medical attention for any injured or ill personnel, and any potential need to shut down the job task to assess work practices/procedures, PPE usage, etc.

DEFINITIONS:
Incident – Any occurrence or event that caused injury, illness, environmental damage, or significant property damage.
Near Miss – Any occurrence or event that, with slightly different circumstances, could have resulted in an incident.

The following steps will be followed by the SLR SSO or their designee in the event of an incident or near miss:

The following steps will be followed by the SLR SSO or their designee in the event of an incident or near miss:

1. Stop work and access the situation. This includes for near misses as well as incidents.
2. If possible, move any injured personnel to a safe location if a hazard is still present. Do not attempt to move anyone with a head, neck or spinal injury, or if they are unconscious unless it is necessary to prevent further injury.
3. Provide first aid and/or CPR within your level of training.
4. **For life-threatening injuries call 911 to summon emergency responders.**
5. For non-life threatening injuries call the **24/7 nurse hotline** provided through XstremeMD – **(800-600-9015)**. They will help to assess the injury, provide first aid recommendations, and directions to an off-site medical facility near you if warranted.
6. Another SLR employee, preferably the injured employee's Supervisor, should accompany them to the hospital or other medical facility and provide information to the medical staff about the incident as requested, especially if the injured employee is unconscious or otherwise unable to property communicate the details of the incident.
7. Report any injuries or near misses to your Supervisor or Project Manager as soon as it is safe to do so (within 1-hour of occurrence).
8. Supervisors/Project Managers to promptly report the incident to HSE Management and the appropriate TDM and SLOM.
9. Report the incident to the SLR client representative in accordance with their incident reporting requirements, or as soon as practical.

10. Do not restart work until discussing the circumstance of the incident or near miss with Project Management and HSE Management.

Refer to SLR HSE Manual, *Section 16 – Incident Reporting* for additional incident reporting guidance.

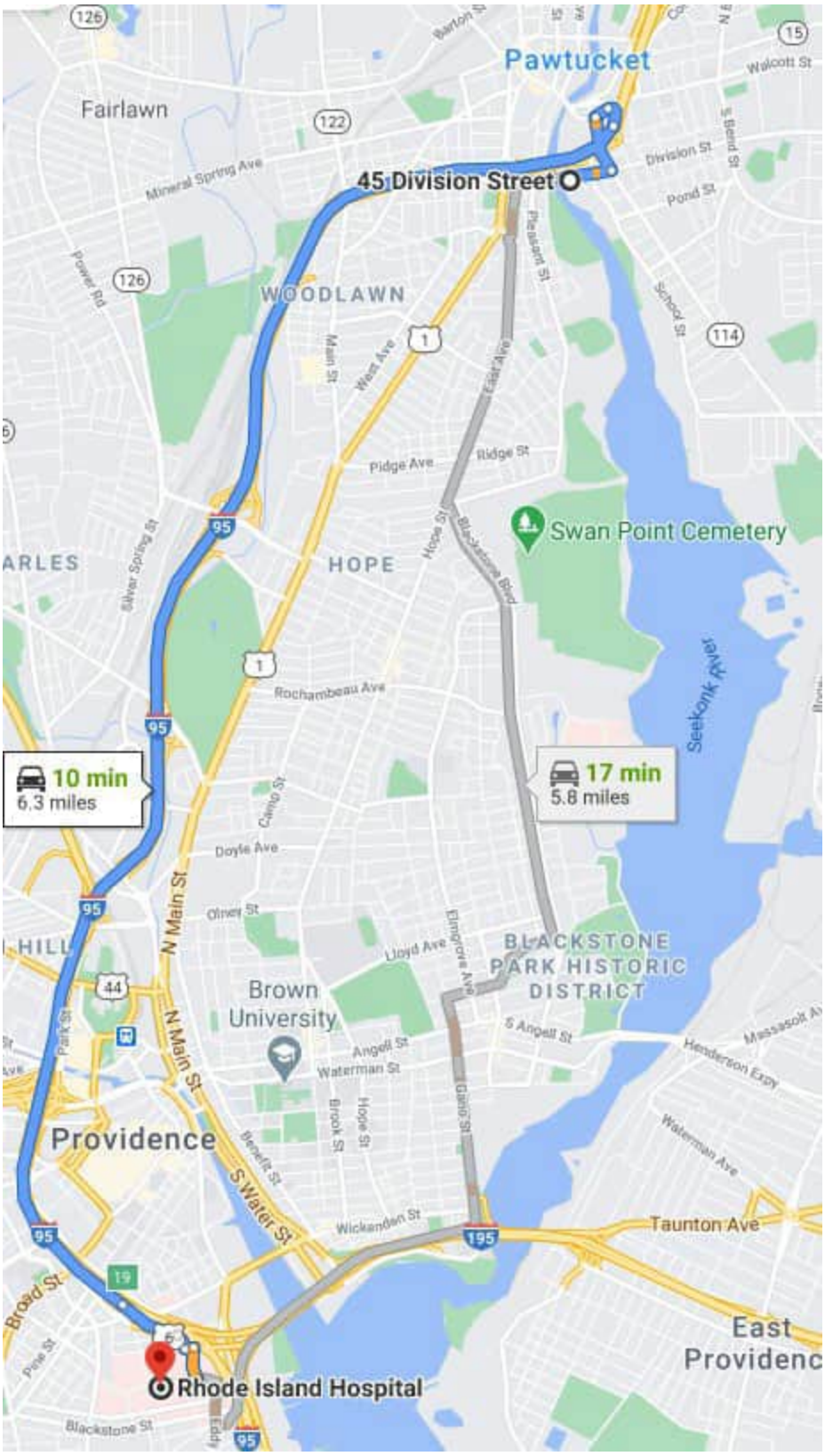
2.1 Hospital Name, Address & Route Map:

Rhode Island Hospital: 593 Eddy Street, Providence, RI

Starting at 45 Division Street, Pawtucket, RI

1. Get on I-95 S from Division St and RI-114 N
2. Head west toward Division St
3. Turn right onto Division St
4. Turn left onto RI-114 N/Prospect St
5. Continue to follow RI-114 N
6. Turn right onto Main St
7. Use the right lane to take the ramp onto I-95 S
8. Follow I-95 S to Borden St in Providence. Take exit 19 from I-95 S
9. Merge onto I-95 S
10. Take exit 19 toward Eddy St
11. Keep right at the fork, follow signs for Borden St
12. Drive to your destination
13. Turn left onto Borden St
14. Turn right
15. Turn right

Arrive at Rhode Island Hospital: 593 Eddy Street, Providence, RI


Pawtucket
Fairlawn
45 Division Street
WOODLAWN
HOPE
Swan Point Cemetery
Seekonk River
10 min
6.3 miles
17 min
5.8 miles
Brown University
BLACKSTONE PARK HISTORIC DISTRICT
Providence
Taunton Ave
East Providenc
Rhode Island Hospital

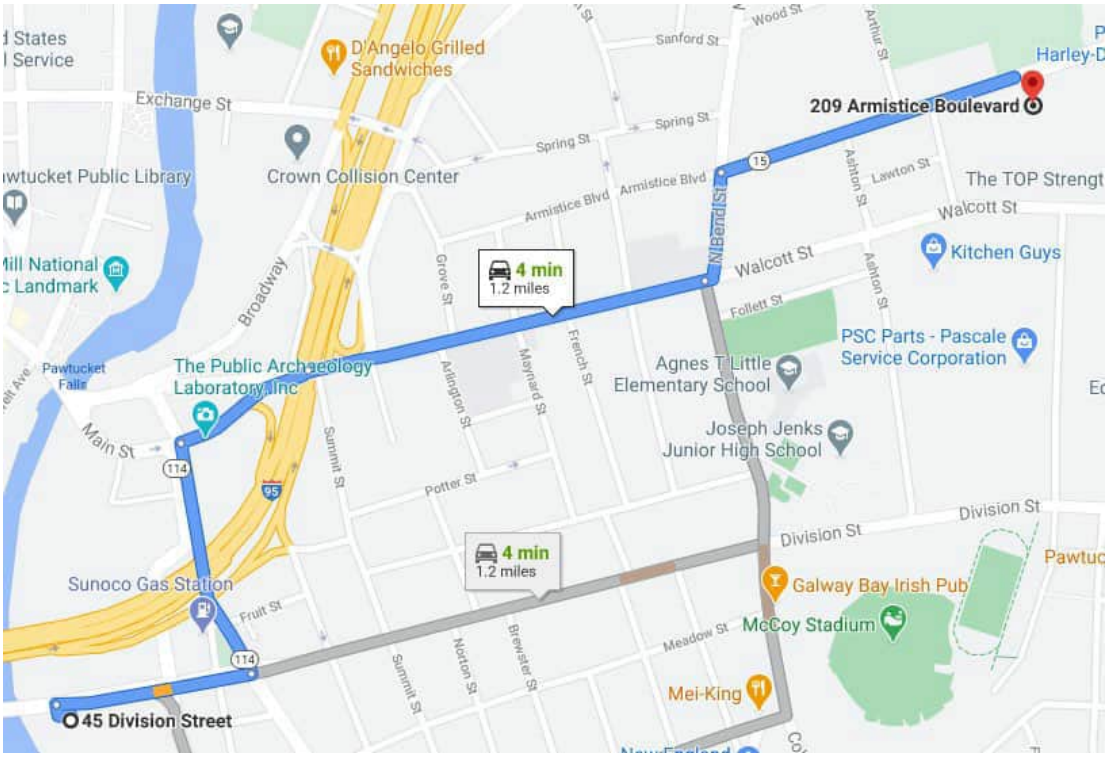
2.2 First Aid Facility Name, Address & Route Map:

For treatment of non-life threatening injuries, proceed to Armistice Urgent Care And Occupational Health Center, a XstremeMD first aid office.

Starting at 45 Division Street, Pawtucket, RI

1. Head west toward Division St
2. Turn right onto Division St
3. Turn left onto RI-114 N/Prospect St
4. Continue to follow RI-114 N
5. Turn right onto Main St
6. Main St turns slightly right and becomes Walcott St
7. Turn left onto N Bend St
8. Turn right at the 1st cross street onto Armistice Blvd
9. Destination will be on the right

Arrive at Armistice Urgent Care And Occupational Health Center:
209 Armistice Boulevard, Pawtucket, RI
(401) 725-4100



3.0 Scope of Work

3.1 SLR and Subcontractor Work Tasks:

Brief description of work scope:

1. Use ground penetrating equipment and public location services (Dig Safe) to locate utilities on Site. Based on provided mapping, utilities are located within the parking area on the northern side of the Site. In addition, a sewer line has been mapped on the eastern side of the Site.

2. Wooded areas will be cleared of brush to enable drill rig access to soil boring locations. Prior to site work, Pawtucket police officers will encourage on-site encampment communities to remove items from proposed soil boring locations and drill rig pathways.

3. SLR proposes the advancement of approximately 25 soil borings using a Geoprobe® track-mounted rig. The soil boring locations have been determined in part by Areas of Concern (AOCs) identified during the Phase I Environmental Site Assessment (2021) in conjuction with anticipated soil disturbance areas during redevelopment. Excess soil will be be used to fill corresponding completed soil borings.

   The core barrel of the drill rig will be decontaminated prior to advancing each soil boring. Excess soil on the core barrel will be removed with a dry brush, then washed with a mixture of deionized water and Alconox® solution, followed by distilled water free of contaminants, and air drying.

   From each of the boreholes, at least one soil sample will be selected for laboratory analysis based on one or more of the following: (1) the depth where the strongest evidence of impact is observed, according to visual or olfactory evidence and soil gas readings carried out by means of a PID, or (2) at a depth that is most likely to exhibit impacts based on the nature of the AOC and/or the contaminants of concern.

   Soil samples will be submitted to a Rhode Island certified laboratory for one or more of the following analyses: volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and/or RCRA 8 metals.

4. SLR will observe the installation of four groundwater monitoring wells in order to provide adequate Site coverage for the assessment of groundwater characteristics. A Geoprobe® track-mounted rig will be used to install permanent PVC monitoring wells with well screens approximately five to seven feet below the observed water table.

5. Development of the monitoring wells will be completed by surging and pumping groundwater from the screened interval using either a whale pump or similarly approved device to remove fine soil particles from the well screen and sand filter pack.

6. SLR will collect one groundwater sample from each monitoring well using EPA approved low-flow sampling procedures. Groundwater samples will be submitted to a Rhode Island certified laboratory for one or more of the following analyses: VOCs, TPH, and/or PAHs.

Does this project involve ground disturbance activities? Yes ☒ No ☐ **If "Yes", be sure to fill out the SLR utility clearance log and ground disturbance checklist (see Appendix A)**
Does this project involve a SLR Subcontractor(s)? Yes ☒ No ☐ **If "Yes", provide a description of their work scope(s):** Subcontractors will have the following responsibilities: • Subsurface utility locating using ground-penetrating radar; • Brush clearing to create drill rig pathways in wooded areas; • Police detail to encourage encampment communities to remove items from drill rig pathways and proposed soil boring locations; • Geoprobe drilling for the purpose of soil sampling; • Returning excess soil to associated the borehole and backfilling with sand if needed; and • Installation of groundwater monitoring wells.
Is the subcontractor(s) performing "Safety Critical" activities? Yes ☒ No ☐ N/A ☐
If "Yes" have they been pre-approved by HSE Mangement for such work? Yes ☒ No ☐ N/A ☐
Elevated Risk Task List - **Select any and all that apply to the planned scope of work (includes SLR's subcontractor(s) as well):**

☒ Potential exposure to hazardous chemicals or substances (e.g., inhalation, skin or eye contact, etc.)
☐ Potential need for respiratory protection devices
☒ Exposure to elevated noise sources (e.g., working around heavy equipment, industrial sources, etc.)
☒ Working near moving or rotating parts (e.g., drilling operations, pumps, fans, belts, etc.)
☒ Working in roadways or near other vehicle hazards (includes work in parking lots, near forklifts, etc.)
☐ Work adjacent to or within the right-of-way of of railway tracks
☐ Work adjacent to aircraft runway operations
☐ Potential for entry into excavations, trenches or test pits
☐ Work requiring entry into confined spaces (includes tanks, sumps, manholes, etc.)
☐ Potential for work underground (mine shalft, tunnel, etc.)
☒ Exposure to underground or overhead utilities (hazard of electric shock, gas/explosions, etc.)
☐ Work on or around hazardous energy sources – LOTO needed (electric, hydraulic, pneumatic, etc.)
☐ Working from a boat
☒ Working on or near water (e.g. on a pier, in marshland or mudflat, bank of a river/pond, etc.)
☐ Work that requires travel by a single-engine plane or helicopter
☐ Working at Heights (> 6 feet off the ground or within 6-feet of an unprotected edge, roof, etc.)
☐ Working at any height over dangerous equipment where a fall could injure you
☐ Working at locations greater than 8,000 feet in elevation
☐ Potential for working under elevated loads (e.g., crane operations and other lifting activities)
☐ Performance of hot work (flame, spark producing or use of non-intrinsically safe equipment)
☒ Exposore to significant hot or cold stress conditions
☐ Anticipated severe weather conditions (tornado season, local flooding, hurricanes, etc.)
☒ Potential for encountering significant wildlife hazards (bears, foxes, snakes, etc.)
☒ Potential for encountering significant biological hazards (ticks and other insects, poisonous plants, etc.)
☐ Performance of Remote or Lone Work activities (i.e., limited access to people and emergency services)
☐ Work at a site where there could be unexploded ordinance
☒ Potential for exposure to hazards caused by the client or other contractors on the work site

Be sure to address in the HIRAC planning documents the hazard control methods and/or PPE requirement that will be utilized to address all of the hazardous activities identified above.

3.2 Site Characteristics:

Past/Present Site Use:

The Subject Property is comprised of three contiguous parcels totaling approximately 15.8 acres located at 45 Division Street and School Street on the east side of the Seekonk River in Pawtucket, Rhode Island. Each of the properties are currently vacant and/or wooded land.

The Site was historically used as a coal and lumber company and storage yard from the mid-1800s until the early-1960s with some residential development along the eastern border (School Street). From the 1960s to the early-1970s, the Site was used as a storage scrap yard for automobiles. From 1973 until approximately 1995, the Site operated as an auto sales and service facility with the construction of one large building which was abandoned and razed sometime between 1998 and 2003. Except for sparse Rhode Island Department of Transportation (RIDOT) construction material storage on the northern portion, the Site has remained vacant and unused since that time.
Expected Contaminants of Concern and Concentrations: Polycyclic aromatic hydrocarbons (PAHs): Detected at concentrations exceeding the RDEC and I/CDEC in soil. Unknown groundwater concentrations. Metals: Total arsenic has been detected at concentrations exceeding the RDEC and I/CDEC in soil. Unknown groundwater concentrations.
Worst Case Vapor Exposure Calculations (if applicable, will be conducted by HSE Manager): Based on the scope of work, soil disturbance is expected to be minimal. As a result, air monitoring is not necessary.
Unusual Work Plan Items (e.g. work off site, air monitoring required, traffic control, etc.): Brush clearing is required to enable drill rig access to the proposed soil borings.
Unusual Site Features (e.g. cell phone coverage, remote site, high onsite traffic, etc.): Encampments are located throughout the Site. SLR will not disturb on-site encampments and will ensure that drilling activities are conducted away from these areas to the extent possible.
Describe any work occurring onsite that SLR is not prime contractor for: Subcontractors will be doing the utility clearance, drilling, well installation, and waste handling.

3.3 Site Plan:

Legend
Proposed Geotech Borings
SLR Locations
Soil Boring
Proposed Overburden Well
Route Clearing
Existing Wells
Division Street
PROPOSED WELL (OVERBURDEN)
PROPOSED WELL (OVERBURDEN)
PROPOSED WELL (OVERBURDEN)
PROPOSED WELL (OVERBURDEN)
WELL INSTALL ONLY NO SOIL SAMPLE
HAND AUGER SAMPLE OF THE FILL MATERIAL AND BORING DOWNGRADIENT OF HE FILL MATERIAL FROM NATIVE BELOW OR FILL BELOW.
Taft Street
Willow Street
School Street

4.0 Chemical Hazard Information

NOTE: For any chemicals brought on site by SLR or our Subcontractors be sure to gather Safety Data Sheets (SDS) on the chemicals involved and have them either included in this HSE Plan or otherwise available on site for personnel to reference.

4.1 Contaminants of Concern Information

Compound	Physical/Chemical Characteristics (Target Organs/ Route of Entry)	OEL (STEL)	Odor Threshold	LEL (%)	IP (eV)
Volatile Organic Compounds					
Benzene (71-43-2) 1 ppm = 3.19 mg/m3	Skin, eye, inhalation, and ingestion hazard. Colorless liquid with an aromatic odor. Air odor threshold 34-119 ppm. LEL: 1.2%, UEL: 7.8%. Prolonged skin contact with Benzene or excessive inhalation of its vapor may cause headache, weakness, loss of appetite, and lassitude. A human carcinogen. Extremely flammable, keep sources of ignition away. Incompatible with fluorides, chlorides, oxygen, permanganates, acids, and peroxides.	0.5 ppm TWA; (2.5 ppm) Skin IDLH: 500 ppm (CA)	61 ppm	1.2	9.25
Ethylbenzene (100-41-4) 1 ppm = 4.34 mg/m^3	Skin, eye, inhalation, and ingestion hazard. Colorless liquid with an aromatic odor. Air odor threshold of 0.092 – 0.60 ppm. LEL: 0.8%, UEL: 6.7%. Moderately toxic by ingestion, inhalation, mucous membranes, and skin absorption. Irritant to the skin and eyes.	100 ppm TWA (125 ppm) IDLH: 800 ppm	0.60 ppm	0.8	8.76
Toluene (108-88-3) 1 ppm = 3.77 mg/m^3	Inhalation, absorption, ingestion and eye hazard. Colorless liquid with a sweet, pungent, benzene-like odor. Air odor threshold of 1.6 ppm. LEL: 1.1%, UEL: 7.1%. Poison by intraperitoneal route. Moderately toxic by inhalation and subcutaneous routes. A skin and eye irritant. Central nervous system effects. May cause impairment of coordination and reaction time.	20 ppm TWA (150 ppm) 300 ppm Ceiling; IDLH: 500 ppm	1.7 ppm	1.1	8.82
Xylenes, total (1330-20-7) 1 ppm = 4.34 mg/m^3	Inhalation, absorption, ingestion and eye hazard. Colorless liquid with an aromatic odor. Odor threshold of 0.62 – 20 ppm. LEL: 1.1%, UEL: 7%. Moderately toxic by ingestion and inhalation. An eye irritant. May be narcotic at high concentrations.	100 ppm TWA (150 ppm) IDLH: 900 ppm	5 ppm	1	8.44
Semi-Volatile Organic Compounds					
Chlorodiphenyl (42% Chlorine)	Skin, eye, inhalation, and ingestion hazard. Colorless to light-colored, viscous liquid with a mild hydrocarbon odor. Irritation of eyes,	0.001 mg/m^3 TWA (42% Cl) Skin	N/A	N/A	Not known

Compound	Physical/Chemical Characteristics (Target Organs/ Route of Entry)	OEL (STEL)	Odor Threshold	LEL (%)	IP (eV)
(53469-21-9) PCB Constituent	skin; acne-form dermatitis; potential carcinogen (liver / leukemia); reproductive effects. Reacts with strong oxidizers.	Ca (5 mg/m^3)			
Chlorodiphenyl (54% Chlorine) (11097-69-1) PCB Constituent	Skin, eye, inhalation, and ingestion hazard. Colorless to light-colored, viscous liquid with a mild hydrocarbon odor. Irritation of eyes, skin; acne-form dermatitis; potential carcinogen (liver / leukemia); reproductive effects. Reacts with strong oxidizers.	0.001 mg/m^3 TWA (54% Cl) Skin Ca (5 mg/m^3)	N/A	N/A	Not known
Polycyclic aromatic hydrocarbons (PAHs) – as coal tar pitch volatiles. (Includes benzo(a)pyrene, chrysene, phenanthrene, fluoranthene, pyrene, acenaphthene, methylnaphthalenes, and anthracene)	Skin, eye, inhalation, and ingestion hazard. The pitch of coal tar is black or dark brown amorphous residue that remains after the redistillation process. Odor thresholds vary. Direct contact or exposure to the vapors may be irritating to the eyes. Direct contact can be highly irritating to the skin and can cause dermatitis. Exposure to high vapor concentrations may cause headaches, nausea, vomiting, and other symptoms. Includes human carcinogens. Reacts with acids and oxidizers; produces acrid smoke, toxic gases when involved in fires, thermal decomposition. Exposure to all routes should be carefully controlled to levels as low as possible. Confirmed Animal Carcinogen.	0.2 mg/m^3 TWA 0.1 mg/m^3 TWA (Cyclohexane-extractable fraction)	N/A	N/A	Not known
Naphthalene (91-20-3) 1ppm = 5.24 mg/m^3	Skin eye, ingestion, and inhalation hazard. Over exposure may cause headache, nausea, diaphoresis, hematuria, fever, anemia, liver damage, vomiting, convulsions, and coma. Flammable when exposed to heat or flame reacts with oxidizing materials. Reacts violently with CrO3; aluminum chloride + benzoyl chloride.	10 ppm TWA (15 ppm) Skin IDLH: 250 ppm	<0.3 ppm	0.9	8.12
Metals / Inorganics					
Arsenic, and inorganic compounds as As (7440-38-2)	A human carcinogen; a powerful allergen, inhalation and contact causes burning, swelling and redness in the eyes, nose, throat and skin; ingestion causes nausea, vomiting, nervous system effects in the extremities (numbness, tingling, weakness); long term exposure can cause liver, kidney, and blood damage. A fire hazard in the form of dust or contact with oxidizers; thermal decomposition produces toxic gases	0.01 mg/m^3 TWA C – 0.002 mg/m^3 (15-min) IDLH/Ca: (5 mg/m^3 as As)	N/A	N/A	N/A

Compound	Physical/Chemical Characteristics (Target Organs/ Route of Entry)	OEL (STEL)	Odor Threshold	LEL (%)	IP (eV)
Cadmium, as dust (7440-43-9)	Exposure routes via inhalation and ingestion. A suspected human carcinogen; skin, eye, respiratory irritation; mild flu and fever symptoms (metal fume fever); pneumonitis, pulmonary edema. Silver-white, blue-tinged lustrous, odorless solid. Reacts violently with ammonium nitrate; finely divided cadmium metal can become pyrophoric; avoid heat, flame, causes cadmium fume formation.	0.005 mg/m^3 TWA IDLH/Ca: 9 mg/m^3 (as Cd)	N/A	N/A	N/A
Copper, dusts and mists as Cu (7440-50-8)	Exposure routes via inhalation, ingestion, skin and/or eye contact. A mucous membrane, respiratory tract irritant. Also can produce conjunctivitis, dermatitis, nausea, vomiting, abdominal pain, liver, kidney damage, and anemia. Reacts with acids and oxidizers, copper reactions may release flammable gas (hydrogen).	1 mg/m^3 as Cu dusts or mists IDLH: 100 mg/m^3 as Cu	N/A	N/A	N/A
Chromium III inorganic oxide compounds as Cr (1308-38-9)	Exposure routes via inhalation, ingestion and skin exposure. Dust may cause respiratory tract and skin irritation. May cause allergic reaction in certain individuals. Poorly absorbed into the human body and exists primarily as a nuisance dust.	0.5 mg/m3 as Cr (III) Soluble	N/A	N/A	N/A
Chromium VI inorganic compounds as Cr (both water-soluble and insoluble varieties) (7440-47-3)	Exposure routes via inhalation, ingestion and skin exposure. Some Chromium (VI) compounds are confirmed human carcinogens; corrosive irritant to skin, eyes, respiratory tract; deep skin ulcers; not (always) immediately painful; an allergic sensitizer; 5 grams ingested can be fatal. Reacts with strong oxidizers, alkalis, oils, grease, paper and plastics.	0.0002 mg/m3 as Cr (VI) (0.0005 mg/m^3) Ca	N/A	N/A	N/A
Lead and inorganic compounds as Pb (7439-92-1)	Primarily an Inhalation and ingestion hazard. Symptoms include weakness, insomnia; loss of appetite, loss of weight, abdominal pain; anemia; tremors; weakness of wrists/ ankles; kidney damage; low blood pressure. Incompatible with strong oxidizers, hydrogen peroxide and acids.	0.05 mg/m^3 TWA IDLH: 100 mg/m^3	N/A	N/A	N/A
Decontamination / Sample Preservative Chemicals					
Methanol (Methyl alcohol) (67-56-1) 1 ppm = 1.31 mg/m^3	Exposure routes via inhalation, skin absorption, ingestion, skin and/or eye contact. Irritant of eyes, skin and upper respiratory system. Defatting of the skin; optic nerve damage, blindness; narcosis, nausea, and headache. This substance may also be toxic to blood, kidneys, liver, brain,	200 ppm (250 ppm) Skin IDLH: 6000 ppm	Variable depending upon purity (10 to 20,000 ppm)	6.0	10.84

Compound	Physical/Chemical Characteristics (Target Organs/ Route of Entry)	OEL (STEL)	Odor Threshold	LEL (%)	IP (eV)
	peripheral nervous system, upper respiratory tract, skin and central nervous system.				

OEL – Occupational Exposure Limit STEL – Short Term Exposure Limit (usually 15-minutes) LEL – Lower Explosive Limit IP – Ionization Potential eV – electron volt TWA- Time Weight Average C – Ceiling limit (concentration that cannot be exceeded at any time [or for indicated time frame]) IDHL- Immediate Danger to Life or Health concentration Ca – Known or Suspected human carcinogen Skin – indicates significant exposure risk from skin exposure

4.2 Air Monitoring Action Levels for Field Activities

Task	Monitoring Instrument	Monitoring Frequency	Action Levels [1]	Required Action
FID or PID use when Benzene and/or Vinyl Chloride <u>are</u> expected to be a contaminant of concern.				
These action levels apply to any work that involves the potential contact or inhalation of chemicals present at this site (e.g., drilling, excavation, soil or groundwater sampling, opening tanks / drums, etc.)	FID or PID Meter (11.7 eV lamp)	Use a FID or PID to conduct exposure monitoring whenever product odors or visible sheens are present.	0 to 1 ppm above background in the BZ	Wear Level D protection at a minimum. Use chemical protective gloves and other PPE as necessary to prevent skin contact with contaminants. Work upwind from chemical sources when possible.
		Continuously when VOCs are > 1 ppm in the BZ	1 ppm or greater in the BZ for > 15 minutes[1] (based on Benzene and/or Vinyl Chloride as potential contributors)	Upgrade to Level C respiratory protection or evacuate the work area until BZ concentrations are < 1 ppm. Action levels may be able to be adjusted if Benzene and/or Vinyl Chloride are ruled out as being contributors to the FID/PID readings.[2]
		Continuously when VOCs are > 1ppm in the BZ	10 ppm or greater in the BZ for any period of time (based on Benzene and/or Vinyl Chloride as potential contributors)	Regardless of respirator usage, evacuate area until concentrations in BZ are < 10 ppm. Action levels may be able to be adjusted if Benzene and/or Vinyl Chloride are ruled out as being contributors to the PID readings.[2] Use of fans or other engineering controls may be necessary. Contact HSE Management for assistance.

O_2 – Oxygen LEL – Lower Explosive Limit H_2S – Hydrogen Sulfide CO – Carbon Monoxide

[1]Five excursions above the action level in any 15 minute period or a sustained reading in excess of the action levels for five minutes will trigger a response.

[2] For example, the OSHA permissible exposure limit (PEL) for gasoline is 300 ppm, therefore the action level for upgrading to Level C could be adjusted (to 1/2 of the PEL - 150 ppm) if you are certain that gasoline is the only contributor to the VOC measurement. Contact HSE Management for details concerning compound-specific sampling options.
Note: LEL readings should be taken at the point of operation (top of drill stem, well head, etc.). PID, O2, and H2S readings should be taken in the worker's breathing zone (BZ).

5.0 Personal Protective Equipment (PPE) Requirements

Refer to Section 7 of this site-specific HSE Plan for details concerning PPE needs for this project.

In general, SLR field work will require the following mandatory PPE.

- ANSI Z41-1991 approved steel toe boots
- ANSI Z87.1-1989 approved safety glasses with side shields
- Reflective / High visibility vest (or included stitched onto coveralls)
- Leather gloves (on your person ready for use)

Be sure to consider the following potential PPE needs based on project risks or client requirements.

- Hearing protection (ear plugs or ear muffs required for drilling, excavations, etc.)
- ANSI Z89.1-1986 approved hardhat with side impact protection
- Chemical Resistant Gloves (appropriate to the chemical hazards present)
- Chemical Resistant Coveralls or Apron (appropriate to the chemical hazards present)
- Puncture Resistant Gloves (when handling sharp objects)
- High Temperature Rated Gloves (when working near hot surfaces or handling hot materials)
- Boots equipped with meta-tarsal protection (when working where falling / rolling objects are present)
- Boots equipped with steel shanks (when walking on sharp objects)
- Personal Fall Protection System (including full body harness, lanyard, deceleration device, and anchorage)
- NIOSH approved ½ face air purifying respirator with Organic/HEPA cartridges
- Other NIOSH approved respirator (filtering face-piece, tight-fitting full-face, powered-air-purifying, etc.)
- Fire-retardant coveralls (i.e. Nomex)
- Personal Floatation Device (when working in or around water deep enough for the PFD to work)
- Cold Weather Gear (Required on the Alaska North Slope between October 1st and May 1st)
- Traction spikes for Boots (when walking in icy conditions)
- Knee Pads (any functions the require crawling or consistent kneeling)
- Hip or Chest Waders

6.0 HSE Guiding Principles

The following HSE guiding principles are paramount on SLR projects:

- Injuries and occupational illnesses are preventable.
- Safety is fundamental to the conduct of our business.
- Employee involvement, feedback, and recognition are fundamental to safety.
- Safe behavior is doing the job right.
- Workplace risk will be reduced in the following priority:

  1. Engineering controls;

2. Administrative controls and operating practices;

3. Personal protective equipment.

- Management is responsible for visibly and consistently establishing safety as a core value.
- Management is responsible and accountable for the safety of employees, contractors, and the general public.
- Employees and contractors are responsible and accountable for their actions.
- Employees and contractors have an obligation, without fear of reprisal, to notify management of apparent hazards, and they have the right to receive timely and adequate responses.

7.0 Project Hazard Identification & Risk Assessment

7.1 Conducting a Hazard Identification and Risk Assessment

A formal written hazard identification and risk assessment process must be conducted for all field work before the work commences. Use the published SLR Project HIRAC Form to conduct and document the HIRAC process in accordance with SLR HSE Manual, Section 09: Hazard Identification Risk Assessment and Control (HIRAC). Templates for conducting this activity are provided on the Connect HSE page.

Development of the project HIRAC form will be led by the SLR Project Manager (PM) or their designee, in consultation with the rest of the field team members, including subcontractors, as applicable, to adequately address the hazards involved. Office HSE Coordinators, and/or the HSE Manager should be consulted as needed to address any unusual identified hazards.

Each identified risk/hazard on the HIRAC form shall be ranked as to their anticipated level of risk from high to low (Red, Yellow, or Green) based on the potential Consequences and Probability of an undesirable event/outcome taking place (i.e., fall from a height, cut by a tool, struck by an object, etc.).

This risk ranking process can be somewhat subjective, however personnel conducting this process need to be consistent when making risk ranking determinations so that the focus remains on addressing those hazards that pose the highest risk.

Selected hazard control measures on the HIRAC form shall be based on the hazard control hierarchy with personal protective equipment (PPE) used only as a last resort. It may be necessary to use a combination of engineering, administrative and PPE controls to achieve the necessary level of worker safety. NOTE: See SLR HSE Manual, Section 13: Personal Protective Equipment for additional guidance concerning proper selection and use of PPE.

Exposure to high (“R”) rated hazard must have the approval of the PM. PMs must consult with the HSE Manager prior to approving any work that is still deemed high risk after applying work practice controls.

7.2 Project Hazard Identification, Risk Assessment and Control (HIRAC) Form

7.3 Job Safety Analysis

Any work tasks conducted or hazards identified that are not addressed on the developed Project HIRAC form shall be discussed and documented by field project personnel using SLR's Job Safety Analysis (JSA) Form (provided in Appendix A of this plan).

The SSO is responsible for ensuring that the Project HIRAC form and/or JSA adequately address all potential hazards to project personnel and that they are properly mitigated and documented.

Some project sites may require a documented JSA to be developed and discussed with the work crew on a daily basis. If this is the case the SLR JSA form will be utilized for this purpose unless directed otherwise by the client site. Recommend referencing the information in the Project HIRAC form on the JSA form as applicable.

Documented JSAs shall be forwarded to the SLR HSE Manager for review and potential revision of the HSE Plan to meet the identified hazards / mitigation methods.

8.0 HSE Forms / References to be included in the Field:

Included in the HASP:

☒ Tailgate Safety Meeting Form

☒ Vehicle Inspection Form (Attachment 21J)

☒ Safety Observation/Conversation Form (Attachment 5A)

☒ Incident/Near Miss/Hazard Identification Report Form (Attachment 5B)

☒ Utility Clearance Mark-out Log (Attachment 10A)

☒ Ground Disturbance Checklist (Attachment 10B)

☒ Job Safety Analysis Form (Attachment 9C)

☒ Vehicle Accident Reporting Form (Attachment 16C)

☒ Witness Statement Form (Attachment 17C)

☒ Project Site Checklist

Optional (Dependent upon work scope, copies to be added to this document or kept in field binder.)

☒ Traction Device Selection and Use (Attachment 13H)

☒ Journey Management Plan Form (Attachment 20A)

☒ Contact Schedule Form (Attachment 20B)

☒ Vehicle Operations Guidelines (Attachment 20C)

☒ All-Terrain Vehicles – Off Road Vehicle Operation Guidelines (Attachment 20D)

☐ Snowmobile Operation Guidelines (Attachment 20E)

☐ Helicopter Use Guidelines (Attachment 20F)

☐ Small Aircraft Use Guidelines (Attachment 20G)

☐ Small Vessel-Working Near Water Guidelines (Attachment 20H)

☐ HSE Requirements for Working Abroad (Attachment 20I)

☒ Hand Tool Use (Attachment 21E)

☒ Proper Lifting – Manual Material Handling (Attachment 21F)

☒ Walking on Uneven or Low Traction Surfaces (Attachment 21G)

☒ Heat Stress (Attachment 22A)

☒ Cold Stress (Attachment 22B)

☒ Storm Conditions (Attachment 22C)

☐ Personal Fall Arrest System Requirements (Attachment 23B)

☐ Portable Ladder Use Requirements (Attachment 23C)

☐ Working at Height Tool Management Requirements (Attachment 23D)

☐ Proper Stair Use Requirements (Attachment 23E)

☐ Fall Protection Plan Template (Attachment 23F)

☐ Working at Heights Rescue Plan (Attachment 23G)

☐ Working at Heights Equipment Inspection Forms (Attachment 23H)

☐ Typical Unplanned Prolonged Stay Supplies (Attachment 25A)

☐ Energy Hazard Assessment Form (Attachment 39B)

☐ LOTO Log (Attachment 39C)

☐ LOTO for Electrical Equipment (Attachment 39D)

☐ LOTO for Compressed Air and Gases (Attachment 39E)

☐ LOTO for Steam, Water and Fluid Lines (Attachment 39F)

☐ LOTO for Hydraulic Equipment (Attachment 39G)

9.0 Daily Tailgate Safety Meetings

The SLR field crew will discuss potential hazards and mitigation measures (see developed Project HIRAC form) each day before starting work, including applicable SLR and client HSE requirements.

The daily safety meetings will be documented describing the topics discussed and will be signed by the field crew. The Daily Safety Meeting Form provided in Appendix A, or similar document, will be used for this purpose. Copies of safety meeting documentation will be kept in project files at the managing SLR office.

10.0 Reporting of HSE Leading Indicators

Field personnel are encouraged to utilize SLR's Behavior Based Safety (BBS) Program (SLR HSE Manual, Section 005) to pro-actively document and report HSE-related leading indicators.

BBS is an approach to safety management that focuses on employee behaviors which may increase the risk of an accident. The approach assumes that employee behaviors often precede an incident and therefore modifying behavior can prevent an incident.

SLR's BBS program involves reporting the following HSE-related leading indicators which can assist with identifying and correcting unsafe conditions and behaviors:

- First Aids;
- Near Misses;
- Hazard Identifications; and
- Safety Observations / Conversation (SO/SC)

The SLR SSO should conduct at least one SO/SC at each project site during the course of field activities. Completed forms shall be forwarded to the Project Manager and HSE Manager for review.

Field personnel are encouraged to make safety observations and transmit any safety observations to the SLR SSO using the SO/SC Form (see Appendix A).

Field personnel are also expected to document and report any first aid cases, near misses or identified hazards to the SLR SSO utilizing SLR's Incident / Near Miss / Hazard Identification Form (see Appendix A).

11.0 SLR HSEP Completion / Review / Signoff

All HSEPs must be reviewed and signed by the SLR project manager and the office HSEC or their designate.

Project Manager	Signature	Date
HSE Coordinator	Signature	Date

NOTE: Some of our clients have very specific HSE contract and program requirements that we must adhere to. Please refer to the HSE Plan Templates and Review Requirements page on Connect for a list of clients where an SLR HSE Manager will need to review the HSEP prior to conducting field work. If applicable, the SLR HSE Manager will sign below:

HSE Manager	Signature	Date

12.0 Acknowledgement

(All onsite SLR and SLR subcontractor personnel must sign)

I acknowledge I have reviewed the health and safety plan for this project, understand it, and agree to comply with all of its provisions. I acknowledge that I have participated in the Job Safety Analysis identification of hazards and safety controls and agree to comply with the indicated steps/procedures. I understand that I may be prohibited by the Site Safety Officer or other SLR personnel from working on the project for not complying with any aspect of this Health and Safety Plan.

Name	Signature	Company Affiliation	Date

Appendix A
Field Documents

SLR TAILGATE SAFETY MEETING FORM

Section 1: General Information		
Date:	**Time:**	**Project #:**
Project Name:		
Project Location: ☐ Remote ☐ Urban ☐ Other_____		
Type of Work: ☐ Sampling ☐ Excavation ☐ Construction ☐ Other (describe below)		
HSE Documents: ☐ SLR JHA (HIRAC) ☐ SLR Site-Specific HSE Plan ☐ Client JHA/JSA ☐ Work Permit ☐ Other:_____ None (explain):_____		

Section 2: Task Description / Health and Safety Discussion

Section 3: Hazard Identification & Control (check all applicable)		
Environmental: ☐ Remote Travel ☐ Driving ☐ Temperature Extremes ☐ Wildlife (bears, moose, etc.) ☐ Insects (mosquitoes, etc.) ☐ Poisonous plants ☐ Other: _____ ☐ Other: _____	**Chemical Exposure Routes:** ☐ Ingestion ☐ Inhalation ☐ Dermal Contact **Chemical Type** ☐ Hydrocarbon/VOC ☐ Metals/PCB/PFAS ☐ Asbestos/Lead ☐ Other: _____	**Physical:** ☐ Slip/trip/fall ☐ Heavy Machinery ☐ Classified (FRC) areas ☐ Noise ☐ Dust ☐ Repetitive stress ☐ Other: _____ ☐ Other: _____

Section 4: Personal Protective Equipment (check all applicable)		
General: ☐ Safety Glasses (required) ☐ Hardhat ☐ Safety toe boots ☐ Reflective clothing ☐ Hearing protection ☐ Arctic Gear (boot/jacket/pant) ☐ Flame-resistant (FRC) outerwear	**Gloves:** ☐ Nitrile (disposable) ☐ Chemical resistant (e.g. neoprene) ☐ Cut-resistant (e.g. Kevlar®) ☐ Abrasion-resistant (e.g. leather) ☐ Insulating (hot/cold) ☐ Other:_____	**Miscellaneous:** ☐ LEL/VOC/H_2S Monitor ☐ Dust mask (N95) ☐ ½ Face respirator ☐ Fall protection ☐ Bear Spray ☐ Other: _____

ATTENDEES:			
Name	**Signature**	**Name**	**Signature**

ATTENDEES:	
Name / Signature	**Name / Signature**
Additional Discussion Items Documentation Section (as needed)	

ATTACHMENT 20J: VEHICLE INSPECTION FORM

The following vehicle inspection must be performed and documented for all field projects where vehicles (company owned, rented, leased or personal-owned) are utilized on a constant or periodic basis. Inspections shall be conducted at the beginning of the project and per the following schedule.

Remember to perform a 360-degree walk around of the vehicle before each operation.

Project Name: _____ Project #: _____

Vehicle ID Info. (make/model/license #, etc.): _____

Vehicle Inspection Components	Condition		Comments
	Ok	Not Ok	
Weekly Checks			
Tires (legal tread depth, bald spots, sidewall damage, punctures)	☐	☐	
Windshield and windows (cracks)	☐	☐	
Windshield wipers (present, functional, worn)	☐	☐	
Seatbelts (missing, frayed, does not snap)	☐	☐	
Horn (operational)	☐	☐	
Head lights and taillights (all functional, cracks)	☐	☐	
Brake lights and turn signals (all functional)	☐	☐	
Backup lights and four-way flashers (functional)	☐	☐	
Brakes (solid feel, squealing, no warning light)	☐	☐	
Mirrors (present, functional, appropriate to use (trailer)	☐	☐	
Monthly Checks			
Spare Tire (inflated, jack, lug wrench present)	☐	☐	
Windshield wiper fluid (present, appropriate type for conditions)	☐	☐	
Bumpers (missing, lose, broken, dented)	☐	☐	
Body panels (newly dented or scraped)	☐	☐	
Climate control (cabin heat, defrost)	☐	☐	
Oil level	☐	☐	
Battery (color indicator, terminals clean and tight, secured)	☐	☐	
Hoses (cuts, cracks, leaks, bulges, chaffing, deterioration)	☐	☐	
Clutch (engages well, not slipping)	☐	☐	
Fuel tank (leaks, odor)	☐	☐	
Exhaust system (leaks)	☐	☐	
Coolant system (leaks)	☐	☐	
First aid kit (Either sealed or appears to be fully stocked)	☐	☐	
Portable Fire Extinguisher (Proper pressure; maintenance tag up to date)	☐	☐	

Inspected By: _____ Date: _____

Attachment 10A: Utility Clearance Mark-out Log

This log is to be completed by SLR personnel prior to initiation of ground disturbance activities (e.g., boring, excavations, staking, etc.) to assess the potential for underground structures, underground utilities, and aboveground power lines in the area selected for disturbance.

Contact the appropriate local utility locating service (One Call, Miss Dig, etc.) or a local utility locator contractor to have sub grade utilities located and marked. NOTE: Boring locations on private property (out of the public right-of-way) are typically not marked out by the One Call public utility mark-out service, and a private utility locate service must be used.

Utility Service Name	Telephone #	Service Confirmation #	Date / Time Notified

Belowground Services					
Utility	Company Name	Telephone #	Present or Unknown	Not Present	Markings (flags, paint, stakes / colors used)
Bldg. foundation					
Cable/Internet					
Electric					
Gas					
Fiber Optic					
Fire System					
Irrigation					
Landscaping					
Sewer / Septic					
Storm water					
UST					
Water					

If overhead lines could be potentially impacted by site activities, then use the following table to document information for the utilities involved, and contact them as necessary to de-energize or otherwise protect the lines from contact in accordance with Table 10-1.

Aboveground Services					
Utility	Company Name	Telephone #	Present	Not Present	Markings (flags, stakes / colors used)
Cable/Internet					
Electric					
Overhead supports					
Telephone					
Traffic light cables					

Attachment 10B: Ground Disturbance Checklist
(Page 1)

Prior to conducting ground disturbance activities, the SS must conduct a site survey for signs of underground and overhead utilities. If any of the questions below are answered "no," then the Project Manager must be contacted regarding concerns/issues. Document the reason(s) for any "no" answers on page 2 of this form and retain in the project files.

Pre-Ground Disturbance Considerations	Yes	No
1. Has the public One Call Center been contacted?		
2. Are as-built drawings available that show the location of utilities?		
3. Has a visual inspection of the work area(s) been completed?		
4. If One Call is not available or does not completely address the planned work area, has a private locating service been contacted?		
5. Have all utility locating service providers notified by the One Call Center marked out their facilities in the vicinity of the GD operations or otherwise notified SLR that they do not have facilities near the proposed locations?		
6. Have identified utilities been marked on the site plan/drawings?		
7. Were the utility markings conducted no more than 48 hours from the time of the GD activity?		
8. Are any fiber optic cables at least 50 feet away from the GD locations?		
9. If fiber optic cables are within 50 feet of the GD locations, has an agreement been made for the fiber optic company to be present during work?		
10. Does each GD location allow for clear entry and exit, adequate workspace, and a clear path for raising and lowering all equipment?		
11. Are all planned GD locations at least 3 feet from any surface and identified subsurface utility?		
12. Has the site representative indicated no knowledge of any subsurface utilities within 3 feet of the proposed GD locations?		
13. Are all proposed GD locations at least 3 feet from any visual line (straight line) indicators of a potential utility? Examples would be manhole covers, water, gas, and/or electrical meters and visible aboveground lines/poles.		
14. Are all proposed locations for pavement cutting clear of pavement joints, curbs, crash posts, or other engineered structures?		
15. Does the pavement lack signs of previous excavation (e.g., no pavement subsidence, differences in pavement texture or color, or pavement patching)?		
16. Does the soil encountered at the GD location appear to be native material? (Non-native materials would include materials free of gravel, clean sand, aggregate base, etc.)		
17. Have all expected utilities been identified and all missing utilities explained?		
18. Has a pre-job tailgate safety meeting been conducted for site personnel?		
19. Has a pre-job tailgate safety meeting been conducted for site personnel?		

Attachment 10B: Ground Disturbance Checklist

(Page 2)

Document any "no" answers from the Ground Disturbance Checklist below and the conclusions from the discussions held with the Project Manager for mitigating the identified concerns.

Attachment 9C: Job Safety Analysis Form

Job Name: _____ Job No. _____

Supervisor: _____ Date: _____

The Job Safety Analysis (JSA) will be developed in collaboration with the field work crew with their input on the necessary job steps, associated hazards and control measures necessary to perform the work safely. If the job steps are found to be different than originally anticipated or additional hazards are noted the work shall be stopped and a new JSA conducted.

	Job Steps	Hazards	Controls
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

All field work crew members shall review the contents of the JSA and sign below acknowledging their understanding of its contents.

Company Name	**Attendee Name**	**Signature**

Attachment 5A: Safety Observation/Conversation Form

Event Classification(s) – Mark all that apply

☐ Safety Observation ☐ Safety Conversation

Date _____ Time _____

Location _____

Client name _____ Project # _____

Safety Observations					
At Risk	**Human Behaviors**	**Safe**	**At Risk**	**Working Conditions**	**Safe**
☐	Attention to Work	☐	☐	Ambient Conditions	☐
☐	Communications	☐	☐	Condition of Tools and Equipment	☐
☐	Housekeeping Behavior	☐	☐	Housekeeping Conditions	☐
☐	Job Setup/Sequence	☐	☐	Guards and Barriers	☐
☐	Use of PPE	☐	☐	Workplace Design	☐
☐	Following HSEP/JSA/HSE Manual	☐	☐	Walking/Working Surfaces	☐
☐	Proper use of Tools/Equipment	☐	☐	Working at Heights	☐
☐	Recognition of Change of Conditions	☐	☐	Chemical Exposures	☐
☐	Body Position/Mechanics	☐	☐	Biological Exposures	☐
☐	Other:	☐	☐	Other:	☐
Comments					

Safety Conversations
What topic(s) were discussed? Employee behaviors? Working Conditions? LMRA? JSA?
Follow up action – Any corrective actions needed? HSEP or JSA revision needed? Positive feedback?

Any new hazards identified? ☐ **Yes** ☐ **No** **If Yes, complete and submit Incident/Near Miss/Hazard ID form**

Completed By: _____ _____ _____
(Print) (Signature) (Date)

Project Manager/Supervisor: _____ _____ _____
(Print) (Signature) (Date)

Attachment 5B: Incident/Near Miss Hazard Identification Report Form

Event Classification

☐ Incident – Injury or Illness ☐ Near Miss ☐ First Aid Case

☐ Incident – Significant Property Damage ☐ Hazard Identification ☐ Stop Work Action

☐ Incident – Environmental Damage ☐ Vehicle Accident (complete Vehicle Accident Form)

Date _____ Time _____

Location _____

Client name _____ Project # _____

Names of Known Witnesses _____

Notifications: Verbal notification within 1 hour for Incidents (if possible) / Provide written report within 24 hours

Function	Time	Contact Name	Contact number
☐ Emergency Responders			
☐ Medical Facility			
☐ PM or Supervisor			
☐ HSE Director			
☐ Office HSC or Manager			
☐ Regional Ops Manager			
☐ Client			
☐ Government agency(ies)			

Event Description (what happened, how, who was involved; provide diagram on back or photos.)
Immediate Response to the Event (Response on site and within next 8 hrs):
Recommendations for further actions:

Completed By: _____ _____ _____

(Print) (Signature) (Date)

Project Manager/Supervisor: _____ _____ _____

(Print) (Signature) (Date)

This report must be completed by the employee's supervisor or Site Safety Officer immediately upon learning of the incident. The completed report must be reviewed and signed by the Project Manager and e-mailed within 24 hours of the incident to Area HSE Manager e-mail: pmoore@slrconsulting.com

ATTACHMENT 16-C: Vehicle Accident Reporting Form

This report is to be initiated by the employee involved in the accident or his/her direct supervisor. Please answer all questions completely. This report must be forwarded to the appropriate HSE Director within **24 hours** of the accident. **Attach Police Report.**

Accident Description

Accident Date: Time: ☐ A.M. or ☐ P.M.

Location of Accident (City, State):

Description of Accident:

Witness: Phone No.

Address: City: State: ZIP:

Police Officer's Name and Badge #: Department:

Work Vehicle Description

Driver: Drivers' License No. State:

Address: City: State: ZIP:

Work Phone No. Project Name: Project No.

Vehicle No. Year: Make: Model: License Plate No.

State: Vehicle Owner: ☐ Company ☐ Rented/Leased ☐ Private Vehicle

Vehicle Type: ☐ Commercial Motor Vehicle ☐ Non-Commercial

If not Company-owned: Owner: Phone No.

Address: City: State: ZIP:

Vehicle Damage Description:

No. of vehicles towed from scene: Number of Injuries: Number of Fatalities:

Were hazardous materials released? ☐ No ☐ Yes If Yes, describe materials:

Other Vehicle(s)

Driver: Drivers' License No. State:

Address: City: State: ZIP:

Phone No. Owner's Name (☐Check if same as Driver):

Address: City: State: ZIP:

Insurance Company: Policy Number:

Agent's Name: Phone Number:

Address: City: State: ZIP:

Vehicle Year: Make: Model: Plate No. State:

Vehicle ID No.

Vehicle Damage Description:

Passengers: ☐ No ☐ Yes Injuries: ☐ No ☐ Yes (if Yes, list names and telephones numbers below)

Attachment 16-C: Vehicle Accident Report (continued)

Weather: ☐ Clear ☐ Cloudy ☐ Fog ☐ Rain ☐ Sleet ☐ Snow Other:
Pavement: ☐ Asphalt ☐ Steel ☐ Concrete ☐ Wood ☐ Gravel/Dirt ☐ Brick/Stone Other:
Condition: ☐ Dry ☐ Wet ☐ Icy ☐ Pot Holes Other:
Traffic Control: ☐ Traffic Light ☐ Stop Sign ☐ Railroad ☐ No Intersection ☐ No Control
Roadway: No. of Lanes each direction: ☐ Residential ☐ Divided Hwy ☐ Undivided Hwy

Draw and name roadways showing each vehicle, direction of travel, and point of impact. Indicate travel before the accident with a solid line, and post-accident movement with a broke line.

SYMBOLS:

Your Vehicle: ①

Other Vehicle(s): ②, ③

Pedestrian:

Stop Sign:

Yield Sign:

Railroad track:

Additional Information: _____

Employee _____ (Print) _____ (Signature) _____ (Date)

Supervisor _____ (Print) _____ (Signature) _____ (Date)

HSE Representative _____ (Print) _____ (Signature) _____ (Date)

ATTACH POLICE REPORT TO VEHICLE ACCIDENT REPORT FORM

ATTACHMENT 17-C: Witness Statement Form

Witness Statement Form

This information is being solicited from you so that the company can accurately assess the reported incident to avoid similar occurrences in the future. Describe only the facts you have personal knowledge of.

Exact Location of Incident:

Date of Incident: Time: ☐ a.m. ☐ p.m.

Date of this Statement: Time: ☐ a.m. ☐ p.m.

Witness Information

Name: Phone No.

Company:

Did you see the Incident? ☐ Yes ☐ No

How Far From You (approx., in feet) Did the Incident Occur?

Stating only factual information, describe in detail what happened and include any applicable events leading to the incident.

Witness Signature / Date

Print Name

Project Site Checklist

Project Activities: _____

Checklist Items	Yes	No	N/A
Written HSEP is on-site			
Addendums to the HSEP are documented on-site			
Information in the HSEP matches conditions and activities at the site			
HSEP has been read and signed by all site personnel, including visitors			
Daily tailgate safety meetings have been held and documented			
Site personnel have appropriate training and medical clearance			
Air monitoring is performed as described in the HSEP			
Air monitoring equipment has been calibrated daily			
Site zones are set up and observed where appropriate			
Access to the work area is limited to authorized personnel			
Decontamination procedures are followed and match the requirements of the HSEP			
Decontamination stations (including hand/face wash) are set up and used			
Personnel protective equipment used matches HSEP requirements			
Hearing protection used where appropriate			
Respirators are properly cleaned and stored			
Overhead utilities do not present a hazard to field equipment/personnel			
Traffic control measures have been implemented			
Emergency and first aid equipment is on-site as described in the HSEP			
Drinking water is readily available			
Accessible phone is readily available for emergency use			
Proper drum and material handling techniques are used			
Drums and waste containers are labeled appropriately			
Extension cords are grounded and protected from water and vehicle traffic			
Tools and equipment are in good working order			
Other:			
Other:			
Other:			

Notes: (All "no" answers must be addressed and corrected immediately. Note additional health and safety observations here).

_____

_____

_____

Conducted by: _____ Signature: _____ Date: _____

Appendix B
Additional HSE Documentation

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF LAND REVITALIZATION & SUSTAINABLE MATERIALS MANAGEMENT
235 Promenade Street, Providence, Rhode Island 02908

REMEDIAL DECISION LETTER April 7, 2023
File No. SR-26-0422
(Formerly Case No. 2005-108)

Ms. Bianca Policastro
Director of Planning
Pawtucket Planning and Redevelopment
137 Roosevelt Avenue
Pawtucket, RI 02860

RE: Division Street Hotel, LLC (Former Eddy Chevrolet)
45 Division Street
Pawtucket, Rhode Island
Plat Map 23A / Lots 599, 672 & 673

Dear Ms. Policastro:

On April 22, 2020, the Rhode Island Department of Environmental Management's (the Department) Office of Land Revitalization and Sustainable Materials Management (LRSMM) enacted the codified 250-RICR-140-30-1, Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations). The purpose of these regulations is to create an integrated program requiring reporting, investigation, and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment. A Remedial Decision Letter (RDL) is a formal, written communication from the Department that approves a site investigation, identifies the preferred remedial alternative, and authorizes the development of a Remedial Action Work Plan (RAWP) in order to achieve the objectives of the environmental clean-up.

In the matter of the above-referenced property (the Site), the Department's Office of LRSMM is in receipt of the following documentation submitted pursuant to the Remediation Regulations in response to the reported release at the Site:

1. Notification of Release Letter, Proposed Division Street Hotel, 45/55 Division Street, Pawtucket, Rhode Island, including attached Hazardous Material Release Notification Form, received by the Department on December 5, 2005, and prepared by GZA GeoEnvironmental, Inc. (GZA);

2. Site Investigation Report, received by the Department on December 8, 2005, and prepared by GZA;

3. Site Investigation Report Revised, received by the Department on February 15, 2006, and prepared by GZA;

4. ASTM Phase I Environmental Site Assessment Report, Plat 23A/Lots 672 & 673, division Street, Pawtucket, Rhode Island, received by the Department on September 30, 2014, and prepared by Resource Controls Associates, Inc. (RCA);

5. Supplemental Site Investigation Report, 45 Division Street, Pawtucket, Rhode Island, USA, received by the Department on March 4, 2022, and prepared by SLR International corporation (SLR);

6. Groundwater Investigation, SIR Addendum (File No. SR-26-0422), Division Street Hotel, LLC (Formerly Eddy Chevrolet), 45 Division Street, Pawtucket, Rhode Island, received by the Department on January 6, 2023, and prepared by SLR; and

7. Electronic Mail - Subject: Division Street Public Notice, with attached documentation that Public Notice to Abutters was performed, received by the Department on March 29, 2023, and prepared by SLR.

Collectively, these documents define "Existing contamination" at the Site and fulfill the requirements of a Site Investigation Report (SIR) as described in Section 1.8.8 of the Remediation Regulations. In addition, according to our records, public notice was conducted to all abutting property owners, tenants, easement holders, the municipality and Environmental Justice Focus Area, regarding the substantive findings of the completed investigation in accordance with Sections 1.8.7(A)(2) and 1.8.9 of the Remediation Regulations. The Department has received documentation demonstrating that the requirements of Rhode Island General Laws (R.I.G.L.), Title 23, Health and Safety, Chapter 23-19.14, Industrial Property Remediation and Reuse Act, 23-19.14-5, Environmental Equity and Public Participation, have been fulfilled. The opportunity for public review and comment on the technical feasibility of the proposed remedial alternatives commenced on February 6, 2023 and the period closed on February 20, 2023. No comments were received.

The preferred remedial alternative, as stated in the SIR, consists of the following conceptual measures:

Excavation and disposal of certain lead impacted soils, site-wide capping with clean fill or other engineered controls, and the recording of a Department approved Environmental Land Usage Restriction (ELUR) on the entire property. Approximately 1,500 yards of lead impacted soils determined to be unsuitable as fill, shall be excavated from an approximately 0.2-acre area in the southeast corner of the Site and disposed of off-site at an appropriately licensed disposal facility. All site soils which are subject to the installation of an engineered control shall be capped by a standard method of two (2) feet of clean fill material or equivalent (i.e. six (6) inches of clean sub-grade in conjunction with four (4) inches of asphalt pavement / concrete; or one (1) foot of clean fill material underlain with a geosynthetic fabric material, and may include landscaped areas, new paved or other impervious surface (i.e. concrete patio, or walkways), new buildings, foundations, or other permanent structures.

Access to the Site from the start of construction through the final development of the Site will be limited with temporary fencing and construction entrances. Temporary construction access roads

will be constructed of clean imported gravel or fill overlying a demarcation layer consisting of geotextile fabric and will remain in place and maintained until final development actions are completed and they are replaced with permanent engineered controls. During all earthwork activities, best management practices (BMPs) shall be implemented for dust, odor & organic vapor control, as well as erosion and sedimentation control. The ELUR to be recorded on the property will restrict certain activities on the entire site and will also ensure that the engineered cap is not disturbed. The ELUR will include a post-construction Soil Management Plan (SMP), which will outline the procedures for managing the soils on site should disturbances below the cap be required, as well as annual monitoring of the engineered controls by an environmental professional.

The Department hereby approves the SIR, with the above identified preferred remedial alternative, and requires a RAWP be submitted for review and approval, and implemented, to achieve the objectives of the environmental clean-up, in accordance with the following conditions:

1. In accordance with Sections 1.9 and 1.10 of the Remediation Regulations, a RAWP, ELUR, and SMP shall be submitted for Department review and approval within sixty (60) days from the date of this letter. The RAWP shall describe all of the technical details, engineer design elements, and schedules associated with the implementation of the proposed remedy. All of the subsections outlined in Section 1.10 of the Remediation Regulations must be included in order to facilitate the review and approval of the RAWP. If an item is not applicable to this Site, simply state that it is not applicable and provide an explanation in the RAWP.

2. Pursuant to Section 1.11.2 of the Remediation Regulations, an application fee for Remedial Action Approvals in the amount of one thousand ($1,000.00) dollars shall be made payable to the State of Rhode Island General Treasurer and remitted to the Office of Management Services with the attached Remedial Action Approval Application Fee Form. Receipt of this Remedial Action Approval Application Fee is required prior to the Department's RAWP review.

3. Once the Department reviews the RAWP for consistency with Sections 1.9 and 1.10 of the Remediation Regulations, any written comments generated and forwarded as a result of the review(s) shall be incorporated forthwith into a RAWP Addendum, to be submitted for final approval.

4. Upon finalization of the RAWP, the Department will issue a Remedial Approval Letter (RAL), signifying Department approval. All remedial measures required by the Department shall be implemented, in accordance with the approved schedule, to ensure all applicable exposure pathways at the site are appropriately addressed.

Please be advised that the Department reserves the right to require additional actions under the aforementioned Remediation Regulations at the Property should any of the following occur:

- Conditions at the Site previously unknown to the Department are discovered;

- Information previously unknown to the Department becomes available;

- Policy and/or regulatory requirements change; and/or

- Failure by the City of Pawtucket or any future holder of any interest in the Property to adhere to the terms and conditions of the Department approved RAWP, schedule, RAL, ELUR and/or SMP for the Property.

If you have any questions regarding this letter or would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797, ext. 2777109, or by E-mail at joseph.martella@dem.ri.gov.

Sincerely,

Joseph T. Martella II
Environmental Engineer III
Office of Land Revitalization & Sustainable Materials Management

Cc: Leo Hellested, RIDEM/OLRSMM
Kelly J. Owens, RIDEM/OWM
Susan Forcier, Esq,, RIDEM/OOD
Ronald Gagnon, RIDEM/OCTA
Gary Jablonski, RIDEM/OWM
Nick Pissani, RIDEM/OWR/Storm Water
Neal Personeus, RIDEM/OWR/WQC
Tracy A. Silvia, RI CRMC
Richard Lucia, RI CRMC
Daniel B. Breen, ACOE/Regulatory Division
Daniel J. Kroeber, Fortuitous Partners
Dylan M. Zelazo, Pawtucket Mayor's Office
Michael D. Cassidy, Pawtucket Planning
Michael Wilcox, Pawtucket/DPW
Peter Shea, SLR

Attachment: Remedial Action Approval Application Fee Form

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF LAND REVITALIZATION & SUSTAINABLE MATERIALS MANAGEMENT
235 Promenade Street, Providence, Rhode Island 02908

REMEDIAL ACTION APPROVAL APPLICATION FEE FORM

Rule 1.11.2 of the Department's Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, requires an application fee for Remedial Action Approvals in the amount of one thousand ($1,000) dollars. Please submit this form and check, made payable to the State of Rhode Island General Treasurer, directly to:

R.I. Department of Environmental Management
Office of Management Services - Rm 340
235 Promenade Street
Providence, RI 02908

Please complete this page and attach it to the check or money order. This information must be provided to coordinate your fee with the application submitted.

Site Name: _Division Street Hotel, LLC_____

Address:_45 Division Street_____

Town/City:_Pawtucket_____

File Number:__SR-26-0422_____

Contact Person:_____

Phone No:_____

RIDEM Project Manager:_Joseph T. Martella II___

FOR RIDEM OFFICE USE ONLY:

Fee Amount Received: _____
Date Received: _____
Check#:_____

Receipt Account:
10.074.3765103.03.461043
cc:74:3481 Leg.17-18-841

Appendix E

City of Pawtucket Standard Form of Agreement (Sample)

CONTRACT AGREEMENT
FOR:

PROJECT_TITLE

SAMPLE

PAWTUCKET, RHODE ISLAND

PURCHASING DIVISION
137 ROOSEVELT AVE.
PAWTUCKET, RHODE ISLAND

MM/DD/YYYY

CONTRACT AGREEMENT

PROJECT_TITLE
Pawtucket, Rhode Island

1. AGREEMENT FOR SERVICES

This Agreement for Services (hereinafter the "Agreement" or "Contract") made this ##th day of #####, 2015 between the City of Pawtucket, a municipal corporation of the State of Rhode Island, with a business address of 137 Roosevelt Avenue, Pawtucket, Rhode Island (hereinafter the "City") and VENDOR, a company authorized to do business in the State of Rhode Island, with a business address of ########### (hereinafter the "Consultant").

2. SCOPE OF CONSULTANT SERVICES

This is a contract to provide the City with consulting services as specified herein and as set forth in the following Exhibits, all of which are attached hereto and incorporated into this Agreement by reference herein:

- Exhibit 1 – RFP #####;
- Exhibit 2 – Rhode Island Department of Labor and Training Municipal Contract Addendum;

and all addenda issued and any resulting negotiations, and the RFP response received by the City from the Consultant.

3. COMPENSATION FOR SERVICES

The City shall pay the Consultant in the following sums for work performed under this Agreement after the effective date as set out below:

$#######

The payment and performance of any obligations under this contract for years beyond the first fiscal year are subject to the availability of funds. Payment will not be made until services have been fully performed and accepted, and upon a properly submitted invoice. All invoices must clearly display the purchase order number.

SAMPLE

4. RHODE ISLAND LAW AND FORUM

(a) This Agreement shall be construed according to the law of the State of Rhode Island.

(b) Any litigation between the City and the Consultant arising under this Agreement or out of work performed under this Agreement shall occur, if in the state courts, in the Providence County Superior Court, and in the federal courts, in the United States District Court for the District of Rhode Island.

5. NOTICE

Any notice provided for under this Agreement shall be sufficient if in writing and delivered personally to the following addressee or deposited in the United States mail, postage prepaid, certified mail, return receipt requested, addressed as follows, or to such other address as the receiving party hereafter shall specify in writing:

If to the City:

Andrew Silvia, PE, Chief of Project Development
250 Armistice Boulevard
Pawtucket, RI 02860

If to the Consultant:

########

6. COMPLIANCE WITH LAWS

Consultant shall materially comply with any and all Federal, state and local laws and regulations now in force and which may hereafter during the term of this contract, be enacted and become effected which are applicable, as well as obtaining any and all required permits and licenses.

7. TIMEFRAME TO COMPLETE

The Consultant shall complete the consulting services located in the City of Pawtucket, Rhode Island no later than ##########.

8. WAIVERS

No waiver of any breach or any one or more of the conditions or covenants of this Contract by City or Consultant shall be deemed to imply or to constitute a waiver of any prior or succeeding breach; and the failure of City or Consultant to insist upon the strict performance of the terms, covenants, agreements and conditions herein contained or any one of them shall not constitute or be construed as a waiver or relinquishment of City's or Consultant's right to thereafter enforce any such default, or any term, covenants, agreement or condition.

CONSULTANT (VENDOR)

_____ _____

WITNESS

Subscribed and sworn to before me in the _____

on this _____ day of _____, 2015.

_____

NOTARY PUBLIC

My Commission Expires:

CITY OF PAWTUCKET

_____ _____

WITNESS

Subscribed and sworn to before me in the _____

on this _____ day of _____, 2015.

_____

NOTARY PUBLIC

My Commission Expires:

SAMPLE

EXHIBIT 1:

RFP #########

SAMPLE

EXHIBIT 2:

RHODE ISLAND DLT MUNICIPAL CONTRACT ADDENDUM

SAMPLE

MUNICIPAL CONTRACT ADDENDUM

RHODE ISLAND DEPARTMENT OF LABOR AND TRAINING

PREVAILING WAGE REQUIREMENTS
(37-13-1 ET SEQ.)

The prevailing wage requirements are generally set forth in RIGL 37-13-1 et seq. These requirements refer to the prevailing rate of pay for regular, holiday, and overtime wages to be paid to each craftsmen, mechanic, teamster, laborer, or other type of worker performing work on public works projects when state or municipal funds exceed one thousand dollars ($1,000).

All Prevailing Wage Contractors and Subcontractors are required to:

1. Submit to the Awarding Authority a list of the contractor's subcontractors for any part or all of the prevailing wage work in accordance with RIGL § 37-13-4;

2. Pay all prevailing wage employees at least once per week and in accordance with RIGL §37-13-7 (see Appendix B attached);

3. Post the prevailing wage rate scale and the Department of Labor and Training's prevailing wage poster in a prominent and easily accessible place on the work site in accordance with RIGL § 37-13-11; posters may be downloaded at www.dlt.ri.gov/pw/Posters.htm.poster/htm or obtained from the Department of Labor and Training, Center General Complex, 1511 Pontiac Avenue, Cranston, Rhode Island;

4. Access the Department of Labor and Training website, at www.dlt.ri.gov on or before July 1st of each year, until such time as the contract is completed, to ascertain the current prevailing wage rates and the amount of payment or contributions for each covered prevailing wage employee and make any necessary adjustments to the covered employee's prevailing wage rates effective July 1st of each year in compliance with RIGL §37-13-8;

5. Attach a copy of this CONTRACT ADDENDUM and its attachments as a binding obligation to any and all contracts between the contractor and any subcontractors and their assignees for prevailing wage work performed pursuant to this contract;

6. Provide for the payment of overtime for prevailing wage employees who work in excess of eight (8) hours in any one day or forty (40) hours in any one week as provided by RIGL §37-13-10;

SAMPLE

7. Maintain accurate prevailing wage employee payroll records on a Rhode Island Certified Weekly Payroll form available for download at www.dlt.ri.gov/pw.forms/htm, as required by RIGL §37-13-13, and make those records available to the Department of Labor and Training upon request;

8. Furnish the fully executed RI Certified Weekly Payroll Form to the awarding authority on a monthly basis for all work completed in the preceding month.

9. For general or primary contracts one million dollars ($1,000,000) or more, shall maintain on the work site a fully executed RI Certified Prevailing Wage Daily Log listing the contractor's employees employed each day on the public works site; the RI Certified Prevailing Wage Daily Log shall be available for inspection on the public works site at all times; this rule shall not apply to road, highway, or bridge public works projects. Where applicable, furnish both the Rhode Island Certified Prevailing Wage Daily Log together with the Rhode Island Weekly Certified Payroll to the awarding authority.

10. Assure that all covered prevailing wage employees on construction projects with a total project cost of one hundred thousand dollars ($100,000) or more has a OSHA ten (10) hour construction safety certification in compliance with RIGL § 37-23-1;

11. Assure that all prevailing wage employees who perform work which requires a Rhode Island trade license possess the appropriate Rhode Island trade license in compliance with Rhode Island law; and

12. Comply with all applicable provisions of RIGL §37-13-1, et. seq;

SAMPLE

Any questions or concerns regarding this CONTRACT ADDENDUM should be addressed to the contractor or subcontractor's attorney. Additional Prevailing Wage information may be obtained from the Department of Labor and Training at www.dlt.ri.gov/pw.

CERTIFICATION

I hereby certify that I have reviewed this CONTRACT ADDENUM and understand my obligations as stated above.

By: _____

Title: _____

Subscribed and sworn before me this ____ day of _____, 20__.

_____
Notary Public
My commission expires: _____

SAMPLE

Appendix F

Rhode Island General Laws

Title 37
Public Property and Works

Chapter 13
Labor and Payment of Debts by Contractors
R.I. Gen. Laws § 37-13-5

§ 37-13-5. Payment for trucking or materials furnished — Withholding of sums due.

A contractor or subcontractor on public works authorized by a proper authority shall pay any obligation or charge for trucking and material which have been furnished for the use of the contractor or subcontractor, in connection with the public works being performed by him or her, within ninety (90) days after the obligation or charge is incurred or the trucking service has been performed or the material has been delivered to the site of the work, whichever is later. When it is brought to the notice of the proper authority in a city or town, or the proper authority in the state having supervision of the contract, that the obligation or charge has not been paid by the contractor or subcontractor, the proper authority may deduct and hold for a period not exceeding sixty (60) days, from sums of money due to the contractor or subcontractor, the equivalent amount of such sums certified by a trucker or materialman creditor as due him or her, as provided in this section, and which the proper authority determines is reasonable for trucking performed or materials furnished for the public works.

History of Section.
P.L. 1936, ch. 2361, §§ 2, 3; G.L. 1938, ch. 290, §§ 2, 3; G.L. 1938, ch. 290, § 4; P.L. 1955, ch. 3580, § 1; G.L. 1956, § 37-13-5; P.L. 1965, ch. 77, § 1.

Title 37
Public Property and Works

Chapter 13
Labor and Payment of Debts by Contractors
R.I. Gen. Laws § 37-13-7

§ 37-13-7. Specification in contract of amount and frequency of payment of wages.

(a) Every call for bids for every contract in excess of one thousand dollars ($1,000), to which the state of Rhode Island or any political subdivision thereof or any public agency or quasi-public agency is a party, for the transportation of public and private school pupils pursuant to §§ 16-21-1 and 16-21.1-8, or for construction, alteration, and/or repair, including painting and decorating, of public buildings or public works of the state of Rhode Island or any political subdivision thereof, or any public agency or quasi-public agency and that requires or involves the employment of employees, shall contain a provision stating the minimum wages to be paid various types of employees which shall be based upon the wages that will be determined by the director of labor and training to be prevailing for the corresponding types of employees employed on projects of a character similar to the contract work in the city, town, village, or other appropriate political subdivision of the state of Rhode Island in which the work is to be performed. Every contract shall contain a stipulation that the contractor or his or her subcontractor shall pay all the employees employed directly upon the site of the work, unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment computed at wage rates not less than those stated in the call for bids, regardless of any contractual relationships that may be alleged to exist between the contractor or subcontractor and the employees, and that the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work; and the further stipulation that there may be withheld from the contractor so much of the accrued payments as may be considered necessary to pay to the employees employed by the contractor, or any subcontractor on the work, the difference between the rates of wages required by the contract to be paid the employees on the work and the rates of wages received by the employees and not refunded to the contractor, subcontractors, or their agents.

(b) The terms "wages," "scale of wages," "wage rates," "minimum wages," and "prevailing wages" shall include:

(1) The basic hourly rate of pay; and

(2) The amount of:

(i) The rate of contribution made by a contractor or subcontractor to a trustee or to a third person pursuant to a fund, plan, or program; and

(ii) The rate of costs to the contractor, subcontractor, vendor, or provider that may be reasonably anticipated in providing benefits to employees pursuant to an enforceable commitment to carry out a financially responsible plan or program that was communicated in writing to the employees affected, for medical or hospital care, pensions on retirement or death, compensation for injuries or illness resulting from occupational activity, or insurance to provide any of the foregoing, for unemployment benefits, life insurance, disability and sickness insurance, or accident insurance, for vacation and holiday pay, for defraying costs of apprenticeship or other similar programs, or for other bona fide fringe benefits, but only where the contractor or subcontractor is not required by other federal, state, or local law to provide any of the benefits; provided, that the obligation of a

contractor or subcontractor to make payment in accordance with the prevailing wage determinations of the director of labor and training insofar as this chapter of this title and other acts incorporating this chapter of this title by reference are concerned may be discharged by the making of payments in cash, by the making of contributions of a type referred to in subsection (b)(2), or by the assumption of an enforceable commitment to bear the costs of a plan or program of a type referred to in this subdivision, or any combination thereof, where the aggregate of any payments, contributions, and costs is not less than the rate of pay described in subsection (b)(1) plus the amount referred to in subsection (b)(2).

(c) The term "employees," as used in this section, shall include:

(1) Employees of contractors or subcontractors performing jobs on various types of public works including mechanics, apprentices, teamsters, chauffeurs, and laborers engaged in the transportation of gravel or fill to the site of public works, the removal and/or delivery of gravel or fill or ready-mix concrete, sand, bituminous stone, or asphalt flowable fill from the site of public works, or the transportation or removal of gravel or fill from one location to another on the site of public works, and the employment of the employees shall be subject to the provisions of subsections (a) and (b); and

(2) Persons employed by a provider contracted for the purpose of transporting public and private school pupils pursuant to §§ 16-21-1 and 16-21.1-8 shall be subject to the provisions of subsections (a) and (b) of this section. For the purposes of this subsection the term employee includes school bus drivers, aides, and monitors who are directly providing transportation services; the term employee does not include mechanics, dispatchers, or other personnel employed by the vendor whose duties are normally performed at a fixed location.

(d) The terms "public agency" and "quasi-public agency" shall include, but not be limited to: the Rhode Island industrial recreational building authority, the Rhode Island commerce corporation, the Rhode Island airport corporation, the Rhode Island industrial facilities corporation, the Rhode Island refunding bond authority, the Rhode Island housing and mortgage finance corporation, the Rhode Island resource recovery corporation, the Rhode Island public transit authority, the Rhode Island student loan authority, the water resources board corporate, the Rhode Island health and education building corporation, the Rhode Island turnpike and bridge authority, the Narragansett Bay water quality management district commission, the Rhode Island telecommunications authority, the convention center authority, the council on postsecondary education, the council on elementary and secondary education, the capital center commission, the housing resources commission, the Quonset Point-Davisville management corporation, the Rhode Island children's crusade for higher education, the Rhode Island depositors economic protection corporation, the Rhode Island lottery commission, the Rhode Island partnership for science and technology, the Rhode Island public building authority, and the Rhode Island underground storage tank board.

History of Section.
P.L. 1974, ch. 237, § 3; P.L. 1976, ch. 193, § 1; P.L. 1999, ch. 75, § 1; P.L. 2001, ch. 321, § 1; P.L. 2015, ch. 141, art. 7, § 16; P.L. 2021, ch. 292, § 3, effective July 9, 2021; P.L. 2021, ch. 293, § 3, effective July 9, 2021.

Appendix G

Specifications Issued for Bid

CITY OF PAWTUCKET
DEPARTMENT OF PLANNING AND REDEVELOPMENT

Riverwalk East
Phase 2
Early Site Work

CITY OF PAWTUCKET, COUNTY OF PROVIDENCE
RHODE ISLAND

BID # 27-008

APPENDIX G
TECHNICAL SPECIFICATIONS
October- 2026

BETA Group, Inc.
Engineers & Landscape Architects
701 George Washington Highway
Lincoln, RI 02865
(401) 333- 2382

Kevin Aguiar P.E.
BETA Group, Inc.

APPENDIX G

RIVERWALK EAST CONTRACT 2-TECHNICAL SPECIFICTIONS

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SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Work covered by the Contract, listing of Owner, Project location, Engineer. Sequence requirements, the Contractor's use of the premises and Owner's occupancy requirements.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. This project purpose is to prepare the site for future phases of work to be conducted by both the City of Pawtucket and private parties. Proposed activities include clearing and grubbing, demolition, erosion and sediment controls, grading, restoration, installation of drainage utilities, and remediation of lead impacted soils. Work includes, but is not necessarily limited to:

1. Clearing and grubbing
2. Removal of rock ledge, boulders and misc. debris
3. Installation of site erosion controls
4. Performance of test pits to confirm elevation of existing subsurface utilities
5. Installation of drainage structures and piping
6. Grading of temporary sediment trap and basin
7. Grading of gravel access path
8. Stockpiling of excess soils
9. Stockpiling and removal of lead impacted soils
10. Installation of 1-foot and 2-foot landscaped cap sections
11. Installation of loam and seeding
12. All other incidental items included in the Contract Documents; and all as more particularly indicated, shown or described in the Drawings, Specifications, and other Contract Documents.

B. All work performed under this contract shall be as specified and as shown on the plans. Additionally, direct reference is made to and where indicated on plans and specifications, work shall be in conformance with the Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, most-current edition and all compilations and the State and Federal Special Provisions included in the Contract Documents. Standard details for this project are Rhode Island Standard Details, 2023 edition, with all revisions.

C. All traffic control devices and signage to be in accordance with the U.S. Department of Transportation Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD), latest edition at time of Bid.

D. References within the Standard Specifications to the Owner or the Engineer shall, for the purposes of this Contract, be interpreted to mean the City of Pawtucket or its designated representative.

1.3 OWNER

City of Pawtucket
137 Roosevelt Avenue
Pawtucket, Rhode Island 02860
Telephone: 401-728-0500 x 477
Contact: Michael Wilcox, Project Engineer

1.4 PROJECT LOCATION

A. The site is bounded by Division Street, Portuguese Social Club Way, School Street, Festival Pier, and the Seekonk River in Pawtucket, RI.

1.5 ENGINEER

BETA Group, Inc.
701 George Washington Highway
Lincoln, Rhode Island 02865
Telephone: 401-333-2382
Fax: 401-333-9225
Contacts: BETA Group Inc. Kevin Aguiar PE
BETA Group Inc. Benjamin Boynton PE, Project Manager

1.6 WORK SEQUENCE

A. In order that Work may be conducted with minimum inconvenience to the local residents and other stakeholders, work under this Contract shall be coordinated in regard to daily access and site operations and work may be required to conform to changing conditions. The Contractor shall coordinate with the Engineer and Owner to determine the point or points in time when portions of work will commence or be carried on. The Owner may issue orders pertaining to the work sequence, relative to the rate of progress on several portions of the work in order to best meet stakeholder needs in addition to the needs of the general public.

1.7 CONTRACTOR USE OF PREMISES

A. The Contractor's use of premises shall be within the limits shown on the Drawings and as defined in Appendix E The City of Pawtucket Standard Form of Agreement (Contract Agreement) for the performance of the Work. Contractor employee parking shall be at Festival Pier.

B. The Contractor shall assume full responsibility for security of all materials and equipment on the site, including those of his subcontractor's.

C. If directed by the Owner, the Contractor shall move any stored items that interfere with operations of the Owner and /or Property Owner.

D. It is the responsibility of the Contractor to maintain and protect any materials, equipment and other objects within the lay-down area.

E. The Contractor shall obtain and pay for use of additional storage or work areas if needed to perform the Work.

1.8 OWNER OCCUPANCY REQUIREMENTS

A. Unless otherwise specifically approved, public access to the private residences and adjacent parking lots shall be kept operational at all times. Public roadways must remain in service at all times throughout the duration of the project with the exception of lane and shoulder closures and / or as otherwise coordinated with and approved by the City. Also, access to all private businesses and properties abutting the site must be maintained at all times.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

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SECTION 01020

ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Contingencies and their respective values which have been established in the BID as an estimated lump sum to facilitate comparison of bids only.

B. Related Sections

1. Section 11 BID FORM
2. Section 01025 - Measurement and Payment

1.2 ALLOWANCES

A. The following Allowances pertain to this project. Refer to the Bid Form

1. Allowance No. 1. Police Detail for Traffic Protection
2. Allowance No. 2. Funding Source Signage

1.3 PAYMENT PROCEDURES

A. Under these items, the Contractor shall be reimbursed for charges for the allowances required and authorized by the Owner and Engineer, as detailed in Section 01025 - Measurement and Payment.

B. The price for allowances is established in Section 11 - Bid Form and shall constitute full compensation for services rendered.

C. The Contractor will be paid based on the actual quantities determined in the field by the Engineer or the actual invoiced amount from the authority in question. If the total cost for any allowance is greater or less than the allowance amount stated under this item of the BID, a debit or credit of the difference in cost shall be submitted to the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials shall conform to the Contract Documents, including any of those required or ordered by the Engineer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Refer to relevant specification sections for information regarding installation and performance of the work. All work shall be per the Contract Documents. If additional guidance is required, the Contractor shall submit such requests in writing.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Measurement and payment criteria applicable to the Work performed under a Unit Price and/or Lump Sum payment method of Items listed in the BID.

B. RELATED SECTIONS

1. SECTION 11.0 Bid Form
2. SECTION 12.0 General Conditions AIA A201
3. SECTION 13.0 Supplementary Conditions
4. Appendix G Technical Specifications
5. Appendix H Plans
6. Section 01020 - Allowances
7. Section 01026 - Schedule of Values

1.2 UNIT QUANTITIES SPECIFIED

A. Quantities and measurements indicated in the BID FORM are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer shall determine payment.

B. If the actual Work results in measurable discrepancies outside the tolerances indicated and requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit price furnished in the BID FORM.

1.3 MEASUREMENTS OF QUANTITIES

A. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

B. Measurement by Area: Measured by square dimension using mean length and width or radius.

C. Linear Measurement: Measured by linear dimension, along the horizontal projection of the centerline or mean chord.

D. At appropriate points in this text, specifications are given with respect to measuring or estimating certain quantities and the sums due for the same. Except as otherwise provided, the Engineer shall determine the appropriate method for measuring and computing each quantity, and for estimating the sums due for the various kinds of work and material, using such methods, tools and degrees of precision as are suitable for the particular measurement, Item or

computation. When so requested by the Engineer, assistance in measuring or determining quantities, shall be provided by furnishing the help of unskilled laborers on the site, by furnishing copies of invoices, or by other means.

E. For estimating quantities in which the computations of areas by analytic and geometric methods would be laborious, as determined by the Engineer, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas and may be used for this purpose.

1.4 UNIT PRICES

A. Payment will be computed on the basis of the unit prices indicated in Section 11 BID FORM as shown for each Item and the quantity of units completed. Unit prices are to include cost of all necessary materials, labor, equipment, overhead, profit and other applicable costs. (See Par. 1.06, this Section.)

1.5 LUMP SUM PRICES

A. Payment will be computed on the basis of the percentage of work completed on each Item in the contract BID as determined by the Engineer. Lump sum prices are to include the cost of all necessary materials, labor, equipment, overhead, profit and other applicable costs. (See Par. 1.06, this Section.)

B. The Contractor's breakdown in the BID FORM and SCHEDULE OF VALUES of the Lump Sum bid will be used only as a guide to determine the percentage of completion.

1.6 PRICES INCLUDE

A. The prices stated in the Proposal include full compensation not only for furnishing all the labor, equipment and material needed for, and for performing the work, but also for assuming all risks of any kind for expenses arising by reason of the nature of the soil, ground water, or the action of the elements; for all excavation and backfilling; for the removal of and delay or damage occasioned by trees, stumps, pipes, ducts, timber, masonry or other obstacles; for removing, protecting, repairing, or restoring, without cost to the Owner, all pipes, ducts, drains, sewers, culverts, conduits, curbs, gutters, walks, fences, tracks, or other obstacles, road pavements and other ground surfacing whether shown on plans or not for draining, damming, pumping or otherwise handling and removing, without damage to the work or to other parties, and without needless nuisance, all water or sewage from whatever source which might affect the work or its progress, or be encountered in excavations made for the work; for all signs, fencing, lighting, watching, guarding, temporary surfacing, bridging, snow removal, etc., necessary to maintain and protect travel on streets, walks and private ways; for making all provisions necessary to maintain and protect buildings, fences, poles, trees, structures, pipes, ducts and other public or private property affected or endangered by the work; for the repair or replacement of such things if injured by neglect of such provisions for removing all surplus or rejected materials as may be directed; for replacing, repairing and maintaining the surfaces of streets, highways, public and private lands if and where disturbed by work performed under the Contract or by negligence in the performance of work under the Contract; for furnishing the requisite filling materials in case of any deficiency or lack of suitable materials; for obtaining all permits and licenses and complying with the requirements thereof, including the cost of furnishing any

security needed in connection therewith; for protection against inclement or cold weather; for all expenses incurred by or on account of the suspension; interruption or discontinuance of work; for the cost of the surety bond and adequate insurance; for all taxes, fees, union dues, etc., for which the Contractor may be or become liable, arising out of his operations incidental to the Contract; for providing equipment on the site and off site; for providing a field office and its appurtenances and for all general and incidental expenses; for tools, implements and equipment required to build and put into good working order all work contemplated by the Contract; for maintaining and guaranteeing the same as provided; and for fulfilling all obligations assumed by the Contractor under the Contract and its related documents.

B. The Owner shall pay and the Contractor shall receive the prices stipulated in the BID FORM made as part hereof as full compensation for everything performed and for all risks and obligations undertaken by the Contractor under and as required by the Contract.

C. The prices for those Items which involve excavation shall include compensation for disposal of surplus excavated material, unless otherwise indicated, and handling of water.

D. In all Items involving excavation, the price shall be based on doing the entire excavation in earth. Where rock is excavated, the price, therefore, shall be in addition to the cost of excavating earth and no deduction will be made in the amount for earth excavation.

1.7 PAYMENT

A. In general, payment will be made for all Contract work satisfactorily completed through the end of the previous month. The payment will include any additional work which has been completed and approved and change order work agreed upon by the Owner and Contractor which has been completed and approved (See SECTION 11 BID FORM).

B. Each application for payment will indicate the total of a minimum percent retainage as defined in under SECTION 01026 SCHEDULE OF VALUES as held by the Owner on the total of all work completed under the contract and approved for payment to-date.

C. Monthly applications for payment may also indicate reduction or increase of the total Contract price when an approved change order results in a net reduction or net increase in the cost and quantity of work to be performed under the Contract.

D. Special billings and charges against the Contract as credit or payment to the Owner, that are not for change order work, may be subtracted from monies due on any monthly application for payment but shall not serve to reduce the total Contract price.

E. Final payment for work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Engineer multiplied by the unit price for work which is incorporated in or made necessary by the Work.

1.8 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

A. All bid items listed below are applicable for all site improvements as depicted in the Contract Documents.

BID ITEM NO. 1.0 PROJECT MOBILIZATION & DEMOBILIZATION

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract price bid per Lump Sum.
2. The Lump Sum price for this item shall not exceed ten percent (10%) of the total amount of the bid.
3. A maximum of fifty percent (50%) of the Mobilization & Demobilization lump sum shall be payable in the initial payment requisition. The balance of this lump sum shall be payable upon completion of the project, after all project record keeping and close out requirements have been met, and all temporary items and measures have been removed and suitably disposed of and final restoration and cleaning has been completed.

B. BASIS OF PAYMENT

1. The Lump Sum price paid for item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:
    a. Initiating and administering the contract, including but not limited to furnishing performance and payment bonds and all other securities and insurances required, project meetings, securing of all necessary permits, etc., for providing all other materials, supplies, tools, equipment, labor, financing, supervision, temporary structures, and any and all other administrative expenses incurred in carrying out the work and furnishing the materials, keeping records and preparing required reports, and assuming risks, which have not been included in the prices in other items of the Bid Proposal;
    b. Regular coordination with the Owner and Owner's Stakeholders identified by the Owner. Coordination shall proactively address anticipated work-flow, project schedule, hours of operation, site access locations, delivery schedule for equipment and materials, etc.
    c. Costs, exclusive of the cost of materials, for mobilizing all machinery, tools, and other equipment necessary to carry out and complete the work;
    d. Establishing and maintaining survey controls for the construction layout of the overall project by a qualified professional, using appropriate means and methods to insure the accuracy of the layout, as specified and/or as directed by the Engineer;
    e. Re-establishing all benchmarks, concrete bounds, iron pins, and all permanent property boundary markers;
    f. Costs associated with development, implementation and maintaining a Site-specific Health and Safety Plan (HASP);
    g. Coordinating and scheduling the use of uniformed traffic persons including tracking or verifying hours worked by traffic persons;
    h. Requirements for and payment provisions for material testing and quality control testing are addressed under Section 01410 and Bid Allowances.
    i. Costs for demobilizing all machinery, plant, tools, and other equipment used to perform the work upon completion of the project;
    j. Costs for preparing, maintaining and updating the project schedule on a regular basis for submission to and approval by the Owner

k. Performance of final cleanup and any necessary restorations of site features within the project area, exclusive of specific restoration to be paid for under other items.

BID ITEM 2.0 SITE PREPARATION AND MAINTENACE ACTIVITIES – PROJECT WIDE

A. METHOD OF MEASUREMENT

1. This quantity of this item shall not be measured separately but by evaluation of the progression of work activities that comprise this item, determined as a percentage installed, complete and accepted in place.

2. Furnishing and installing, as well as moving and placing any and all traffic cones, plastic pipe barriers and drum barrels and related signage including moving and re-setting all temporary pedestrian and traffic control devices from their initial locations, all handling, maintaining, transporting, and relocating traffic control devices to storage areas or to subsequent intermediate locations, as well as any and all re-deployment of control devices to protect vehicles and pedestrians as jobsite conditions warrant over the duration of the project.

B. BASIS OF PAYMENT

1. The Lump Sum price paid for this item shall include full compensation for all labor, equipment, materials and incidentals needed to conduct various site preparation and maintenance activities, with all work, complete in place but not limited to all field survey and layout, installation and maintenance of erosion controls, adjustment of construction fencing and gates, maintenance or constriction signage, maintenance or replacement if necessary of construction entrances, and all incidentals related to preparing and maintaining the site and any and all items considered incidental and not specifically included for payment under other specification sections.

2. The Lump Sum price paid for item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Costs associated with furnishing and maintaining dust control air monitoring;

b. Furnishing and spreading calcium chloride and/or water in order to control (minimize) dust at the Work areas;

c. All costs associated with decontamination of equipment

C. BASIS OF PAYMENT

1. Payment shall be per month based on the approved Schedule of Values. Payment for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Maintaining all erosion controls and site protections for the duration of the Project.

b. Fabricating, furnishing, erecting, maintaining, removing and relocating the traffic management devices for the overall project, anticipated to be located on both Pleasant and Taft Street, complete-in-place, as shown on the plans, or as directed by the Engineer and in coordination with the City;

c. Providing additional traffic management devices to provide clear and visible vehicular, bicycle and pedestrian traffic controls and detours through the project area, also required.

d. The Contractor shall be required to reposition the traffic control devices as many times as necessary to ensure the safe passage of vehicular traffic and pedestrians. Supplemental signs and traffic control devices directing traffic around and/or through the work zones shall be supplied as operations require or as directed by the Engineer. Payment for these traffic control measures shall be included as part of this item and no additional payment will be made.

e. Other work, whether direct or incidental, associated with the maintenance and protection of the site and related traffic and sidewalk closures/protections not specifically identified herein.

BID ITEM NO. 3.0 ROCK REMOVAL

A. METHOD OF MEASUREMENT

1. The quantity of rock excavation to be paid for under this item shall be measured per cubic yard, based on the total number of cubic yards of rock removed, measured in place before excavation, within the payment limits indicated on the Drawings and as defined in the Specifications, unless rock excavation beyond such limits has been authorized in writing by the Engineer, in which case, measurements shall be made to the authorized limits

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Removal of boulders in excess of 1 C.Y. in volume (measurement and volume determination to be made by Engineer);

   b. Breaking or fracturing of solid contiguous rock by mechanical means (rock hammer, jackhammer); blasting of rock shall not be allowed under any circumstances;

   c. Excavation of all broken rock to the authorized limits as determined by the Engineer;

   d. Replacement of excavated rock with sand, gravel or crushed stone as specified and detailed on the Drawings, at the direction of the Engineer;

   e. Excavated rock shall remain on-site and re-used during backfill operations. Contractor shall be responsible for all cost associated with crushing rock to a suitable size for re-use;

   f. Any and all other work, whether direct or incidental, associated with the excavation of rock not specifically identified herein.

2. Where rock is encountered, it shall be uncovered but not excavated until measurements have been made by the Engineer, unless in the opinion of the Engineer, satisfactory measurements can be made in some other manner.

3. For bid items which include incidental earth excavation, the bidder shall include in his unit prices the cost of performing the entire excavation as earth. The unit price for this item is intended to represent the difference between the cost of rock excavation and the cost of earth excavation which would have taken place as part of the other bid items. The unit price for this item shall be paid in addition to the incidental earth excavation costs included in the other items; no adjustment to the unit prices for other items which include earth excavation shall be made in the event that rock is encountered and excavated in lieu of earth.

BID ITEM 4.0 CLEAR AND GRUB

A. METHOD OF MEASUREMENT

1. The quantity clear and grub to be paid for under this item shall be measured per square yard, based on the total number of square yards of cleared and grubbed.

A. BASIS OF PAYMENT

1. The unit price paid for this item shall include full compensation for all labor, equipment, materials and incidentals needed to conduct various site preparation activities, with all work, complete in place but not limited clearing and grubbing of vegetation, pruning of trees, cutting of trees, removal of stumps, removal and disposal of organic materials resulting from the work, including any and all incidentals related to the described work and any and all items considered incidental and not specifically included for payment under other specification sections.
2. Work shall be done in accordance with the RAWP and Soil Management Plan.

BID ITEM 5.0 GRAVEL BORROW

A. METHOD OF MEASUREMENT

1. The quantity of gravel borrow to be paid for under this item shall be measured per cubic yard, based on the total number of cubic yards of gravel borrow installed, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:
    a. Furnishing, placing and compacting gravel borrow to the relative density required for the specific location or application for which it is being used.
    b. Imported gravel borrow shall be stockpiled in accordance with the RAWP;
    c. Any and all other work, whether direct or incidental, associated with furnishing and placing gravel borrow not specifically identified herein.
2. Gravel borrow outside the limits of normal excavation shall be furnished, placed, and compacted at the Contractor's expense, and no payment under this item will be made for such gravel.
3. Gravel borrow used to backfill rock excavations will not be measured for payment under this Item, but shall be included in the unit price for "Rock Excavation."

BID ITEM 6.0 EXCAVATION FOR TEST PITS

A. METHOD OF MEASUREMENT

1. The quantity of excavation and backfill for test pits to be paid for under this Item shall be the number of cubic yards excavated, measured to the extent of the work done as ordered by the Engineer or as indicated on the Drawings for test pits.

2. Work shall be done in accordance with the RAWP and Soil Management Plan.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Excavation including any sawcutting of the existing pavements and removal and disposal of all existing pavements, including any existing bituminous concrete, concrete base or reinforced concrete base (if encountered);

   b. The work shall include any temporary excavation support, dewatering, installing backfill material including compacting the material as specified,

   c. Collection and recording of data and existing conditions discovered as a result of the test pit;

   d. Data to be collected shall be approved by the Engineer prior to the start of the work. The Contractor or its subcontractor shall submit all findings in a form acceptable by the Engineer;

   e. Volume of Test Pits which data has not yet been submitted shall not be included for payment;

   f. Any and all other work, whether direct or incidental, associated with excavation and backfill for test pits not specifically identified herein.

BID ITEM 7.0 CONSTRUCT 12-INCH GRAVITY DRAIN-CPP
BID ITEM 8.0 CONSTRUCT 18-INCH GRAVITY DRAIN-CPP
BID ITEM 9.0 CONSTRUCT 18-INCH GRAVITY DRAIN-RCP

A. METHOD OF MEASUREMENT

1. The quantities of gravity drains to be paid for under these items shall be measured by the linear foot along the horizontal projection of the centerline of the completed drain, excluding the length of manholes and catch basins, measured to the limits of the manhole inside diameter or the catch basin inside face of wall.

B. BASIS OF PAYMENT

1. The unit prices for these items shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Furnishing and installing the gravity drains, complete-in-place, including all excavation, excavation support, stockpiling of excavated material, furnishing and installing

gravel borrow backfill, crushed stone for pipe bedding/backfill material, compacting materials as specified, filter fabric and all incidental work not specifically included for payment under other items;

b. Excavation shall also include any sawcutting of the existing pavements and removal and disposal of all existing pavements, including any existing bituminous concrete, masonry or concrete walls or reinforced concrete base (if encountered);
c. Protection and support of existing utilities, concrete encasement, maintaining flows of all utilities, and repairing and/or replacing damaged or impacted existing utilities not specifically included for payment under other items;
d. Implementing safety precautions, including designing and implementing excavation support;
e. Designing, furnishing, installing, operating, maintaining and removing temporary dewatering systems required to lower and control water levels and hydrostatic pressures during construction, as well as the appropriate disposal of pumped water;
f. Furnishing and installing tees, cleanouts and other adapters or couplings required to install the system complete-in-place, as specified and indicated on the Drawings;
g. Connecting new and existing gravity drains to the new/existing gravity drain structures or system, including all excavation, modifications to existing structures (including but not limited to form work, coring, cutting, concrete work, masonry and bricks), modifying and/or removing existing pipe (all materials and sizes), installation of concrete collars, and furnishing and installing adapters and couplings;
h. Work shall be done in accordance with the RAWP and Soil Management Plan.
i. Any and all other work, whether direct or incidental, associated with the furnishing and installation of the gravity drains not specifically identified herein.

BID ITEM 10.0 CONSTRUCT 18-INCH RCP FLARED END SECTION

C. METHOD OF MEASUREMENT

1. The quantity of flared end sections to be paid for under this item shall be measured per each, based on the actual number of flared end sections, including rip rap apron furnished and installed to the correct elevation, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

D. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Furnishing and installing, complete-in-place, precast concrete flared end section, including, dewatering, excavation and stockpile of material, furnishing and installing gravel borrow, furnishing and installing crushed stone bedding material, construction of inverts, base sections, risers, cones or flat slab tops (as required), frames and covers, backfill with gravel borrow, and all other work and materials required to complete the work as indicated on the Drawings and as specified;

   b. Furnishing and installing rip rap, including excavation and stockpile of material, furnishing and installing gravel borrow, furnishing and installing crushed stone bedding material, furnishing and installing filter fabric, and all other work and

materials required to complete the work as indicated on the Drawings and as specified;

c. Work shall be done in accordance with the RAWP and Soil Management Plan.

d. Any and all other work, whether direct or incidental, associated with the construction of the drain manholes not specifically identified herein.

BID ITEM 11.0 CONSTRUCT 4-FT DIAMETER DRAIN MANHOLE
BID ITEM 12.0 CONSTRUCT 5-FT DIAMETER DRAIN MANHOLE
BID ITEM 12.0 CONSTRUCT 6-FT DIAMETER DRAIN MANHOLE

E. METHOD OF MEASUREMENT

1. The quantity of drain manholes to be paid for under this item shall be measured per each, based on the actual number of drain manholes furnished and installed to the correct depth, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

F. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing and installing, complete-in-place, precast concrete drain manholes, including sawcutting, temporary excavation support, dewatering, excavation and stockpile of material, furnishing and installing gravel borrow, furnishing and installing crushed stone bedding material, construction of inverts, base sections, risers, cones or flat slab tops (as required), frames and covers, backfill with gravel borrow, and all other work and materials required to complete the work as indicated on the Drawings and as specified;

b. Modifying and/or replacing existing pipe (all materials and sizes), and furnishing and installing adapters, concrete collars, and couplings to connect existing pipe to proposed structure;

c. Work shall be done in accordance with the RAWP and Soil Management Plan.

d. Any and all other work, whether direct or incidental, associated with the construction of the drain manholes not specifically identified herein.

BID ITEM 14.0 CONSTRUCT CATCH BASIN

A. METHOD OF MEASUREMENT

1. The quantity of catch basins to be paid for under this item shall be measured per each, based on the actual number of catch basins furnished and installed to the correct depth, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and installing, complete-in-place, precast concrete catch basins, including sawcutting, temporary excavation support, dewatering, excavation and stockpile of material, furnishing and installing gravel borrow, furnishing and installing crushed stone bedding material, construction of inverts, base sections, risers, cones or flat slab tops (as required), frames and grates, backfill with gravel borrow, and all other work and materials required to complete the work as indicated on the Drawings and as specified;

    b. Work shall be done in accordance with the RAWP and Soil Management Plan.

    c. Any and all other work, whether direct or incidental, associated with the construction of the drain manholes not specifically identified herein.

BID ITEM 15.0 CONSTRUCT OVERFLOW STRUCTURE

A. METHOD OF MEASUREMENT

1. The quantity of overflow structures to be paid for under this item shall be measured per each, based on the actual number of overflow structures furnished and installed, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and installing, complete-in-place, precast concrete overflow structure, including sawcutting, temporary excavation support, dewatering, excavation and stockpile of material, furnishing and installing crushed stone bedding material, construction of inverts, base sections, furnishing / fabrication and installation of the top grate, backfill with gravel borrow, and all other work and materials required to complete the work as indicated on the Drawings and as specified;

    b. Work shall be done in accordance with the RAWP and Soil Management Plan.

BID ITEM 16.0 CONSTRUCT PRETREATMENT SEPERATOR STRUCTURE

A. METHOD OF MEASUREMENT

1. The quantity of pretreatment separator structures to be paid for under this item shall be measured per each, based on the actual number of pretreatment separator structures furnished and installed, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing and installing, complete-in-place, pretreatment separator structure including sawcutting, temporary excavation support, dewatering, excavation and stockpile of material, furnishing and installing gravel borrow, furnishing and installing crushed stone bedding material, construction of inverts, construction of inverts and pipe connections, frames and covers, backfill with gravel borrow, and all other work and materials required to complete the work as indicated on the Drawings and as specified;

b. Any and all other work, whether direct or incidental, associated with the construction of the drain manholes not specifically identified herein.

c. Work shall be done in accordance with the RAWP and Soil Management Plan.

BID ITEM 17.0 REMOVE AND DISPOSE LEAD IMPACTED SOILS

C. METHOD OF MEASUREMENT

1. The quantity of material to be paid for under this Item shall be the number of tons of lead impacted soils measured by weight at the disposal facility.

D. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Rehandling of stockpile material from the Temporary Waste Stockpile (WSA) and loading the material into trucks for legal disposal;

b. Weight slips shall be returned to the Engineer for approval;

c. Work shall be done in accordance with the RAWP and Soil Management Plan.

d. Any and all other work, whether direct or incidental, associated with excavation and backfill for test pits not specifically identified herein.

BID ITEM 18.0 WASTE STOCKPILE – LOCATION A

E. METHOD OF MEASUREMENT

1. The quantity of this item shall not be measured separately but by evaluation of the progression of work activities that comprise this item, determined as a percent installed, of the Lump Sum item, complete and accepted in place.

F. BASIS OF PAYMENT

1. The Lump Sum price for this item shall include full compensation for all labor, equipment, materials and incidentals necessary furnishing, constructing, operating, and dismantling a Temporary Waste Stockpile (WSA) in accordance with the approved RAWP, and RIDEM requirements. All regulated/Controlled Materials generated during construction shall be stockpiled on and under polyethylene sheeting, within fenced limits, and managed in accordance with the RAWP. No soil shall be exported from the Site without written authorization from the Engineer or City.

2. Work shall be done in accordance with the RAWP and Soil Management Plan.

3. Payment under this item includes all provisions related to WSA Maintenance identified in specification 02615 Controlled Materials Handling,

BID ITEM 19.0 EARTHWORK – WITHIN LOCATION A

A. METHOD OF MEASUREMENT

1. The quantity of earthwork to be paid for under this item shall be measured per cubic yard, based on the total number of cubic yards of materials excavated and re-used in the Work or disposed of at an off-site location which are not incidental to the performance of other work items.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:
   a. Excavation of all materials (except rock), including but not limited to silt, loam, sand, organic matter, gravel or other soils, temporary pavements, berms, curbs, tree roots, and any other materials;
   b. Stockpiling and re-handling excavated materials for reuse on other portions of this project, or stockpiling for removing and legally disposing of excavated materials at an off-site location.
   c. Work shall be done in accordance with the RAWP and Soil Management Plan.
   d. Any and all other work, whether direct or incidental, associated with excavation of materials not specifically identified herein.

BID ITEM 20.0 WASTE STOCKPILE – LOCATION B

A. METHOD OF MEASUREMENT

1. The quantity of this item shall not be measured separately but by evaluation of the progression of work activities that comprise this item, determined as a percent installed, of the Lump Sum item, complete and accepted in place.

B. BASIS OF PAYMENT

1. The Lump Sum price for this item shall include full compensation for all labor, equipment, materials and incidentals necessary furnishing, constructing, operating, and dismantling a Temporary Waste Stockpile (WSA) in accordance with the approved RAWP, and RIDEM requirements. All regulated/Controlled Materials generated during construction shall be stockpiled on and under polyethylene sheeting, within fenced limits, and managed in accordance with the RAWP. No soil shall be exported from the Site without written authorization from the Engineer or City.
2. Work shall be done in accordance with the RAWP and Soil Management Plan.
3. Payment under this item includes all provisions related to WSA Maintenance identified in specification 02615 Controlled Materials Handling,

BID ITEM 21.0 EARTHWORK – WITHIN LOCATION B

A. METHOD OF MEASUREMENT

1. The quantity of earthwork to be paid for under this item shall be measured per cubic yard, based on the total number of cubic yards of materials excavated and re-used in the Work or disposed of at an off-site location which are not incidental to the performance of other work items.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Excavation of all materials (except rock), including but not limited to silt, loam, sand, organic matter, gravel or other soils, temporary pavements, berms, curbs, tree roots, and any other materials;

   b. Stockpiling and re-handling excavated materials for reuse on other portions of this project, or removing and legally disposing of excavated materials at an off-site location.

   c. Work shall be done in accordance with the RAWP and Soil Management Plan.

   d. Any and all other work, whether direct or incidental, associated with excavation of materials not specifically identified herein.

BID ITEM 22.0 RESTORATION 1-FT CAP

A. METHOD OF MEASUREMENT

1. The quantity of this item shall be measured by the number of square yards of the specified materials, complete-in-place, in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Trimming and fine grading the sub base;
   b. Furnishing, placing, and compacting the required depth of 8-inches of clean gravel;
   c. Furnishing, placing, and compacting the required depth of 4-inches of loam/plantable clean soil;
   d. Furnishing and placing geotextile fabric, demarcation layer, below the clean gravel;
   e. Furnishing and placing grass seed mix;
   f. Any and all other work, whether direct or incidental, associated with the furnishing and installing the materials not specifically identified herein.

BID ITEM 23.0 RESTORATION 2-FT CAP

C. METHOD OF MEASUREMENT

1. The quantity of this item shall be measured by the number of square yards of the specified materials, complete-in-place, in accordance with the Plans and/or as directed by the Engineer.

D. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Trimming and fine grading the sub base;
   b. Furnishing, placing, and compacting the required depth of 20-inches of clean gravel;
   c. Furnishing, placing, and compacting the required depth of 4-inches of loam/plantable clean soil;
   d. Furnishing and placing geotextile fabric or approved marking material, demarcation layer, below the clean gravel;
   e. Furnishing and placing grass seed mix;
   f. Any and all other work, whether direct or incidental, associated with the furnishing and installing the materials not specifically identified herein.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

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SECTION 01026

SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for breakdown of Lump-Sum Bid items.

B. Related Sections

1. Section 01300 - Submittals

1.2 BREAKDOWN OF LUMP SUM BID

A. Within seven (7) business days of the date of the Executed Contract, a list detailing the breakdown of the Lump Sums Bid by the appropriate Divisions of these Specifications or as otherwise directed by the Engineer, shall be submitted for review and concurrence by the Engineer. This list will be used by the Engineer as a guide in preparing estimates for payment. The list shall be an accurate representation of costs required to complete the Work in accordance with the Contract Documents.

B. A schedule of the value of work done based on the Progress Schedule shall be submitted under Section 01300 – Submittals. All materials shall be submitted within seven (7) business days of the date of the executed Contract. The schedule shall show the total sum of work done for each month of the projected construction period and shall be updated monthly to reflect the actual amount requisitioned for payment.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 01035

MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Procedures for making modifications to the Contract by change orders or other means.

B. Related Sections

1. Appendix D Standard Form of Agreement

1.2 CHANGE ORDERS

A. In general Change Orders will be issued for modification of Contract documents which will incorporate changes in the Contract requirements, including additions or deletions in the Work; for unforeseen field conditions which will necessitate changes in the Work; changes in code provisions or other requirements of federal, state or local authority requiring changes in the Work; changes in the availability of products or for incorporating new products into the work and for changes directed by the Engineer for the benefit of the Owner.

B. Authority to execute Change Orders shall be that of the Engineer and not of the Contractor. Changes Orders will, in general, originate by a “Change Order Proposal Request” or by issuance of a “Construction Change Authorization”.

C. Unless authorized by the Engineer, no work shall be performed that is involved in the change until a formal Change Order is issued.

D. To initiate a Change Order, the Engineer will forward a Change Order proposal request describing the proposed changes and if required, include additional or revised drawings and specifications soliciting a formal quotation of cost and time to complete the proposed Change Order work. Upon reaching mutual agreement on the cost and time, the Engineer will sign his approval of the Change Order and submit it to the Contractor for his full signature of acceptance.

1.3 FIELD ORDERS

A. The Engineer may, to avoid costly removal of, or alterations to, present on-going work, issue a Construction Change Directive or Field Order, authorizing the Contractor to proceed, subject to later negotiation of the price of the change.

1.4 PRICE AGREEMENTS

A. Prices agreed upon to cover the Change Orders may be either by mutual acceptance of a lump sum or by unit prices as stated in the Contract bid proposal or actual direct cost plus a percentage for overhead, profit and other expenses consistent with Contract Agreement.

B. Work done by a subcontractor entitles the General Contractor a percentage of the sum of the actual direct cost, not including the subcontractor's overhead and profit, consistent with the Contract Agreement.

C. Method for computing the cost of the change shall be based on the net additional increase. No overhead and profit shall be deducted from prices for changes deleting work.

D. The Change Order form document shall indicate the net adjustment (+/-) to the total Contract price as a result thereof including extension or reduction of time when applicable.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01040

COORDINATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for the Contractor coordinating the various parts of Work under this Contract.

1.2 REQUIREMENTS

A. Coordinate scheduling, submittals, and work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Coordinate work with all utility companies as well as the City as necessary for completion of work under this contract.

C. Coordinate work operations to minimize disruption of vehicular traffic on the adjacent streets as well as pedestrian foot traffic on the sidewalks and crosswalks.

D. Coordinate sidewalk closures with the Owner. Sidewalks and Crosswalks must be left in a functional and safe condition at the end of each workday or clearly marked pedestrian detours shall be established. Notify the Owner’s Representative of all planned sidewalk closures one (1) week in advance of the proposed work activity for Owner review and concurrence.

E. Coordinate planned construction operations and related site access with the Owner in a manner that does not disproportionately disrupt nearby schools or residences adjacent site. Utilize caution with all operations and secure the site perimeter daily to restrict public access.

F. Coordinate completion and cleanup of Work in preparation for Substantial Completion.

G. After Owner occupancy of premises, if determined necessary, coordinate with the Owner for access to site for correction of defective Work. Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 01050

FIELD ENGINEERING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Survey work and other field engineering responsibilities of the Contractor.

1.2 REQUIREMENTS

A. The Contractor shall be responsible for layout of the Work including but not limited to all concrete columns, piers, walls and stairs, and the establishment of lines and grades within the project limits.

B. Establish elevations, lines, levels, reference marks, batter boards, local benchmarks, etc., as required during the progress of the Work. Verify such marks by instrument to confirm accuracy.

C. Locate and protect survey control and reference points.

D. Make, check, and be responsible for all measurements and dimensions necessary for the proper construction of the Work. Notify the Engineer /Owner's Representative of any discrepancies.

E. The Engineer will be permitted to check the lines, elevations, reference marks, batter boards, etc., set by the Contractor. The Contractor shall correct any errors found in lines, elevations, reference marks, batter boards, etc. Such a check shall not be construed as approval of the Contractor's work and shall not relieve or diminish the responsibility of the Contractor for the accurate construction and completion of the Work.

F. Control datum for survey is NAVD 88 with local benchmarks as shown on Drawings.

1.3 QUALITY ASSURANCE

A. Qualifications

1. Employ a Civil Engineer or Land Surveyor registered within the State of Rhode Island, acceptable to the Engineer.

B. Certifications

1. Submit certificate signed by the Contractor's Engineer or Land Surveyor stating elevations and locations of the Work are in conformance with the Contract Documents.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 01060

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Building codes, Mechanical codes, and Electrical codes, Regulations, Permits and Fees applicable to the project.

1.2 PERMITS BY CONTRACTOR

A. The Contractor shall secure all necessary permits from the state, city or town authorities having jurisdiction, for digging of trenches in the streets or highways and all other building and construction operations requiring permits.

1.3 PERMITS BY OWNER

A. The Owner has obtained or will obtain and pay all fees for the permits listed here. The Contractor shall conform to the requirements as set forth in the following permits:

1. CRMC Assent #TBD
2. RIPDES # TBD
3. Remedial Decision Letter SR—26-0422

1.4 CODES

A. The Contractor shall conform to the requirements of and pay all fees imposed by local and State Building Authorities having jurisdiction over the Work. The Contractor is responsible to conform to all building, mechanical, electrical and plumbing code requirements.

B. The Contractor shall conform to the latest requirements of the following:

1. All Federal, State and Municipal Laws
2. Rhode Island State Building Codes, National Building Code Regulation SBC-1
3. Rhode Island State Building Codes, Electrical Code Regulation SBC-5
4. Any prevailing rules and regulations pertaining to adequate protection and/or guarding of any moving parts or otherwise hazardous locations.

1.5 FEES

A. The cost of all permits to be secured by the Contractor shall be borne by him and shall be considered as having been included in the price or prices stated in the Bid. Copies of all required permits shall be submitted and shall be filed with the Engineer prior to starting work for which a permit is required.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01067

STATE OF RHODE ISLAND AND FEDERAL REQUIREMENTS

PART 1 - GENERAL

A. SECTION INCLUDES

1. Rhode Island sales and use tax
2. Historical articles
3. Prevailing minimum wage rates
4. Excerpts from Rhode Island laws
5. Requirements for minority business enterprises, equal opportunity and nondiscrimination

B. ATTACHMENTS

1.2 RHODE ISLAND SALES AND USE TAX

A. Materials and equipment purchased for installation under this Contract are exempt from the Rhode Island Sales Tax. The Contractor shall file for exemption on behalf of the Owner, with the State of Rhode Island Department of Taxation as required by law. The exemption from the Sales Tax shall be taken into account by the Contractor during bidding.

1.3 HISTORICAL ARTICLES

A. During the life of this Contract, the Contractor is herewith required to immediately notify the following organizations listed below in the event that any articles such as "charcoal," "bone," "shell," "cultural objects - fire cracked stones or stone flaking material" or any other such related items of historical significance are discovered.

1. Owner
2. Local Historical Society
3. Rhode Island Historical Commissioner
4. Engineer

1.4 PREVAILING MINIMUM WAGE RATES

A. Local prevailing minimum wage rates apply to this project. It is the responsibility of the Contractor before bid openings to request, if necessary, any additional information on local prevailing Wage Rates for those tradespeople who are not covered by the applicable local Wage Decision, but who may be employed for the proposed work under this Contract.

B. The attention of the Contractor is also directed to Specification Subsection 00700, 1.19 in regards to the requirements for certified payrolls. The Contractor shall routinely prepare and submit as a part of the required certified payrolls the “PRIME CONTRACTOR’S OVERALL PAYROLL CERTIFICATION” form.

1.5 EXCERPTS FROM RHODE ISLAND LAWS

A. The Contractor and each of his sub-contractors shall especially note his obligations to comply with the following statues or excerpts therefrom and any current revisions thereof contained in the General Laws of Rhode Island.

B. These laws reflect changes made through the end of the 1992 legislative session. While every attempt at accuracy has been made, these are not certified true copies of these laws. The responsibility for compliance with all applicable provisions of Rhode Island laws relating to bidding, award, and performance of public works contracts is the Contractor's. Certified true and complete copies of any Rhode Island laws and regulations may be obtained from the Office of the Rhode Island Secretary of State.

R.I.G.L.
Title, Chapter, Section EXCERPT

5-6-2 WORK FOR WHICH LICENSE REQUIRED
"No person, firm, or corporation shall enter into, engage in, or work at the business of installing wire, conduits, apparatus, fixtures and other appliances for carrying or using electricity for light, heat or other purpose, unless such person, firm or corporation shall have received a license and certificate therefore, issued by the State Board of Examiners of Electricians."

28-26-6 LICENSE REQUIRED FOR OPERATION OF HOISTING MACHINERY - PUBLIC CONTRACTS

"No persons shall operate or be in direct charge of a hoisting or excavation gasoline, steam, diesel, electric or compressed air hoist, shovel, crane, excavator, of five horsepower or more without obtaining a license to do so as provided in this chapter. No user or agent of use of any such described steam, gasoline, diesel, electric or compressed air hoisting machinery shall permit it to be operated unless it is operated by a duly licensed person as hereinafter provided by this chapter.

Every contract in the construction of public works by the State, or by any City of Town, or by persons contracting therewith for such construction, shall contain a clause embodying the provisions of this section."

Chapter 116

From Chapter 116 of the General Laws of Rhode Island, 1938, relative to the condition's precedent, etc., to carrying on business within this State by foreign corporations:

"The certificate and power of attorney mentioned in the General Corporation Law, properly filled out, subscribed and sworn to, and accompanied by a certified copy of the Charter, articles of association or other similar organization papers, together with all amendments thereto, must be filed in the office of the Secretary of State by all foreign corporations intending to carry on business within this State, or for a foreign corporation to enforce in the courts of this State any contract made within the State."

Detailed information regarding Chapter 116 of the General Laws of Rhode Island, 1938, relative to the condition's precedent, etc., to carrying on business within this State for foreign corporations may be obtained from the Secretary of State, State House, Smith Street, Providence, Rhode Island.

Title 37 (chapters as provided at the end of this Specification Section.)

1.6 REQUIREMENTS FOR MINORITY BUSINESS ENTERPRISE, EQUAL OPPORTUNITY AND NONDISCRIMINATION

A. Contracts for work under the bid (proposal) will obligate the contractors and subcontractors not to discriminate against in employment practices.

B. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, handicap, or national origin. The Contractor shall take affirmative action to ensure that applicants are employed, and the employees are treated during employment without regard to their race, color, religion, sex, age, handicap, or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading, demotions, or transfers; recruitment or recruitment advertising, selection for training including apprenticeship; and participation in recreational and educational activities. The Contractor agrees to post in conspicuous places available to employees and applicants for employment, notice to be provided, setting forth the provisions of this non-discrimination clause. The Contractor will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this Contract so that such provisions will be binding upon each subcontractor and upon subcontractors for standard commercial supplies or raw materials.

C. The Contractor shall keep such records and submit such reports concerning the racial and ethnic origin of applicants for employment and employees as the Owner may require as consistent with Federal and State law.

D. The Contractor agrees to comply with such rules, regulations, or guidelines as the State of Rhode Island may issue to implement these requirements. The Contractor further warrants that it will comply with, Title VI of the Civil rights Act of 1964, 42 U.S.C. 200d to d4.

E. Contractors shall comply with the provisions of the General Laws of Rhode Island and attention is called to Title 37, Chapter 13, Section 1-16, relative to the payment of wages, obligations and charges by Contractors on public works projects. Non-resident Contractors are subject to Section 44-1-6 of the RI General Laws, as amended, regarding OUT-OF-STATE CONTRACTORS.

F. The Contractor will be required to comply with Equal Opportunity Requirements and to abide by the prevailing wage rates for Public Works Projects for all employees on the job. It is the responsibility of contractors to inform themselves as to the local labor conditions, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustment of wage rates. Information is available at the Department of Labor.

G. The City of Pawtucket supports goals regarding Minority Business Enterprises (MBE) and Woman's Business Enterprises (WBE) participation. This project does not have a minimum MBE/DBE requirement.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Reference material, abbreviations, and terms used in the Construction Documents and establishes edition dates and complete titles for standards referenced elsewhere in the Specifications.

1.2 QUALITY ASSURANCE

A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Obtain copies of standards when required by Contract Documents.

C. Maintain copy at jobsite during submittals, planning, and progress of the specific work, until Substantial Completion.

D. Should specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

E. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 SCHEDULE OF REFERENCES

AA Aluminum Association
818 Connecticut Ave. N.W.
Washington, DC 20006

AASHTO American Association of State Highway and Transportation Officials
444 North Capitol Street, N.W.
Washington, DC 20001

ACI American Concrete Institute
Box 19150
Reford Station
Detroit, MI 48219

AFBMA Anti-Friction Bearing Manufacturers Association

AGC Associated General Contractors of America
1956 E Street, N.W.
Washington, DC 20006

AGM American Gear Manufacturers Association

AI Asphalt Institute
Asphalt Institute Building
College Park, MD 20740

AISC American Institute of Steel Construction
400 North Michigan Avenue
Eighth Floor
Chicago, IL 60611

AISI American Iron and Steel Institute
1000 16th Street, N.W.
Washington, DC 20036

AMCA A ir Movement and Control Association
30 West University Drive
Arlington Heights, IL 60004

ANS American National Standard

ANSI American National Standards Institute
1430 Broadway
New York, NY 10018

API American Petroleum Institute

ARI Air-Conditioning and Refrigeration Institute
1501 Wilson Boulevard
Arlington, VA 22209

ASCE American Society of Civil Engineers
345 East 47th Street
New York, NY 10017

ASHRAEAmerican Society of Heating, Refrigerating and
Air Conditioning Engineers
1791 Tullie Circle, N.E.
Atlanta, GA 30329

ASME American Society of Mechanical Engineers
345 East 47th Street
New York, NY 10017

ASPA American Sod Producers Association
4415 West Harrison Street
Hillside, IL 60162

ASTM American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

AWG American or Brown and Sharpe Wire Gage

AWPA American Wood-Preservers' Association
7735 Old Georgetown Road
Bethesda, MD 20014

AWS American Welding Society

AWWA American Water Works Association
6666 West Quincy Avenue
Denver, CO 80235

BIA Brick Institute of America
11490 Commerce Park Drive
Reston, VA 22091

CS Commercial Standard

EJCDC Engineers' Joint Contract Document Committee
American Consulting Engineers Council
1015 15th Street, N.W.
Washington, DC 20005

FM Factory Mutual System
1151 Boston-Providence Turnpike
PO Box 688
Norwood, Massachusetts 02062

Fed Spec. Federal Specification
General Services Administration
Specification and Consumer Information Distribution Section
(WFSIS)
Washington Navy Yard, Bldg. 197
Washington, DC 20407

IBR Institute of Boiler and Radiator Manufacturers

ICBO International Conference of Building Officials
5360 S. Workman Mill Road
Whittier, CA 90601

IPS Iron Pipe Size

JIC Joint Industry Conference Standards

MIL Military Specification
Naval Publications and Forms Center
5801 Tabor Avenue
Philadelphia, PA 19120

NASSCO National Association of Sewer Service Companies
101 Wymore Road, Suite 521
Altamonte, FL 32714

NBS National Bureau of Standards

NCMA National Concrete Masonry Association
PO Box 781
Herndon, VA 22070

NCPWB National Certified Pipe Welding Bureau

NEMA National Electrical Manufacturers' Association
2101 'L' Street, N.W.
Washington, DC 20037

NFPA National Fire Protection Association
Battery March Park
Quincy, MA 02269

NPT National Pipe Thread

OS&Y Outside screw and yoke

PCA Portland Cement Association
5420 Old Orchard Road
Skokie, IL 60077

SMACNA Sheet Metal and Air Conditioning Contractors' National Assoc.
8224 Old Court House Road
Vienna, VA 22180

Stl. WG U.S. Steel Wire Washburn and Moen, American Steel and Wire
or Roebling Gage

UL Underwriters' Laboratories, Inc.
333 Pfingston Road
Northbrook, IL 60062

USS Gage United States Standard Gage

125-lb. ANS American National Standard for Cast-Iron Pipe Flanges and Flange
250-lb. ANS Fittings, Designation B16.1-1975, for the appropriate class

1.4 EDITION DATES

A. Reference to publications and reference material shall be understood to mean the latest edition, unless stated otherwise.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for project meetings.

1.2 PRECONSTRUCTION CONFERENCE

A. The Engineer will schedule and administer a pre-construction conference.

B. The pre-construction conference will be scheduled and administered within seven (7) calendar days after the dated "Notice to Proceed". The Contractor shall be prepared to address such topics as projected construction sequences and schedules, major personnel, critical work areas, construction facilities, critical path components and shop drawing submittals.

1.3 PROGRESS MEETINGS

A. The Engineer will schedule and administer progress meetings and specially called meetings throughout the duration of the Work at minimum monthly intervals.

B. The time and location of such meetings shall be designated by the Engineer and shall be convenient for all parties involved.

C. The Engineer will prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies to participants, and those affected by decisions made.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for submission of schedules, product and manufacturers' data, and shop drawings.

1.2 PROGRESS SCHEDULE

A. Special attention is directed to the requirement that the Contractor shall start the work, within fourteen (14) calendar days after execution of the Contract Documents, and the Contractor shall submit to the Engineer for review a construction progress schedule conforming to requirements specified. This schedule should show the proposed dates of commencement and completion of each of the various subdivisions of work required under this Contract and the anticipated monthly percentage of completion based on the total contract price. The Contractor shall be responsible for updating and/or revising this schedule whenever directed by the Engineer throughout the duration of the Contract.

B. Special attention is directed to the requirement that the Contractor shall start the Work, as specified under this Contract, no later than thirty (30) calendar days after the execution of the Contract Documents, unless otherwise directed by the Owner. The Contractor shall comply with all pre-construction requirements as specified. The Owner reserves the right to delay the commencement of the Work or any part thereof if the specified requirements as determined by the Engineer have not been satisfied. The Owner further reserves the right to limit or, delay construction, or certain activities thereof, in certain areas of the Contract should the Owner deem it to be in the public's best interest and/or safety to do so.

C. The Contractor shall contact the appropriate town or city authorities concerning any public or semi-public events that may occur during the construction period that may affect construction. The Contractor alone shall be responsible for arranging his construction sequence to conform to any restrictions these events may impose. No claims for extras will be allowed because of any delay, extra materials handling, extra excavation, etc. caused by the imposed restrictions. However, additional time may be granted for completion of the work to compensate for delays caused by said restrictions.

1.3 SHOP DRAWINGS

A. Submit four (4) copies of all shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated especially for the Contract, and materials and equipment for which such drawings are specifically requested.

B. A maximum of two (2) submittals of each shop drawing will be reviewed by the Engineer. If more submittals are required due to the Contractor's neglect or failure to fulfill the requirements of the Contract plans and specifications, or to make corrections or modifications required by the Engineer in the review of the first two submittals, the Engineer will review the submittal and the Contractor will be responsible for the cost of the review, as determined by the Owner based on

the Engineer's documentation of time and rates for additional services established in the Engineering Agreement between the Owner and the Engineer.

C. If resubmittals on shop and working drawings are required, the Engineer will retain two (2) copies and two (2) copies will be returned to the Contractor. When resubmittals are returned to the Engineer, six copies of the complete submittal shall again be required.

D. Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When the dimensions are of particular importance, or when specified, the drawings shall be certified by the manufacturer or fabricator as correct for the Contract.

E. When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted in place of shop and working drawings.

F. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings to eliminate delay to the Work due to the absence of such drawings. All shop and working drawings must be submitted to the Engineer within fourteen (14) calendar days prior to incorporation into the Work, unless otherwise permitted by the Engineer. Prior to the submittal of any shop drawings, the Contractor shall submit a schedule of proposed shop drawing transmittals. The schedule shall identify the subject matter of each transmittal, the corresponding specification section number and the proposed date of submission. Prior to and during the progress of the Work the schedule shall be revised and resubmitted as requested by the Engineer.

G. No material or equipment shall be purchased or fabricated for the Contract until the required shop and working drawings have been submitted as hereinabove provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings.

H. Until the necessary review has been made, the Contractor shall not proceed with any portion of the Work (such as the construction of foundations) for which review is required.

I. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop and working drawings. All drawings shall be clearly marked with the names of the Owner, Contractor, and building, equipment, or structure to which the drawing applies, and shall be suitable numbered. Submitted shop drawings shall be accompanied by a letter of transmittal, completed by the Contractor as approved by the Engineer.

J. Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer; other drawings shall be returned for correction.

K. If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal.

L. The review of shop and working drawings by the Engineer will be general only, and nothing contained in this Section shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance as specified. The Contractor shall be responsible for errors and omissions in shop drawings.

M. Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires, appurtenances, or layouts etc., either existing or as detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the Owner, shall do the work necessary to make such modifications.

N. The Contractor shall furnish additional copies of shop drawings or catalog cuts when so requested.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for Contractor's quality control of products, suppliers, manufacturers, services, site conditions, and workmanship, to produce Work of specified quality.

1.2 QUALITY ASSURANCE/CONTROL OF INSTALLATION

A. Where indicated provide full shop drawings designed and engineered by a professional engineer licensed in the state of Rhode Island.

B. Comply fully with manufacturers' instructions, including each step in the installation sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Wall work shall be overseen and performed by qualified and experienced personnel.

F. Persons utilized in the construction and fabrication of the work shall be able to produce workmanship of the shown and specified quality.

G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.3 FIELD SAMPLES

A. Install field samples at the site as required by individual specifications sections for review.

B. Acceptable samples represent a quality level for the Work.

C. Where field sample is specified to be removed, clear area only after field sample has been accepted by the Engineer.

1.4 CERTIFIED WELDERS

A. Structural welds shall be made only by operators who have been qualified by tests, as prescribed in the "Standard Qualification Procedure" of the American Welders Society, to perform the type of work required.

B. Pipe welds shall be made only by operators who have been qualified by the National Certified Pipe Welding Bureau and each operator's qualification record shall be submitted to the Engineer before any work is performed.

C. Shop welding shall be in accordance with the "Code for Welding in Building Construction".

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Qualification, duties and responsibilities of testing laboratories.
2. Coordination and scheduling responsibilities of the Contractor.

B. Related Sections

1. Section 01020 - Allowances
2. Section 01600 - Materials and Equipment

1.2 PAYMENT PROCEDURES

A. Initial Testing

1. Testing will be performed as required by the Engineer. The Owner will conduct testing for purposes of verifying conformance of the Work.

B. Re-Testing

1. When initial tests indicate noncompliance with the Contract Documents, subsequent retesting occasioned by the noncompliance shall be performed by the same testing agency.

C. Contractors Convenience Testing

1. Inspecting and testing performed exclusively for the Contractor's quality control purpose and for conformance with the specifications in regard to scheduling and the cost of the testing shall be the sole responsibility of the Contractor.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. E329, Agencies Engaged in Construction Inspection and/or Testing

1.4 REQUIREMENTS

A. Work included:

1. Cooperate with the Owner's selected testing agency and all others responsible for testing and inspecting the Work.
2. Provide other testing and inspecting as specified to be furnished by the Contractor in this Section and/or elsewhere in the Contract Documents.

3. Where no testing requirements are described, but the Owner directs testing, the Contractor shall provide testing under the requirements of this Specification.

B. Work not included:

1. Selection of testing laboratory: The Owner will select a qualified independent testing laboratory.

1.5 QUALITY ASSURANCE

A. Qualifications

1. The testing laboratory will be qualified to the Owner's approval in accordance with ASTM E329.

B. Regulatory requirements

1. Testing, when required, will be in accordance with all pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.

C. Regulatory Requirements Inspections and tests required by codes or ordinances, or by a plan approved authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

1.6 DELIVERY, STORAGE, AND HANDLING

A. The Contractor shall comply with pertinent provisions of Section 01600 - Materials and Equipment.

B. The Contractor shall promptly process and distribute, to the Engineer, required copies of test reports and instructions received to ensure necessary retesting and replacement of materials with the least possible delay in progress of the Work.

1.7 SCHEDULING

A. Establishing schedule

1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.

2. Provide all required time within the construction schedule.

3. Coordinate testing activity with the appropriate testing laboratory.

B. Revising schedule

1. When changes of construction schedule are necessary during construction, coordinate all such changes with the testing laboratory as required.

C. Adherence to schedule

1. When the testing laboratory is ready to test according to the established schedule but is prevented from testing or taking specimens due to incompleteness of the Work, all extra

charges for testing attributable to the delay may be back-charged to the Contractor and shall not be borne by the Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Site Tests

1. Coordinate Testing with scheduled work operations and the Engineer. Representatives of the testing laboratory shall have access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its functions properly.
2. All specimens and samples for testing, unless otherwise provided in the Contract Documents, shall be taken by the testing personnel. All sampling equipment and personnel will be provided by the testing laboratory. All deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.
3. Sieve and Proctor analysis will be performed as requested by the Engineer for in-situ aggregate to be used in the Work. Sieve and Proctor analysis to be stamped and signed by a Professional Engineer registered in the State of Rhode Island.
4. Sieve analyses are required for all aggregate and soils delivered to the job site to be used in the Work. Sieve analysis to be stamped and signed by a Professional Engineer registered in the State of Rhode Island. Contractor is responsible for sieve analysis for this purpose.
5. Sample all imported soils and aggregates at a minimum frequency of one (1) per one thousand cubic yards each to verify materials free of contamination. The material shall be tested for the following: volatile organic compounds (VOC's) (EPA method 8260), Poly-Nuclear Aromatic Hydocarbons (PAH's) (EPA method 8270), total Petroleum Hydrocarbons ((TPH), and RCRA 8 Metals.
6. If identified by Engineer and based on results of field testing, soil compaction testing for paved areas shall be performed for every 1,800 square feet of pathway, but no less than two tests per segment.
7. Asphalt compaction testing each day permanent bituminous concrete is placed. Testing shall be provided for every 150 linear feet of path and 1,500 square feet of parking lot, minimum of two tests segment of path and one test within the parking lot.

END OF SECTION

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SECTION 01560

TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Project Understanding: The Contractor shall note the work occurs on public land and includes operations within City owned streets and sidewalks. Sidewalk areas and travel lanes may be required to be temporarily closed during some construction operations. Protect the public by establishing and maintaining barricades, fencing and signage alerting the public to the work activities.

B. Site Access: Site access requires sharing driveway entrances and portions and existing parking lots.

C. Site Context: Environmental site investigations conducted at the Site (2013 SIR/TBA, 2018 Addendum, 2021 Supplemental SI) identified widespread historic urban fill containing total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), and certain metals (arsenic and lead) in soil at concentrations exceeding RIDEM Residential Direct Exposure Criteria (RDEC). Based on these findings, the entire Site is classified as an Area of Environmental Concern (AOEC) and all soils encountered shall be treated as Controlled Materials requiring management in accordance with the RAWP and associated documents.

The Contractor is hereby notified that Controlled Materials requiring special management will be encountered during construction. Contractor shall implement a site-specific Health and Safety Plan (HASP) meeting 29 CFR 1910.20 and the SMP provided in the RAWP. These measures shall include, but are not limited to, engineering controls, personal protective equipment and decontamination, equipment decontamination, and personnel training. WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

1.2 CLEANING DURING CONSTRUCTION

A. Unless otherwise specified under the various trade Sections of the Specifications, the General Contractor shall perform clean-up operations during construction as herein specified.

1. Control accumulation of waste materials and rubbish; periodically dispose of off-site. Bear all costs, including fees resulting from disposal.
2. Clean areas prior to start finish work and maintain areas free of dust and other contaminants during finishing operations.
3. Maintain project in accordance with all local, State and Federal Regulatory Requirements.
4. Store volatile wastes in covered metal containers and remove from premises.
5. Prevent accumulation of wastes that create hazardous conditions.
6. Provide adequate ventilation during use of volatile or noxious substances

B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

1. Do not burn or bury rubbish and waste materials on site.
2. Do not dispose or volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
3. Do not dispose of wastes into streams or waterways.
4. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
5. Use only those cleaning materials and methods recommended by manufacturers of surface material to be cleaned.
6. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and wind blown debris, resulting from construction operations.
7. Provide on-site containers for collection of waste materials, debris, and rubbish.
8. Remove waste materials, debris, and rubbish from the site periodically and dispose of at legal disposal areas off the construction site.
9. Handle material in a controlled manner with as little handling as possible. Do not drop or throw materials from heights.
10. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not damage surrounding surfaces.
11. During its progress, the work and the adjacent areas affected thereby shall be kept cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
12. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes, structures, work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc. shall, upon completion of the work, be left in a clean and neat condition.

1.3 DUST CONTROL

A. Provide adequate means for the purpose of preventing dust caused by construction operations throughout the period of the construction contract.

B. This provision does not supersede any specific requirements for methods of construction or applicable aspects of Section 12 General Conditions for performance obligations of the General Contractor.

1.4 EROSION AND SEDIMENT CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Minimize amount of bare soil exposed at one time.

C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.

D. Construct fill and waste areas by selective placement to avoid erosive surface silts for clays.

E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

F. Construct sediment control devices for discharge from dewatering trenches.

G. Construct all sedimentation control devices shown on the plans and as directed by the Engineer.

1.5 NOISE CONTROL

A. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.

B. Execute construction work by methods and by use of equipment which will reduce excess noise.

C. Equip air compressors with Silencers and power equipment with mufflers.

D. Avoid prolonged noise as well as loud noise. Manage movement of equipment, delivery vehicles, and site operations to minimize noise. Coordinate with vehicular traffic flow and work activities to reduce noise.

1.6 POLLUTION CONTROL

A. Special care shall be taken to prevent contamination or muddying or interfering with the Blackstone River.

B. No soil, sediment, debris or rubbish of waste matter of any kind will be allowed to discharge into the river.

1.7 SURFACE WATER CONTROL

A. Take all precautions to prevent damage to the work or equipment by high wind, high water and/or by storm events. The Engineer with the approval of the Owner may prohibit the carrying out of any work at any time when in his judgement, high water or storm conditions are unfavorable or not suitable, or at any time, regardless of the weather, when proper precautions are not being taken to safeguard previously constructed work or work in progress. No special compensation shall be made if the work is temporarily halted due to weather conditions.

B. In case of damage caused by the failure of the Contractor to take adequate precautions, the Contractor shall repair or replace equipment damaged and shall make such repairs or rebuild such parts of the damaged work, as the Engineer may require, at no additional expense to the Owner.

1.8 BARRIERS AND ENCLOSURES

A. Fences and Barricades

1. Stockpiling of materials on site shall be limited to crushed aggregate products without fines and non-erodible, inert construction materials. Materials on the site shall be fenced in the Location A as shown on the Plans. The fence shall become the responsibility of the Contractor and shall be removed at the completion of the project. Fencing may be adjusted to allow for site-work operations to flow smoothly.
2. Provide and maintain temporary fences, barriers, lights, guardrails, and barricades as indicated in the Contract Documents, or as necessary to secure the Work and adjacent property and protect persons and property.
3. The Contractor may obtain necessary approvals and permits and provide temporary expedients as necessary to accommodate tasks requiring items mentioned herein.

1.9 TEMPORARY PEDESTRIAN AND VEHICULAR TRAFFIC CONTROL

A. Maintain pedestrian and vehicular traffic flow in areas adjacent to the work site. Furnish a written phased construction pedestrian plan that details the sequences and duration of the proposed detour. The Contractor shall have sole responsibility for the protection, maintenance, and movement of both temporary pedestrian and vehicular traffic control devices.

B. All temporary detours and crosswalks shall comply with the Americans with Disabilities Act in all ways. Limit detours and disruption to sidewalks to the least amount of time necessary to complete the Work. Avoid long closures due to construction impacts over a large areas of sidewalks.

C. Note the following References:

1. Manual on Uniform Traffic Control Devices (MUTCD), latest edition, including all revisions.
2. Rhode Island Department of Transportation (RIDOT) Standard Specifications for Road and Bridge Construction, latest edition, including all revisions and RIDOT Standard Details, latest edition, including all revisions.

1.10 PROTECTION OF TREES

A. The Contractor shall take care not to harm trees along the sides of roads or within the existing facility in which the construction work is to be done or trees on adjacent lands except as indicated on the drawings or with the written permission of the Owner and any other owner of the trees involved. Care shall be taken not to cut tree roots so as to harm the growth of trees to remain.

1. If, in the opinion of the Engineer, any trees damaged during construction can be repaired, the Contractor shall satisfactorily repair same at no further cost to the Owner.
2. If, in the opinion of the Engineer, any tree damaged during construction cannot be repaired and should be removed, the Contractor shall satisfactorily remove and replace, in kind, same at no further cost to the Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 01570

TRAFFIC CONTROL

PART 1 - GENERAL

1.1 SCOPE

A. This Section specifies the general requirements for traffic regulation, minimum performance criteria for maintenance and protection of traffic, road closures, and coordination with other parties for the duration of the Work.

B. The Contractor shall be responsible for the maintenance and protection of traffic on public roadways impacted by its operations for the duration of the Work. The Contractor shall bear all costs for designing, furnishing, and maintaining traffic control facilities for the duration of the work.

C. The Contractor shall obtain permission from the City of Pawtucket to temporarily close lanes and for other temporary traffic control measures required in performing the Work. Variations to the Traffic Plans must be approved by the City of Pawtucket.

D. The Contractor shall coordinate its traffic control facilities with the schedule restrictions and construction operations of other parties as specified herein or as directed by the Engineer.

E. Related work described elsewhere:

1. Section 3.0 Project Overview

1.2 REFERENCE STANDARDS.

A. Federal Highway Administration, Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition.

B. Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction and all approved compilations.

PART 2 - PRODUCTS

2.1 TRAFFIC CONTROL DEVICES AND TEMPORARY MARKINGS.

A. Traffic devices and markings shall conform to Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction Divisions I & III.

B. FHWA Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition.

2.2 TRAFFIC CONTROL FACILITIES.

A. Temporary traffic control equipment shall be furnished by the Contractor at the start of construction, adjusted as needed throughout the course of the Work and removed or restored at the completion of the Work and shall include, but shall not be limited to traffic barriers, channelizing devices, signage, re-striping, work zone warnings and flashing arrow boards.

B. The Contractor shall restore all public highways and traffic control devices to a condition equal to, or better than that that existed prior to the Work.

C. Restore any traffic control loops damaged by the Contractors operations in accordance with RIDOT and/or City of Pawtucket requirements as applicable. Loops shall be restored within the time frame required by the City.

PART 3 - EXECUTION

3.1 MAINTENANCE OF TRAFFIC AND TRAFFIC CONTROL DEVICES.

A. The Contractor shall not close any State or City streets or rights-of-way without prior permission from the Rhode Island Department of Transportation and/or the City of Pawtucket. The Contractor shall maintain existing traffic flows to all areas adjacent to the work areas. The Contractor shall not close or obstruct any portion of a street, road, or private way that shall be rendered unsafe by the Contractor's operations. Instead, the Contractor shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.

B. Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for adequacy and safety of provisions made therefore.

C. The Contractor shall, as least seven (7) days in advance, notify the Engineer in writing if the closure of a street or road is necessary and at least two (2) days in advance, notify the Police and Fire Department in writing, with a copy to the Engineer. The Contractor shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

D. Throughout the duration of the Work, the Contractor shall maintain all temporary and permanent traffic control facilities, signs, barricades and other protective devices in a sturdy, clean, legible condition and at the locations designated by the MPOT Plan. The Contractor shall cover or remove signs not in use. Maintenance of devices will include repairing, adjusting, washing, repainting, and the re-application of reflective sheeting.

E. The Contractor shall maintain all sidewalks, crosswalks and accessways in accordance with the Americans with Disabilities Act (ADA) requirements. Provide clear and visible signage when conducting temporary closures.

F. Care shall be exercised such that weeds, shrubbery, and construction materials, equipment, and spoils do not obscure the message of any sign, light, or barricade.

G. No defective and/or damaged devices shall be installed. Devices showing defects or damage shall be either repaired or removed and replaced at no additional cost to the Owner.

H. Any and all costs, including Owner and Engineers costs, of fines levied for violation of any permit requirements which are a direct result of Contractor's performance or non-compliance with issues permits or applicable regulations shall be paid by Contractor at no cost to the Owner.

3.2 MAINTENANCE AND PROTECTION OF TRAFFIC (MPOT) PLAN.

A. The contractor shall prepare an MPOT coordinated with the schedule and desired sequencing of operations.

B. The MPOT plan shall be implemented so that the duration and physical extent of any temporary lane closure is minimized. The MPOT shall be designed to minimize the need for Police details.

3.3 POLICING

A. When, in the opinion of the Owner or the Engineer, public safety or convenience requires the services of police, the Engineer may direct the Contractor to provide manpower to direct traffic within the location of work under this Contract.

B. When so directed, the Contractor shall make all arrangements for obtaining the necessary manpower. All costs for policing will be paid by the Owner. The Contractor shall pay all incidental costs related to the coordination for these services.

C. The intent is to ensure public safety by police direction of traffic. Police are not to serve as watchmen to protect the Contractor's equipment and materials, or to warn pedestrians of such hazards as open trenches.

D. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property under the terms of the Contract.

3.4 PARKING

A. The Contractor shall be responsible for managing employee parking throughout the duration of the Contract. The Contractor shall secure and establish parking at work site in a legal and safe manner that does not adversely affect traffic flows on public roads.

B. The Contractor shall be responsible for coordinating the posting and all costs associated with the posting of No Parking signs.

3.5 ROAD MAINTENANCE AND SITE ACCESS.

A. Contractor shall establish entrances and exits to the site that conform to the Maintenance of Traffic Plans and are approved by the Engineer.

B. Contractor shall install and maintain wheel wash facilities at all site exits.

C. The Contractor shall retain the services of a street sweeper to remove all muck and dust tracked onto public roadways due to its operations. Sweeping shall be conducted to the satisfaction of the Engineer in accordance with the following:

1. Contractor to provide a motorized, driver operated, self-contained, debris and dirt collecting street sweeper once per week unless authorized otherwise by the Engineer.
2. Every street disturbed by the Contractors operations shall be swept on a weekly basis.
3. Additional street sweeping or application of calcium chloride shall be required to prevent nuisance dust conditions.
4. Should the Contractor fail to control dust, more frequent street sweeping shall be implemented.
5. The Contractor shall have full responsibility for dust control.

END OF SECTION

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SECTION 01600

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for delivery, storage, handling and installation of systems, materials, manufactured units, equipment, components, and accessories used in the work.

B. Related Sections

1. Section 01300 - Submittals

1.2 DELIVERY

A. Refer to Specifications' Sections for requirements pertaining to delivery and handling of materials and equipment.

B. Transport products by methods to avoid product damage; deliver in undamaged conditions in manufacturers' unopened containers or packaging, dry.

C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

D. Promptly inspect shipments to ensure that products comply with requirements, that quantities are correct, and products are undamaged.

1.3 STORAGE AND PROTECTION

A. Refer to Specifications' Sections for requirements pertaining to storage and protection of materials and equipment.

B. Store products in accordance with manufacturers' instruction, with seals and labels intact and legible. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturers' instructions.

C. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

E. Arrange storage to provide access for inspection. Periodically inspect to assure that products are undamaged and are maintained under required conditions.

1.4 INSTALLATION STANDARDS

A. Comply with Specifications and referenced standards as minimum requirements.

B. Components required to be supplied in quantity within a Specification Section shall be the same and shall be interchangeable.

C. Do not use materials and equipment removed from existing structures, except as specifically required, or allowed, by the Contract Documents.

D. Perform work by qualified people to produce workmanship of specified quality.

E. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

F. When work is specified to comply with manufacturers' instructions, submit copies as specified in Section 01300 - Submittals, distribute copies to persons involved, and maintain one set in field office.

G. Perform work in accordance with details of instructions and specified requirements.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01700

CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for specific administrative procedures, record keeping, close-out submittals, and forms used at substantial and final completion of the Work.

B. Contractor shall satisfy all administrative requirements within the Contract Documents and the Requirements listed in this section prior to Contract Close-out.

1.2 FINAL CLEANING

A. On or before the completion of the work, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.

B. The Contractor shall restore or replace, when and as directed, any public or private property damage by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end, the Contractor shall do as required, all necessary highway or driveway, walk and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration. The restoration of existing property or structures shall be done as promptly as practicable as work progresses and shall not be left until the end of the contract period.

C. Unless otherwise specified under the various Sections of the Specifications, the Contract or shall perform final cleaning operations as herein specified prior to final inspection.

D. At completion of work, remove waste materials, rubbish tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

E. Cleaning shall include all surfaces, interior and exterior in which the Contractor and all Subcontractors have had access whether existing or new.

F. Refer to Sections of the Specifications for cleaning of specific products or work.

G. Use only those materials which will not create hazards to health or property, and which will not damage surfaces.

H. Use only those cleaning materials and methods that are recommended by the manufacturer of surfaces material to be cleaned.

I. Employ experienced workmen, or professional cleaners, for final cleaning operations.

1.3 PROJECT RECORD DOCUMENTS

A. Project Record Documents also referred here as As-Built Drawings shall consist of all the contract drawings.

B. The Contractor and all Subcontractors shall be required to maintain one set of As-Built Drawings, as the work relates to their Sections of the Specifications, at the site.

C. As-Built Drawings shall be stored and maintained in the General Contractor's field office apart from other documents used for construction. The As-Built Drawings shall be maintained in a clean, dry, and legible condition and shall not be used for construction purposes.

D. As-Built Drawings shall be available at all time for inspection by the Engineer. All deficiencies noted shall be promptly corrected.

E. The following information shall be indicated on the As-Built Drawings for building construction:

1. Record all changes, including change orders, in the location, size, number, and type both horizontally and vertically of all elements of the projects which deviate from those indicated on all the contract drawings.

2. The tolerance for the actual location of utilities and appurtenances within the building to be marked on the As-Built Drawings shall be plus or minus two (2) inches.

3. The location of all underground utilities and appurtenances referenced to permanent surface improvements, both horizontally and vertically at ten (10) ft. intervals and at all changes of direction.

4. Each of the utilities and appurtenances shall be referenced by showing a tag number, area served and function on the As-Built Drawings.

5. Prior to the installation of all finish materials, a review of the As-Built Drawings shall be made to confirm that all changes have been recorded. All costs to investigate such conditions shall be borne by the applicable party as demonstrated by the Engineer.

F. At the end of each month and before payment for materials installed, the Contractor, and his Subcontractors, shall review As-Built Drawings for purpose of payment. If the changes in location of all installed elements are not shown on the as-built drawings and verified in the field, then the material shall not be considered as installed and payment will be withheld.

G. At the completion of the contract, each Subcontractor shall submit to the Contractor a complete set of his respective As-Built Drawings indicating all changes. The Contractor shall certify in writing on the title sheet of the drawings that they are complete and correct.

H. The Contractor shall submit a full Record Drawing Set prior to final inspection.

1.4 WARRANTIES

A. Comply with requirements of Section 01740 Warranties.

1.5 FINAL INSPECTION

A. The Contractor shall submit written certification that:

1. Project has been inspected for compliance with Contract Documents.

2. Equipment, utilities, signal and electrical systems have been tested in the presence of the manufacturer's representative and are operational and satisfactory.
3. Project is completed, and ready for final inspection.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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SECTION 01740

WARRANTIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. General administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.

1.2 SUBMITTAL

A. Submit written warranties to the Owner prior to the date fixed by the Engineer for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than a date of Substantial Completion for the Work, or a designed portion of the Work, submit written warranties upon request of the Owner.

B. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Owner prior to acceptance of this portion of the Work.

C. Refer to individual Sections of Division 2 through 16 for specific content requirements, and particular requirements for submittal of special warranties.

1.3 WARRANTY REQUIREMENT

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

E. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties that are not in conflict with requirements of the contract Documents.

F. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does

it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.4 DEFINITIONS

A. Standard Product Warranties are preprinted with written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01800

MAINTENANCE

PART 1 - GENERAL

A. SECTION INCLUDES

B. Procedures for maintaining work completed under this Contract.

1.2 MAINTENANCE PERIOD

A. The general maintenance period for all construction or materials under this Contract shall be one (1) year subsequent to the date of the acceptance of the work by the Owner, or as provided by other sections of this Specification.

B. If the Owner puts any structure or equipment to use prior to acceptance of all work under the Contract, the maintenance period for such structures or equipment shall be calculated from the time use begins.

C. Contractor agrees to replace the material which does not conform to the Contract requirements, and to repair any damage of material or work without cost to the Owner, to satisfaction of Engineer, in conformance with Contract Documents provided orders for replacement and/or repairs are received in writing by the Contractor within the one year period.

D. This Section shall in no way limit the duration of the Contractor's responsibility for the correction of any defect due to workmanship or materials provided by the Contractor which are not in compliance with the Contract Documents.

1.3 ABUSE OF WORK

A. Contractor is not obligated to perform work of replacement or repair that he may prove is required because of abuse by parties other than the Contractor, after the date the Owner puts to continuous use the work requiring replacements or repair, or after date the Owner has approved the Certificate of Completion.

1.4 EMERGENCY REPAIRS

A. If the Owner deems it necessary, the Owner shall order replacement or repairs be undertaken within 24 hours.

B. If the Contractor delays or fails to make the ordered replacement or repairs within the time specified, the Owner shall have the right to make such replacements or repairs and the expense shall be deducted from moneys due the Contractor, or moneys of the Contractor retained by the Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 02050

SITE PREPARATION

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

A. Site Preparation:

1. The Contactor shall furnish all labor, materials, equipment and services necessary for and incidental to the execution of all the site preparation depicted on the Drawings and as required to complete the project.
2. The work under this Section shall include but is not limited to the removal and legal disposal of the identified items. All work shall be done in a neat, workman-like manner.
3. Work includes:
    a. Protection and control of the work area and job-site
    b. Maintenance, protection, and installation of erosion controls.
    c. Establish project layout controls including construction benchmarks for locating the necessary construction baselines.
    d. Maintenance and protection of existing construction fencing and entrances.
    e. Limited tree removal, canopy pruning, root pruning.
    f. Tree protection and limited clearing and grubbing operations.

1.2 RELATED SECTIONS:

A. Section 01560 Temporary Controls

B. Section 02200 Earthwork

C. Section 03300 Cast-in-Place Concrete

1.3 SUBMITTALS:

A. Schedule of Work: The Contractor shall submit a site preparation plan outlining proposed methods and sequences for conducting the work. The plan shall detail specific measures to secure the work area and sequence activities to minimize soil disturbance.

B. Submit Manufacturer’s Product Data sheets for all products listed. Comply with Section 01300.

1.4 JOB CONDITIONS:

A. Protect the condition of existing Narragansett Bay Commission infrastructure and City infrastructure. It is the Contractor’s responsibility to notify the Engineer if defective or failing infrastructure is identified in the course of site preparation activities. Conditions existing at time of inspection for bidding purposes will be maintained by the Owner insofar as practicable up to

start of construction. Work or features that are damaged by the Contractor shall be restored at the Contractor's expense to the complete satisfaction of the Owner.

1.5 TESTING

A. Not Used.

1.6 PROTECTIONS:

A. Existing site features: The Contractor shall utilize barriers and fencing and take all necessary precautions to ensure the local facilities, structures and equipment noted to remain are not damaged and remain in good shape and functional. Protect existing pavement / pathways / roadway surfaces from heavy equipment. Protect trees, light poles, Signal arms, manholes, signs and electrical cabinets, as well as any other items noted to remain in place. Any items to remain that are damaged by the Contractors operations during construction of the Work shall be repaired to their original condition or replaced with new.

B. Work or features shown to remain that are damaged by the Contractor shall be restored at the Contractor's expense to the complete satisfaction of the Owner. Remove and salvage all noted elements.

C. The Contractor shall follow the procedures outlined by the local, state and federal agencies regulating the project and in accordance with the permitting documents.

PART 2 - PRODUCTS

2.1 HIGH VISIBILITY, REFLECTIVE CONSTRUCTION SIGNS

A. Per RIDOT Standard Specifications, Section M.16 Signs and Sign Supports.

B. Signs as follows in the quantity shown on plans:

C. Construction Signs shall be 36"x36" in size, orange background with black lettering.

D. Regulatory sign (Type V) shall be 30"x30" in size red background with white symbol and black lettering.

2.2 COMPOST FILTER TUBE

A. Compost Filter Tube size shall be 12" diameter and conform to the plans and details.

B. Filter Tube 'sock' shall be bio-degradable, tubular, knitted mesh containing the media.

C. The compost media shall be approximately 70% partially decomposed wood chips.

D. The compost media shall be approximately 30% weed-free compost.

E. 100% of the media shall pass 2" sieve, with 30% passing 3/8" sieve.

2.3 CATCH BASIN EROSION CONTROL

A. The erosion control shall be manufactured of ultra-violet light stable, durable woven polypropylene fabric.

B. The erosion control shall be designed to collect sediment and debris while allowing water to pass through and enter the storm drainage system. The fabric shall be rated for a minimum flow rate of 150 gpm.

2.4 EXISITNG CONSTRUCTION CHAIN LINK FENCE WITH GATES

A. Temporary fence currently exists to protect the site from access from the public streets and sidewalks as well as from the private parking lot.

B. If approved by the Owner, the existing gates and fencing can be re-configured for equipment access or contractor operation. Contractor shall be responsible for all labor and materials to reconfigure the gate and fencing. Gates shall be secured with a padlock at the close of each workday.

PART 3 - EXECUTION

3.1 OPERATIONAL ACTIVITIES

A. The Contractor shall schedule and conduct a site preparation walk-through meeting on site to review constraints, items to be removed, and coordinate the Work.

B. The Contractor shall restrict public access to the site during construction. Protect the Work and areas of operation from public access. Establish the necessary limits of temporary chain link fencing at the contractor's need and discretion. Any products furnished to the site intended for use shall be secured and protected.

C. Establish erosion controls on site. Utilize compost tubes when working in areas that require frequent re-positioning due to construction operations. Position to protect areas down-gradient from areas of excavation and disturbance. All preparation shall be conducted with care not to damage roadways, sidewalks and existing features shown to remain in place. Maintain the erosion controls in good condition throughout the duration of the project.

D. The Contractor shall establish traffic and site access protection in coordination with the Owner and as shown on the plans.

E. The Contractor shall remove all existing items designated for removal in their entirety, or to the line and grade shown on the drawings or specified herein.

F. During operations, the Contractor shall limit dust to the lowest practical level by wetting surfaces. Do not allow dust to leave the site.

G. Debris shall not be allowed to 'track' off the site onto the roadways and parking lots.

3.2 DISPOSAL OF MATERIALS:

A. General: All surplus material resulting from work shall become the property of the Contractor except as specified otherwise. It shall be properly and legally disposed of at the Contractor's own expense as work on the project continues. The disposal method shall be in accordance with all federal, state, and local requirements, as well as subject to the acceptance of the Owner's Representative and Owner. Conform to the requirements of the Executed Agreement.

B. Remove all pavement, rubble, stones, debris and refuse encountered in the site preparation process. Restore the site to the pre-existing conditions or as proposed on the plans.

C. The Contractor shall dispose of all materials generated thru the work operations legally, in an off-site location. The Contractor shall provide certification of material disposal compliance to the Engineer.

D. At the completion of the Work, remove all traffic protections. Clean and sweep the adjacent roadway to the curb line at the entrance to the site.

3.3 TREE AND SHRUB CONSERVATION MEASURES

A. Site preparation requires work to existing trees and shrubs within the project area.

B. Refer to Section 02935 for specifications related to canopy pruning, root pruning and temporary transplanting measures.

END OF SECTION

SECTION 02100

SITE CLEARING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for removal of vegetation and topsoil at the site.

1.2 DEFINITIONS

A. Clearing: Removal of trash, vegetation, or organic matter alive or dead.

B. Grubbing: Removal of vegetation including stumps, buried logs and roots.

C. Scalping: Removal of grass turf to a depth of 3 inches.

D. Stripping: Removal of top soil after scalping operation is complete.

1.3 QUALITY ASSURANCE

A. Obtain Engineer's approval of staked work limits prior to starting the clearing, grubbing, and stripping.

1.4 PROJECT/SITE CONDITIONS

A. Environmental Requirements

B. Install erosion and sediment controls prior to starting the Work.

C. Existing Conditions

1. Temporarily remove property improvements, to the minimum extent necessary, to complete the work and restore improvements to condition which existed prior to construction.

PART 2 - PRODUCTS

2.1 EXISTING PRODUCTS

A. Chips from cleared trees and brush.

PART 3 - EXECUTION

3.1 PROTECTION

A. Do not cut or injure any trees or other vegetation outside the limits of disturbance, as indicated on the drawings.

B. Trees, shrubbery, or planting along the traveled highways or roads, shall not be removed except with the written approval of the Engineer.

C. Preserve certain vegetation such as trees, shrubs, hedges and plants within the construction area, as indicated on the drawings to be protected.

D. Easement Clearing

1. The Engineer shall designate trees to be removed within easement lines.

E. Work in Improved Property

1. Protect trees, cultivated hedges, lawns, shrubs, and plants that might be damaged by the Contractor's operations.

2. Temporarily replant and care for trees less than 4 inches in diameter that would be damaged by the construction operation. After the construction operations have been substantially completed, replant in their original positions and care for until growth is reestablished. If trees, cultivated hedges, lawns, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced at the Contractor's expense by items of kind and quality existing at the start of the work.

3. Do such handwork as may be required to prevent damage to buildings and improvements.

4. Protect fences and stone walls and if needed to be removed to facilitate construction or if damaged, upon completion of the work, properly restore or repair to at least as good condition as existed prior to start of the work.

3.2 CLEARING

A. Cut or remove all trees, saplings, brush, and vines, windfalls, logs, and trees lying on the ground, dead trees and stubs more than 1 foot high above the ground surface.

B. Except where clearing is done by uprooting with machinery or where stumps are left longer to facilitate subsequent grubbing operations, trees, stumps, and the stubs to be cleared shall be cut as close to the ground surface as practicable, but no more than 6-inches above the ground surface in the case of small trees, and 12-inches in the case of larger trees. Saplings, brush, and vines shall be cut off close to the ground.

C. Selective Trimming

1. Cut back limbs and branches of trees to be preserved only to the extent necessary for construction.

2. Trim neatly, and cleanly so that the remaining tree will not be damaged, and healing will be facilitated. Where limbs and branches over 1 inch in diameter have been cut, the newly cut area of the tree shall be given a thorough application of approved tree-healing paint.

3.3 GRUBBING

A. Remove completely all stumps.

B. Remove to a depth of 12-inches all roots larger than 3-inches in diameter.

C. Remove to a depth of 6-inches all roots larger than 1/2-inches in diameter.

D. Measure depths from the existing ground surface or the proposed finished grade, whichever is the lower.

3.4 STRIPPING

A. Strip topsoil, loam and unsuitable earth from the ground surface in areas cleared and grubbed.

B. Utilize topsoil and loam, where possible, for finished surfacing.

C. All loam to remain on site.

D. Dispose of unsuitable materials off site at authorized disposal location.

3.5 DISPOSAL OF CLEARED AND GRUBBED MATERIALS

A. Dispose of cleared and grubbed materials off site at authorized disposal location.

B. Such disposal shall be carried on as promptly as possible after removal of material in the clearing and grubbing operations and shall not be left until the final period of cleaning up.

C. Elm bark whether stripped from the wood or intact with the wood shall be either buried at least 1 ft. below grade in approved dumping areas or burned in a suitable incinerator off-site with satisfactory anti-pollution and fire prevention controls to prevent the spread of Dutch Elm Disease.

END OF SECTION

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SECTION 02160

EXCAVATION SUPPORT

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor shall properly design and furnish all labor and materials necessary and shall construct complete, all sheeting, bracing supports, and appurtenances required to perform the Work including sheet piling for construction of structures and buildings, trench support and cofferdams, permanent and temporary alike, as indicated on the Drawings and specified or as otherwise directed by the Engineer or required by agencies having jurisdiction over the Work.

B. Wood timber or steel sheeting shall be used except where otherwise indicated, specified or directed by the Engineer and agencies having jurisdiction over the work.

1.2 DESIGN RESPONSIBILITY

A. The Contractor shall be fully responsible for providing complete and adequately designed sheeting as required and/or directed by the Engineer in accordance with the provisions set forth herein. The sheeting shall be designed to resist hydrostatic pressures in accordance with the Contractor’s dewatering design.

B. The Contractor shall engage, at his own expense, the services of a fully competent and qualified Professional Engineer, hereinafter referred to as the "Contractor's Engineer", registered in the State in which the Work is being constructed, for the design of all sheeting requirements to accomplish the Work specified, and for supervising the proper on-site installation associated therewith. The Contractor's Engineer shall be acceptable to the Engineer and demonstrate a minimum of ten (10) years documented experience in the field of sheeting design and implementation. Prior to the actual employment of the Contractor's Engineer, the Contractor shall submit to the Engineer, to the full extent deemed necessary, a detailed resume stating the Contractor's Engineer's professional qualifications, related experience and references, and if requested, examples of work similar to that required for the Work specified, for a general review by the Engineer and a means of documenting the requisite experience hereinbefore specified. Only after a satisfactory review of the Contractor's Engineer's overall qualifications by the Engineer in fulfillment of the requisite experience hereinbefore specified shall the Contractor finalize such employment and begin the design aspects of the Work.

C. The Contractor's attention is directed to the fact the acceptance of the Contractor's Engineer and/or his/her qualifications by the Owner and/or Engineer shall not be an overall approval of the Contractor's Engineer nor the sheeting designs and methods of installation employed during the Work. It being understood that all sheeting requirements necessary to accomplish the Work specified and/or indicated on the Drawings shall be designed by and installed under the direct supervision of the Contractor's Engineer who shall ultimately and fully bear the responsibility for that Work.

1.3 QUALITY ASSURANCE

A. The Contractor's Engineer shall provide and maintain throughout the sheeting installation and/or Work sufficient supervision and technical guidance to the Contractor for proper sheeting materials, equipment, operations and methods to the extent necessary to assure strict compliance with the Contractor's Engineer's design, all safety procedures and standard requirements for such Work, and the successful completion of the Work. Failure to provide and/or maintain such supervision and/or technical guidance during the Work shall in no way relieve the Contractor's Engineer and/or the Contractor from their overall responsibilities and obligations under the Contract, nor shall it be a basis for any claim by either against the Owner and/or Engineer.

B. The Contractor and Contractor's Engineer shall fully indemnify and save harmless the Owner and Engineer and their agents, employees and representatives, from and against any and all claims as stipulated under the Agreement, whether directly or indirectly arising out of, relating to or in connection with the Work.

C. Quality assurances and proper safety procedures must be maintained at all times and be in strict accordance with the Contractor's Engineer's requirements and consistent with all federal, state and local regulatory agencies having jurisdiction over the Work. Should any conflict in requirements, regulations, restrictions or codes exist between that which is specified by the Contractor's Engineer and any federal, state or local agency, the more stringent application shall prevail.

1.4 PRODUCTS AND DESIGN CRITERIA

A. The overall sheeting design, quality of materials and methods of installation for all sheeting applications necessary to accomplish the Work specified shall be consistent with the established standards of the construction industry and must, as a minimum, comply with the requirements for earth support systems for excavations as defined by current US Department of Labor, Occupational Safety and Health Act (OSHA) regulation applicable thereto, and any other federal, state and local agencies having jurisdiction and/or requirements pertaining thereto including Building Code requirements for the State in which the work is being performed. The design and implementation thereof shall be in accordance with sound engineering practice and modern accepted principles of soil mechanics and shall include the effects of hydrostatic forces and all surcharge loads which may be reasonably anticipated. The methods employed shall be to the extent necessary to permit the proper and satisfactory installation and construction of the Work specified; to withstand all loads and forces encountered; to provide soil restraint and control of water as required; to insure the safety of the workers and all other personnel on or near the site; to prevent injurious caving or erosion, or loss of ground; to maintain at all times proper and safe pedestrian, vehicular traffic on public and private streets, property and rights-of-way; and to stabilize unforeseen areas of work encountered during the execution of the Work as deemed necessary by the Owner and/or Engineer.

B. The Contractor and Contractor's Engineer's attention is directed to the fact that should any additional investigations, subsurface explorations and/or other appurtenant information be required to fulfill the needs of this design, as determined by the Contractor's Engineer above and beyond that which is already provided under these Contract Documents, the Contractor shall obtain all such information and data required at his own expense.

1.5 SHOP DRAWINGS AND/OR DESCRIPTIVE LITERATURE

A. Prior to the installation of any sheeting, the Contractor shall submit to the Engineer for documentation ONLY, complete sheeting layout and detail drawings and sheeting descriptions bearing the Contractor's Engineer's State of [Connecticut] [Massachusetts] [Rhode Island] Professional Seal and signature. Said submission shall be for informational purposes only as a means of documenting the work to be performed and will not be considered an approval or disapproval of the design and/or the implementation thereof. This submission will not relieve the Contractor of the sole responsibility for the adequacy of the system, nor shall it be construed as an approval or guarantee that the Contractor's proposed equipment, materials and methods for the sheeting, bracing or appurtenances will be adequate for the work required at the locations of and for the Work required by this Contract.

B. Included as part of this submission, the Contractor's Engineer must provide a complete listing of all references, codes and specifications used by the Contractor's Engineer and required by any federal, state or local agency having jurisdiction, and to which the sheeting design conforms.

C. Specific design calculations are not to be submitted to the Engineer. In the event design calculations are submitted to the Engineer, they shall be returned to the Contractor without review nor checking by the Engineer.

1.6 CERTIFICATE OF DESIGN

A. The Contractor's special attention is directed to the required "Certificate of Design", the form of which is provided at the end of this Section. The Contractor and Contractor's Engineer shall complete this "Certificate" in its entirety for each location of work to be done, and any revisions associated there with, and submit it simultaneously with, as an integral part thereof, the sheeting submission. Any submission made without the completed "Certificate", appropriately signed and sealed, shall be returned to the Contractor. The Owner and/or Engineer hereby reserves the right to delay sheeting work and/or any work associated with, or dependent upon, the proper implementation of sheeting, without cause for claim against the Owner or Engineer, until a complete and appropriate submission is rendered. This Certification shall indicate that the sheeting, bracing and all appurtenances related thereto are designed to withstand the required loads, forces to be encountered, and to provide soil and water control, and are in compliance with these specifications and all federal, state or local agencies having jurisdiction over the Work to be performed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Timber sheeting and bracing:

1. Timber sheeting and bracing may be of any species of wood which will satisfactorily withstand all driving and construction stresses and the loads to which the members will be subjected. Sheeting shall not be less than 3 inches nominal thickness and shall be provided with continuous interlocks. All timber sheeting and bracing shall be free from worm-holes, windshakes, loose knots, decayed or unsound portions or other defects which might impair its strength or tightness.

B. Steel sheeting:

1. The shapes, sizes, and lengths of steel sheeting to be utilized are optional with the Contractor, providing they are satisfactory to withstand all driving and construction stresses and provided with continuous interlocks.

C. Bracing, Hardware and Fastenings:

1. Bracing and other supports whether of steel or of timber, shall be of the strength and dimensions necessary to satisfactorily withstand the loads to which they will be subjected. All bracing and other supports shall be free from any defects which might impair this strength. The Contractor shall provide all necessary hardware and fastenings necessary in connections with satisfactory installation of all sheeting and bracing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The Contractor shall be fully responsible for ensuring adequate safety measures are provided at all times and shall comply with all safety requirements of federal, state and local agencies having jurisdiction over the Work. Installation of the sheeting including all bracing, supports and appurtenances, shall be adequate to permit the performance of the Work and be in accordance with the requirements of the Contractor's Engineer and the sheeting design associated therewith.

B. Any movements of sheeting and/or appurtenances which prevent the proper completion of the work shall be corrected at the expense of the Contractor.

C. Sheeting shall be installed in a manner which will prevent the disturbance of the surrounding surface, subsurface conditions and/or structures. Any such disturbances shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

3.2 REMOVAL

A. No sheeting shall be removed except with specific written approval by the Engineer.

B. Sheeting shall be cut-off as directed by the Engineer.

C. All sheeting shall be removed except as shown on the Contract Drawings or directed by the Engineer.

D. All sheeting approved for removal by the Engineer shall become the property of the Contractor.

E. All restoration and clean-up shall be as indicated and as specified.

Sheet 1 of 3
CERTIFICATE OF DESIGN

_____(Owner)

Contract Reference:_____

_____, dated _____.

In accordance with the provisions of the above referenced Contract, as the designated Contractor,

_____

_____
(Contractor's Name and Address)

hereby certifies that _____

_____
(Contractor's Engineer's Name and Address)

(1) Is properly licensed and currently registered as a Professional Engineer in the State (or Commonwealth) of _____;

(2) Is fully qualified to design and supervise the _____

_____
(Item of work and location)

In accordance with the provision specified under the appropriate Section and/or Subsections of the Contract Documents:

(3) Has successfully designed and supervised _____

_____
(Item of work)

before and demonstrates a minimum of ten (10) documented years of proven experience in such field;

(4) Has personally examined the type(s) and locations(s) of the Work required under this Contract, and the overall conditions associated therewith, to the extent necessary to fully satisfy his or her professional responsibilities for designing and supervising the above referenced work;

(5) Has prepared the attached design in full compliance with the applications and requirements of the Contract Documents, sound engineering practice, modern accepted principles of construction, and all applicable federal, state and local laws, regulations, rules and codes having jurisdiction over the Work;

(6) Will provide sufficient supervision and technical guidance to the Contractor throughout the Work to ensure compliance with the design and all quality assurances necessary to successfully complete the Work;

(7) Hereby indemnifies and holds harmless the_____

and BETA Group, Inc.,
(name of owner)

and their agents, employees and representatives, from and against any and all claims, whether directly or indirectly, arising out of, relating to or in connection with the Work; and

(8) This "Certificate of Design" together with all applicable designs, drawings, details, specifications on other related documents necessary to complete the Work as specified, have been signed and sealed pursuant to applicable state law.

In recognition and observance of the above referenced statements, the undersigned parties hereby acknowledge and accept the responsibilities and obligations associated therewith.

Contractor:	Contractor's engineer:
_____	_____
(Contractor's Name)	(Engineer's Name)
_____	_____
By: _____	By: _____
_____	_____
(Name and Title)	(Name and Title)
Date: _____	Date: _____

(SEAL) (P.E. STAMP)

(Note: Contractor to fully reference all attachments below)

END OF SECTION

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SECTION 02200

EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. The proposed redevelopment activities addressed under this Section pertain to the City of Pawtucket parcel (Town Landing/Riverwalk area), which is a portion of the overall Tidewater Landing project included in the Remedial Action Work Plan (RAWP) Steps 4. Work within this parcel includes site preparation and earthwork required to support Step 4 described in the RAWP as Construction of the Riverwalk portion of the Subject Site, including grading, installation of drainage, landscaping areas, and segments of the pedestrian connection from Festival Field northward. These activities occur within an area identified on the Project Plans and identified by the RAWP as containing widespread historic fill, requiring implementation of engineered controls during earthwork and development.

B. The overall Tidewater Landing project includes the Subject Parcels owned by the City of Pawtucket subject to the RAWP that includes this phase of work with the Riverwalk improvements and preparation for the final mixed use development.

C. Work under the Section includes all materials, labor, equipment, and services necessary to complete earthwork associated with the Riverwalk construction and preparation of the future mixed-use development, including excavation, on-site soil management, grading, backfilling, placement of engineered controls, and all related activities. All such work shall be performed in accordance with the RIDEM approved RAWP, and the RIDEM Remedial Approval Letter.

D. The Contractor shall perform the work of this section as shown on the Project Plans, as specified, and as required by job conditions, subject to the environmental requirements of the RAWP and RIDEM RAL, including, but not limited to the following:

1. Stripping, clearing, grubbing and removal of all organic material, topsoil, and subsoil within the portions of the site to be developed. Stripped topsoil shall be stockpiled onsite at locations designated by the Engineer and managed as Controlled Material unless demonstrated otherwise, in accordance with the RAWP. Off-site disposal or reuse is not permitted without RIDEM approval.

2. Soil and rock excavation, rock and boulder removal, trench excavation, subgrade preparation, proof compaction, backfill placement, grading, and compaction required for Riverwalk improvements. All excavation involving Controlled Materials shall be performed under Environmental Professional (EP) oversight to be provided by the City, following the RAWP for excavation, handling, and dust control requirements. Dewatering is not anticipated per RAWP findings; if encountered, work shall stop and the EP or City shall be notified immediately.

3. Soil Management:

   a. All existing soils on the parcel are considered Controlled Materials and shall be managed in accordance with the RAWP.

   b. All Controlled Materials shall remain onsite and be reused below approve engineered controls (impervious caps, Type 1 or 2 soil caps).

   c. No relocation or disposal of Controlled Materials offsite is permitted unless approved RIDEM and supported by waste characterization.

4. Crushing and processing of existing boulders, concrete, and other on-site materials to meet gradation criteria for on-site re-use provided such material is not mixed with Controlled Materials and is allowable by RAWP.

5. Import of Common Borrow and other backfill materials, if required, shall comply with RAWP clean fill acceptance criteria. Imported fill shall meet RIDEM Method 1 RDEC and testing frequency requirements.

6. Placement and spreading of loam or topsoil required for final Type 1 or Type 2 engineered soil caps in accordance with RAWP Section 4.2.

7. Removal and legal off-site disposal shall be limited to non-soil solid waste debris only (e.g., concrete, timber, metal, glass, asphalt) in accordance with the RAWP and RAL. Controlled Materials (soil) shall not be removed from the Site except under RIDEM approved conditions.

8. Preparation of as-built subgrade surveys as specified in Section 1.9, including documentation required to confirm engineered control elevations for RAWP compliance.

1.2 RELATED WORK

A. The General Provisions of the Contract, including General and Supplementary Conditions, apply to the work specified in this Section.

B. Examine all Specifications for requirements affecting work under this Section, including all RAWP driven environmental controls integrated into Sitework, Earthwork, and Riverwalk components.

C. Coordinate work with trades affecting or affected by this Section to maintain consistent progress and prevent disturbance of engineered controls and temporary caps required under the RAWP.

D. Related work specified in other Sections:

1. Section 31230 – Temporary Sediment and Erosion Control

2. Section 32900 – Topsoil, Seeding, and Sodding

3. Section 02615 – Controlled Material Handling

4. Section 02616 – Waste Stockpile Area (WSA)

5. Section 02617 – Demarcation Layer

1.3 DEFINITIONS

A. Owner: City of Pawtucket

B. Property Owner:

1. City of Pawtucket

C. Site/Civil Engineer and Landscape Architecture: Beta Group, Inc., 701 George Washington Highway, Lincoln, RI 02865, (401) 333-2382

D. Excavation: removal of material encountered to subgrade elevations indicated on subsequent placement, management, and reuse of such materials onsite, consistent with the requirements of the RAWP, and RIDEM RAL. All excavated soil shall be treated as Controlled Materials unless otherwise demonstrated.

E. Unauthorized excavation: removal of materials beyond indicated subgrade elevations or dimensions without explicit direction of the Engineer. Unauthorized excavation shall be at the Contractor's expense. Corrective actions must comply with RAWP requirements where Controlled Materials are present.

F. Subgrade: The undisturbed soil or properly compacted soil layer at footing bearing elevations or immediately below subbase of slabs, walks, pavement, lawn areas, or landscaped beds.

G. Structure: buildings, foundations, slabs, tanks, curbs, or other manmade stationary features occurring above or below ground surface.

H. Structure Area (Building Area) is the area below structures defined by a line extending downward and outward at a 1 vertical to 1 horizontal from 5 feet outside the edge of exterior footings.

I. Unsuitable material: on-site materials that are improper gradation, contain excessive fines, organic matter, debris, or otherwise fail to meet the requirements for reuse. Unsuitable Controlled Materials shall not be disposed of offsite except as permitted by RIDEM. Such materials must be managed and reused beneath approved engineered caps in accordance with the RAWP Sections 4.2.3 to 4.2.5.

J. Area of Environmental Concern (AOEC): The entire Site identified by RIDEM as containing widespread urban fill with contaminant concentrations requiring risk-based controls. All earthwork activities occur within an AOEC and must follow RAWP requirements.

K. Controlled Materials: Soil or fill that contains contaminants (including PAHs, TPH, arsenic and lead) above RIDEM Method 1 RDEC, as documented throughout the RAWP and supplemental

investigations. All earthwork activities occur within an AOEC and must follow RIDEM RAL requirements.

L. Engineer Control: A physical barrier (impervious cap, Type 1 soil cap, Type 2 soil cap, or building foundation) installed to prevent direct contact with underlying Controlled Material, as defined in RAWP Section 4.2.3 to 4.2.5.

M. Environmental Professional (EP): A qualified individual designated in the RAWP responsible for oversight of excavation, stockpiling, reuse, and compliance with RAWP and RIDEM requirements during earthwork activities.

1.4 SUBMITTALS

A. Earthwork Plan:

1. Provide a Method of Construction (MOC) submittal for all earthwork activities involving Controlled Materials, including temporary stockpiling, excavation, grading, handling, reuse, and placement beneath engineered caps. Include a schedule and a detailed written description of proposed sequence of earthwork operations, excavation limits and depths, proposed stockpile locations, dust suppression methods, air monitoring equipment, and procedures for encountering groundwater or unexpected materials. Submit the MOC two (2) weeks prior to start of excavation.

2. The earthwork plan shall identify compaction equipment, procedures, and lift thicknesses, and shall also confirm compliance with the RAWP requirements for engineered cap installation (impervious cap, Type 1 and Type 2 soil caps). Submit two (2) weeks prior to compaction work.

B. Fill / Backfill Material Samples:

1. The Contractor shall submit bag samples (40 lbs minimum) of each type of material to be used as fill or backfill two (2) weeks prior to use for geotechnical review and RAWP compliance conformation.

2. For on-site materials intended for reuse, submit representative sample for geotechnical visual inspection and environmental suitability determination. On-site soils shall be reused only below engineered control caps per RAWP Sections 4.2.3 to 4.2.5.

3. For off-site materials, submit the name of each material supplier with specific name, source location, material description, and all required environmental analytical results (see 1.4D), at least two (2) weeks prior to delivery. All imported materials must be approved by the City and Engineer prior to delivery.

4. No off-site materials may be delivered or used until written approval is received confirming compliance with gradation, geotechnical suitability, and RIDEM RDEC criteria as required in the RAL.

C. Test reports: submit the following directly to Owner, with copy to Contractor:

1. Gradation test reports for off-site imported material.
2. One (1) gallon sample for each material type proposed for use or reuse.
3. Optimum moisture-maximum density curve for each type of soil compacted.
4. All testing and material costs shall be included in the Contract Sum.

D. Analytical Testing of Off-Site Fill Materials:

1. All imported fill materials shall be sampled and analyzed for acceptance. Testing shall include:
    a. Arsenic and Lead in accordance with USEPA SW-846 Method 6010/6010 & 7471A.
    b. Priority Pollutant 13 Metals (PP-13) in accordance with USEPA SW-846 Method 6010 and Method 7471A.
    c. Total Petroleum Hydrocarbons (TPH) in accordance with USEPA SW-846 Method 8100M.
    d. Volatile Organic Compounds (VOC) in accordance with USEPA SW-846 Method 8260.
    e. Semi-Volatile Organic Compounds (SVOCs) in accordance with USEPA SW-846 Method 8270.
2. All imported materials must meet RIDEM's Method 1 Residential Direct Exposure Criteria (RDEC).
3. Sampling frequency for imported materials shall be:
    a. 1 sample per 1,000 CY for VOC, SVOC, TPH, and PP-13 metals.
    b. 1 sample per 500 CY for arsenic and lead, consistent with RAL guidance.
    c. Analytical results shall be submitted to the EP, Engineer, Construction Manager, and Property Owner two (2) weeks prior to import of the material to the Site.
4. Imported fill shall not be delivered to the Site until the EP and Owner confirms that analytical results meet the above RAWP/RAL criteria.

E. Certificates

1. Certify that materials are new and meet or exceed specification requirements by submitting a notarized copy of Manufacturer's certificates for all products.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Earthwork shall comply with all local, State, and Federal requirements and with RIDEM approved RAWP, RAWP addendum, and RIDEM RAL, including all requirements for handling, stockpiling, air monitoring, reuse, and caping of Controlled Materials.

B. Earthwork Performance: Earthwork shall be performed to meet the placement and compaction requirements of these specifications and the engineered control requirements defined in RAWP Sections 4.2.3-4.2.5 (impervious caps, Type I and Type II soil caps).

C. Material Quality: Materials provided shall meet gradation and structural requirements of this Section and the clean fill requirements of the RAWP and RAL where applicable. Imported fill shall meet RIDEM Method 1 RDEC criteria.

D. Rhode Island Department of Transportation (RIDOT) Standard Specifications: RIDOT specifications and supplements unless superseded by the RAWP or environmental requirements.

E. Environmental Oversight: All excavation, handling, placement, and reuse of Controlled Materials shall be performed under the oversight of the Environmental Professional (EP), provided by the City, as required by the RAWP.

1.6 OWNER'S RESPONSIBILITIES

A. Soil Testing and Inspection Service:

1. Soil acceptance testing and inspection service for quality control testing during earthwork operations will be supplied by the Owner.

2. The Contractor will bear the cost of retesting or corrective action when materials or compaction fail to meet the requirements of this Section or RAWP requirements.

B. Environmental Oversight: an Environmental Professional (EP) retained by the Owner will observe excavation, stockpiling, and engineered control placement, and will verify compliance with RAWP, SMP, and RAL requirements.

1.7 REFERENCES

A. RIDEM Decision documents including:

1. Remedial Action Work Plan prepared by SLR dated March 2022, defines the Controlled Material handling, engineered controls, and reuse requirements.

2. RAWP Addendum, August 2022, addresses the polysheeting, demarcation, stockpiling, and clean fill confirmation.

3. Construction Soil Management Plan (SMP), October 2021, governs dust control, excavation notifications, EP oversight, stockpile controls, and worker protection protocols, included in the RAWP.

4. RIDEM Remedial Approval Letter, September 14, 2022, approval conditions for soils storage, engineered controls, capping requirements, and 30-day stockpile limitations.

B. All Drawings and all other Sections of the Specifications.

C. The Rhode Island Building Code, latest edition.

D. American Society for Testing and Materials (ASTM) D1586-18 Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils.

E. ASTM D1557 Modified Proctor Density.

F. ASTM D422 Particle Size Analysis of Soil.

G. ASTM D2922 Density of Soil and Soil Aggregate In-place by Nuclear Methods.

H. Occupational Safety and Health Administration (OSHA) Regulation 29 CPR Part 1926 - Occupational Safety and Health.

1.8 PERMITS CODES AND SAFETY REGULATIONS

A. All work performed under this contract shall comply with applicable Federal, State, and local laws, including RIDEM requirements contained in the RAWP and RAL.

B. Comply with all rules, regulations, laws and ordinances of all authorities having jurisdiction including but not limited to the City of Pawtucket and the State of Rhode Island. All labor, materials, equipment, and services necessary to make the work comply with such requirements shall be provided without additional cost to the Owner.

C. Comply with the provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, Inc., and the requirements of the Occupational Safety and Health Administration, United States Department of Labor.

D. The Contractor shall obtain all required permits and licenses for the work and shall comply with any RIDEM notifications or approvals required for activities affecting Controlled Materials, including any future changes to the approved RAWP.

1.9 SUBGRADE CONFIRMATION OF GRADE AND ADJUSTMENT:

A. As-built topographic survey shall be by a Land Surveyor licensed in the State of Rhode Island.

B. Engineer’s review of grades will be singular. Each subsequent review after the first will be at the contractor’s cost.

C. Deliverable:

1. As-built topography shall be provided to the Engineer as an Autodesk Civil 3D CADD file:

a. Drawing format 2013

b. Containing all the content required to compile triangulated irregular network surfaces (TIN Surface)

c. In the same horizontal and vertical datum as the construction documents

d. Be provided with the surface styles showing contours and triangles

2. Adobe portable document file (PDF) representing the content from 1.9.C.1

a. With a title block, legend, north arrow, scale, date, supplier of topography

b. At the scale equivalent to the construction documents

D. Adjustments: Contractor shall adjust grades meeting tolerances per 1.10 below at no additional cost to the contract.

1.10 TOLERANCES FOR GRADES

A. General: the Drawings indicate finished elevations. The grading to be performed under this Section consist of establishing finished grade elevations as shown on the Project Plans and in accordance with the RAWP requirements for Engineered Controls (impervious cap, Type 1 and Type 2 soil caps). Grading activities shall ensure that minimum thicknesses are achieved everywhere and are not reduced by construction tolerances.

B. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are indicted, or between such points and existing grades. Finished grades shall ensure that no ponding or erosion occurs that could compromise the effectiveness of the Engineered Controls.

C. Subgrade shall be free from irregular surface changes, and as follows:

1. Topsoil shall be placed to a minimum depth of 6 inches and maximum depth of 8 inches, unless otherwise shown on the Drawings. A maximum of 6 inches will be paid for; placement above 6 inches is at no cost to the Contract. Where topsoil forms apart of the Type 1 or Type 2 soil cap, the combined cap thickness shall not be reduced below the RAWP required minimum (1 foot for Type 1, 2 feet for Type 2).

2. Grades shall be within the construction document grades as follows:

a. Lawn areas/landscaped areas:

1) Equal to or 0.5% steeper than the grades shown

2) Without depressions or high spots which trap water or prevent drainage to structures or natural pathways. Depressions may be corrected in topsoil layer up to the maximum topsoil depth of 8 inches; additional material required above 6 inches is at the Contractor's cost.

D. Grading in areas receiving Type 1 or Type 2 engineered soil caps shall be performed such that the minimum clean material thickness above the Demarcation Layer is achieved after compaction. Under no circumstances shall grading tolerances result in cap thicknesses falling below:

1. 12 inches of clean soil for Type 1 caps, or

2. 24 inches of clean soil for Type 2 caps.

E. Where grading activities are expose the Demarcation Layer or underlying Controlled Materials, the Contractor shall immediately notify the EP and restore the cap thickness using approved clean material.

1.11 PROJECT CONDITIONS

A. Site Information:

1. Data on indicated subsurface conditions are not intended as representations or warranties of continuity between borings. Such information is provided for the Contractor's convenience. The Contractor shall understand that all soil at the Site is classified as Controlled Material within a designated AOEC, per the RAWP and SMP, and shall be handled accordingly regardless of geotechnical descriptions.

a. Boring logs and locations are included in the RAWP.

b. Additional test borings and other explorations may be made by the Contractor at no cost to Owner.

2. If unexpected subsurface conditions or unanticipated environmental conditions are encountered, including, but not limited to, odors, staining, free product, debris, or groundwater, Contractor shall immediately notify the Engineer, EP, and Owner and discontinue work in the affected area until directed to resume.

B. The Contractor shall examine the substrate within the work areas to ascertain existing site conditions before beginning earthwork. Work shall not proceed until unsatisfactory or unstable conditions are corrected to the satisfaction of the Owner and in compliance with the RAWP requirements for excavation, handling, and Engineered Controls.

C. The Contractor shall notify DIG SAFE and procure a Dig Safe Number for each location prior to disturbing existing ground in any way. Work shall not proceed until clearance is received.

D. Existing utilities:

1. Locate existing underground utilities in areas of excavation work. Provide adequate means of support and protection during earthwork operations.

2. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

3. Do not interrupt existing utilities serving facilities occupied by Owner or others during occupied hours except when permitted and then only after acceptable temporary utility services have been provided.

4. Provide adequate notice to the Owner and receive written notice to proceed before interrupting utility.

5. Demolish and completely remove from site existing underground utilities indicated for removal. Abandoned utilities not indicated shall be evaluated with the EP prior to disturbance to confirm proper handling of any Controlled Materials encountered.

E. Protection of persons and property:

1. Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise recommended by authorities having jurisdiction.

2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

3. Protect benchmarks and existing structures, roads, sidewalks, paving, and curbs against damage from equipment and vehicular or foot traffic.

4. Underpin adjacent structures, which may be damaged by excavation work, including service lines and pipe chases.

5. Provide necessary safeguards to prevent accidents, to avoid all necessary hazards, and to protect the public, the work, and the property at all times, including Saturdays, Sundays, and holidays. Dust suppression and monitoring shall be performed in accordance with RAWP requirements, including real-time particulate monitoring during work hours.

6. The Contractor is responsible for all damages arising from failure to provide adequate lights, guards, barriers, dust control, monitoring, or other protective measures required by law and by the RAWP/SMP.

1.12 PERMITS CODES AND SAFETY REGULATIONS

A. All work performed under this Contract shall be accomplished in accordance with all regulations and laws of local, State, and Federal agencies and utility companies. Work shall also comply with

the RIDEM approved RAWP, and RAL, which govern all excavation, soil handling, stockpiling, reuse, dust control, and engineered control installation at the Site.

B. Comply with all rules, regulations, laws and ordinances of all authorities having jurisdiction including but not limited to the City of Pawtucket and the State of Rhode Island. All labor, materials, equipment, and services necessary to make the work comply with such requirements, including those in the RAWP, and RAL, shall be provided without additional cost to the Owner.

C. Comply with the provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, Inc., and the requirements of the Occupational Safety and Health Administration, United States Department of Labor. Because all earthwork occurs within a designated Area of Environmental Concern (AOEC) and involves Controlled Materials, the Contractor shall implement a site-specific Health and Safety Plan compliant with OSHA 29 CFR 1910.120 (HAZWOPER), consistent with RAWP requirements for intrusive work, dust monitoring, PPE, and decontamination.

D. The Contractor shall procure and pay for all permits and licenses required for the complete work specified herein and shown on the Drawings. This includes any notifications or approvals required to comply with the RAWP, and RAL, including but not limited to:

1. Excavation of Controlled Materials,
2. Temporary stockpile establishment,
3. Importation of clean fill meeting RIDEM Method 1 RDEC criteria, and
4. Any dewatering activities if groundwater is encountered unexpectedly.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Sand-Gravel Fill

1. Sand-gravel fill generated on-site shall only be reused below final engineered control cap systems in accordance with the RAWP. Off-site sand-gravel fill must meet RIDEM Method 1 RDEC criteria before import.

2. “Sand-Gravel Fill”, “Sand-Gravel”, “Gravel Borrow Subbase”, “Compacted Gravel”, and “Compact Gravel Borrow”, shall consist of hard, durable sand and gravel, and shall be free from ice and snow, roots, sod, rubbish, and other deleterious or organic matter. It shall conform to the following gradation requirements:

SIEVE SIZE	PERCENT FINER BY WEIGHT
*	100
1/2-inch	50 - 85
No. 4	40 - 75

SIEVE SIZE	PERCENT FINER BY WEIGHT
No. 10	30 - 60
No. 40	10 - 35
No. 50	8 - 28
No. 100	5 - 20**
No. 200	0 - 10

* Four inches (4") where placed as base course; elsewhere, two-thirds (2/3) of the loose lift thickness; Two inches (2") where placed as bedding and backfill around utilities.

** The amount passing the No. 100 sieve should be between forty percent (40%) and seventy percent (70%) of that amount passing the No. 40 sieve.

B. Granular Fill:

1. Granular fill generated on-site shall only be reused below final engineered control cap systems in accordance with the RAWP. Off-site fill must meet RIDEM Method 1 RDEC criteria before import.

2. "Granular Fill", "Free Draining Gravel", "Free Draining Granular Fill" and "Clean Granular Fill" shall be free from ice and snow, roots, sod, rubbish, and other deleterious or organic matter. It shall conform to the following gradation requirements:

SIEVE SIZE	PERCENT FINER BY WEIGHT
*	100
No. 10	30 - 95
No. 40	10 - 70
No. 200	0 - 10**

* Two-thirds (2/3) of the loose lift thickness.

** "Free Draining Granular Fill" and "Clean Granular Fill" shall have less than eight percent passing the number 200 sieve.

C. Gravel Borrow

"Gravel Borrow" shall consist of bank run sand and gravel or plant-processed, crushed or uncrushed gravel with fine aggregate added as filler. Alternatively, Gravel Borrow may consist of selected materials which have been reclaimed from within project limits, are proportioned and processed to produce granular material for reuse as Gravel Borrow within the source project limits. Gravel Borrow, whether consisting of bank run or plant processed sand and gravel, or reclaimed and processed granular material, shall consist of sound, durable particles free from loam, clay, organic soil, vegetative matter, soft and elongate particles.

1. Fill generated on-site shall only be reused below final engineered control cap systems in accordance with the RAWP. Off-site fill must meet RIDEM Method 1 RDEC criteria before import.

2. Bank Run or Plant-Processed Sand and Gravel.

Bank run or plant-processed sand and gravel proposed for Gravel Borrow shall be well-graded and meet the gradation requirements specified in RIDOT Standard Specifications, Column Ia, Table I in Subsection M.01.09. In addition, the maximum particle size shall not exceed 9 inches or three-fourths of the loose lift thickness, whichever is smaller. It shall conform to the following gradation requirements:

SIEVE SIZE	PERCENT FINER BY WEIGHT
3-inch	60 - 100
1/2-inch	50 - 85
3/8-inch	45 - 80
No. 4	40 - 75
No. 40	5 - 45
No. 200	0 - 10

* Four inches (4") where placed as base course; elsewhere, two-thirds (2/3) of the loose lift thickness; Two inches (2") where placed as bedding and backfill around utilities.

** The amount passing the No. 100 sieve should be between forty percent (40%) and seventy percent (70%) of that amount passing the No. 40 sieve.

D. Dense-Grade Aggregate Base:

1. "Processed Aggregate", "Dense Grade Aggregate", "Dense Grade Aggregate Base", "Aggregate Basecourse", and "Engineered Fill" for use as slab-on-grade base material and access road pavement base material, shall be in accordance with ASTM D2940 Dense-Grade Aggregate Base*, and shall be free from ice and snow, roots, sod, rubbish, and other deleterious or organic matter. It shall conform to the following gradation requirements:

SIEVE SIZE	PERCENT FINER BY WEIGHT
1½-inch	100
1-inch	85-100
½-inch	50-85
No. 4	40-75
No. 40	8-35
No. 200	2-10

E. Ordinary Fill

1. "Ordinary Fill" shall consist of well-graded mineral soil substantially free of organic materials, loam, wood, trash and other objectionable material which may be compressible or which cannot be compacted properly. Ordinary fill shall be unfrozen and shall not contain snow, ice, or frozen materials. Ordinary fill shall not contain stones larger than eight (8) inches in largest diameter. It shall have physical properties such that it can be readily spread and compacted during filling.

2. Ordinary fill obtained onsite shall be treated as Controlled Material and may only be reused below the demarcation layer beneath the Engineered Controls.

F. Crushed Stone

1. "Crushed Stone" shall consist of one or the other of the following materials:

   a. Durable crushed rock consisting of the granular fragments obtained by breaking and crushing solid or shattered natural rock, and free from a detrimental quantity of thin, flat, elongated, or other objectionable pieces. Thin or elongated pieces are defined as follows: Thin stones shall be considered to be such stones whose average width exceeds four (4) times their average thickness. Elongated stones shall be considered to be such stones whose average length exceeds four (4) times their average width.

   b. Durable crushed gravel stone obtained by artificial crushing of cobbles, boulders, or field stone with a minimum diameter before crushing of 8 inches.

2. The crushed stone shall be reasonably free from clay, loam, or deleterious material and not more than 1.0% of satisfactory material passing a No. 200 sieve will be allowed to adhere to the crushed stone.

   Crushed stone shall be uniformly blended according to the grading requirements in the following table:

	PERCENT FINER BY WEIGHT			
SIEVE SIZE	3/8" CRUSHED STONE*	3/4" CRUSHED STONE**	1-1/2" CRUSHED STONE	2" CRUSHED STONE***
6-Inch	---	---	---	---
3-Inch	---	---	---	---
2-1/4-Inch	---	---	---	100
2-Inch	---	---	---	90 - 100
1 1/2-Inch	---	---	100	30 - 55
1 1/4-Inch	---	---	85 - 100	0 - 25
1-Inch	---	100	---	0 - 5
3/4-Inch	---	90 - 100	10 - 40	---
1/2-Inch	---	20 - 50	0 - 8	---
3/8-Inch	90 - 100	0 - 20	---	---
No. 4	0 - 10	0 - 5	---	---
No. 10	---	---	---	---
No. 100	---	---	---	---
No. 200	<1	<1	<1	<1

* Also called out on drawings as “No. 8 Crushed Stone”

** Also called out on drawings as “No. 57 Crushed Stone”

*** Also called out on drawings as "3/4" – 2" Clean, Washed, Crushed, Angular Stone"

3. "Crushed Stone", installed adjacent or above Controlled Materials shall not compromise the minimum required cap thickness. Stone used as part of the engineered cap layering must comply with the RAWP grading and demarcation requirements.

G. Pea Stone Gravel

1. Pea stone shall not be used surface cover or top dressing above Controlled Materials unless it is placed above the demarcation layer and beneath clean cap soils.

2. Pea stone gravel shall consist of durable crushed rock or durable crushed gravel stone free from ice and snow, sand, clay, loam, or other deleterious or organic material. The pea gravel shall be double washed and shall be 1/2 to 3/8 inch in size. The pea stone shall be uniformly blended and shall conform to the following requirements:

SIEVE SIZE	PERCENT FINER BY WEIGHT
1/2-inch	100
3/8-inch	85 - 100
No. 4	10 - 30
No. 8	0 - 10
No. 16	0 - 5

* Also called out on drawings as "3/8-Inch Pea Gravel"

H. Topsoil/Loam:

1. Topsoil (stripped from site) or Loam (supplied from off-site) shall be a sandy loam or loam soil classification as defined by the USDA Soil Conservation Service, Soil Classification System consisting of a fertile, friable, natural topsoil/loam typical of locality, without admixture of subsoil, refuse or other foreign materials, shall be obtained from a well-drained arable site, and shall meet ASTM D5268. It shall be such a mixture of sand, silt and clay particles as to exhibit sandy and clayey properties in about equal proportions. It shall be free of stumps, roots, heavy or stiff clay, stones larger than 3/4-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter, and shall have the following mechanical analysis:

Textural Class	% of Total Weight	Average %
Sand 0.05 - 2.0mm dia. Range	45 to 75	60
Silt 0.002 - 0.05mm dia. Range	15 to 35	25
Clay less than 0.002mm dia. Range	5 to 25	25

a. 95 percent of Topsoil shall pass a 2.0 mm sieve.

b. Topsoil/Loam shall have a pH value range of 6.0 to 7.0. If Topsoil/Loam material does not fall within the required pH range, limestone or aluminum sulfate shall be added to bring the pH within the specified limit.

2. Loam and topsoil shall contain not less than 4 percent or more than 20 percent organic matter as determined by the loss on ignition of oven-dried samples. Test sample shall be oven-dried to a constant weight at a temperature of 230°F ±9°.

3. All imported loam/topsoil must meet RIDEM Method 1 RDEC requirements and shall be placed only above the demarcation layer as part of the engineered soil cap.

2.2 FILTER FABRIC

A. Non-Woven Filter Fabric: shall be a geotextile such as ADS 601T, Mirafi 160N, or approved equivalent, and as specified on the drawings. Joints shall be continuously sewn or overlapped by a minimum of 18 inches.

B. Woven Filter Fabric: shall be a geotextile such as Mirafi FW700 or approved equal, as specified on the drawings. Joints shall be overlapped by a minimum of 18 inches.

C. Filter fabric used above Controlled Materials shall be compatible with the placement of the demarcation layer and shall not be used as a substitute for the visual barrier.

2.3 EROSION CONTROL BLANKET

A. North American Green S75 or approved equal.

B. Erosion control blankets placed over areas of Controlled Materials shall be installed in conjunction with SMP required erosion and sedimentation controls to prevent exposure or migration of impacted soils.

PART 3 - EXECUTION

3.1 EXCAVATION

A. General:

1. Earth excavation of all materials other than rock excavation. All excavated soils shall be treated as Controlled Material and handled in accordance with the RAWP, and RAL.

2. Earth excavation includes the removal, temporary stockpiling, and onsite reuse of materials encountered while establishing required grades, except where materials are debris unsuitable for reuse. Controlled Materials shall not be disposed of off-site except as explicitly allowed by RIDEM under the RAWP.

3. Perform all excavations to the depths and extents indicated, under Environmental Professional (EP) oversight, as required by the RAWP.

4. Excavate to the minimum depths required for foundations, walls, structures, and utility systems. Where rock is encountered, over-excavate 12 inches unless otherwise directed.

5. Earth excavation includes removal of pavement, foundations, and underground structures indicated for removal. Debris (concrete, wood, metal, plastic) may be removed offsite as solid waste, soils may not.

B. Unauthorized Excavation:

1. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer. Unauthorized excavation shall be at the Contractor's expense.

2. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Clean concrete fill may be used to bring elevations to proper position, when acceptable to the Engineer.

   In locations other than those above, backfill with “Granular Fill” and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Engineer.

C. Rock Excavation:

1. Rock Excavation shall include the excavation of hard and solid ledge, boulders in excess of one cubic yard in volume and hard cementitious deposits, the removal of which requires the use of drilling, barring, and wedging. Blasting will not be permitted.

2. For the purposes of payment, rock shall be defined as material, which cannot be excavated with equipment rated at less than 120 HP flywheel power developing at least 40,000 pounds breakout force measured in accordance with SAE S732C. Hard and compact materials such as cemented-gravel, glacial till, and relatively soft or disintegrated rock that can be removed without continuous and systematic drilling, barring, wedging, or other mechanical or pneumatic equipment will not be considered as mass rock even though intermittent use of these methods may be performed to increase production.

D. Excavation for Structures:

1. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from foundations to permit placing and removal of concrete formwork, other construction required, and for inspection.

2. In excavating for foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete is placed. Trim bottoms to required lines and grades to leave a solid base to receive concrete.

E. Disturbed Subgrade:

1. If subgrade becomes disturbed or saturated, stabilize as directed by the Engineer. If disturbance involves Controlled Materials, stabilization must comply with RAWP cap requirements to maintain minimum cover thickness.

F. Excavation for Pavement and Hardscape Areas:

1. Cut to the subgrade under pavements to comply with cross-sections, elevations, grades as shown on the Drawings and requirements presented herein.

G. Excavation and Installation of Utilities:

1. Trench for pipes shall be excavated to the required line and grade and of sufficient width to permit thorough tamping of the fill material under the haunches and around the pipe.

2. In general, utility trenches shall be excavated to a minimum 6 inches below the bottom of the utility line to accommodate bedding material as specified hereinafter or as specified by the manufacturer.

3. Soft or unsuitable material encountered below the normal bedding of the pipe shall be removed as directed, replaced with selected sand or manufacturer-recommended bedding material, and thoroughly compacted.

4. The bottom of the trench shall be shaped to conform to the curvature of the pipe. This bed shall also be excavated to accommodate the bells of pipes.

5. All utilities shall be installed as recommended by the manufacturer or as specified herein or as directed by the Geotechnical Engineer.

6. All utility trench excavation within Controlled Materials must follow the RAWP dust control, stockpile containment, and EP oversight requirement

H. Demolition:

1. Remove existing slabs, foundations, debris, and utilities to required limits. Soils disturbed during demolition must be treated as Controlled Material and cannot be exported. Debris may be removed off-site as solid waste, but no impacted soil may leave the site without RIDEM approval.

I. Re-Use of Material:

1. Excavated materials meeting gradation requirements may be reused onsite only below the engineered controls in accordance with the RAWP. Controlled Materials may not be reused near the finished grades or above the demarcation layer.

3.2 EARTHWORK FOR SOD AND SEEDED AREAS

A. Compaction control during earthwork

1. Topsoil for sod and seeded areas must be placed above the demarcation layer and clean soil cap, ensuring minimum cover thickness are met for Type 1 and Type 2 soil caps.

2. Utilize track machines to move the soils on site during construction keeping rubber tire vehicles except for landscape machinery off the soils. Use low ground pressure machines to move and spread soil materials.

3. Use a subsoiler to loosen the subsoil compaction to 6” depth after it is in place and graded if it does not meet the density specifications. Stones if present at the surface from using the subsoiler will need to be raked and removed from the surface before placing topsoil.

3.3 ROCK PAYMENT LINES

A. Rock payment lines are limited to the following:

1. In pipe trenches, one foot below the invert elevation of the pipe and two foot wider than the inside diameter of the pipe, but not less than a three-foot minimum trench width.

2. 12" below top of subgrade elevations.

B. No payment will be made for rock removal beyond specified rock payment lines.

3.4 UNSUITABLE MATERIAL

A. Unsuitable materials are materials that consist of Controlled Material (soil) shall NOT be removed from the Site. Such materials shall be reworked, moisture-conditioned, blended, or placed beneath Engineered Controls per the RAWP.

B. Debris or solid waste that is not soil (asphalt, metal, wood, concrete) may be removed offsite as construction waste.

3.5 STABILITY OF EXCAVATIONS

A. General: comply with local, state, and federal codes, ordinances, and requirements of agencies having jurisdiction.

B. Slope sides of excavations to comply with OSHA requirements and local, state, and federal codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

C. Slope the sides of excavations over 5' deep to the angle of repose of the material excavated, but not steeper than 1½ horizontal to 1 vertical. Where sloping is not possible, due to space restrictions or stability of material excavated, shore and brace in accordance with requirements of authorities having jurisdiction. In addition, provide 5' high snow fence around these areas as protection. Temporary slopes should be covered with plastic sheeting or other suitable cover where necessary to prevent the surface from drying or eroding.

D. Maintain sides and slopes of excavation in a safe condition until completion of backfilling, by scaling, benching, shelving, or bracing.

E. Take precautions to prevent slides or cave-ins when excavations are made in locations adjacent to backfilled excavations, and when sides or excavations are subject to vibrations from vehicular traffic or the operation of machinery, or from any other source.

F. Maintain dust suppression and air monitoring during excavation per RAWP.

3.6 SHORING AND BRACING:

A. Where required, provide adequate shoring and bracing, such as soldier piles and lagging, or steel or timber sheeting, in good serviceable condition.

B. Trench shoring and bracing shall comply with OSHA requirements and local codes and authorities having jurisdiction.

C. Coordinate shoring and bracing with the construction to be performed.

D. Construct shoring and bracing system in accordance with the approved plans.

E. Maintain shoring and bracing in excavations during all time periods when excavations are to be open. Extend shoring and bracing downward as excavation progresses.

F. Provide minimum requirements for trench shoring and bracing to comply with ANSI A10.1 "Safety for Building Construction", and with local codes and authorities having jurisdiction.

3.7 DEWATERING

A. If groundwater is encountered unexpectedly, the Contractor shall immediately notify the EP and Owner and suspend work in that area. The RAWP indicates groundwater is not anticipated, encountering groundwater requires corrective action.

B. No groundwater may be discharged without evaluating RAWP requirements and any required RIDEM permitting.

3.8 EXCAVATION OF TRENCHES FOR PIPES AND CONDUIT

A. Where trenching penetrates areas containing Controlled Materials, bedding, backfill, and trench spoils must be handled according to the RAWP and must be reused only below engineered controls.

B. Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of six- to nine-inch clearance on both sides of pipe or conduit, unless otherwise indicated on drawings.

C. Excavate trenches and conduit to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on undisturbed soil. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

1. If rock is encountered, carry excavation 12" below required elevation and backfill a six-inch layer of fine aggregate fill prior to installation of pipe.

2. For pipes or conduit less than six inches in nominal size, and for flat-bottomed, multiple-duct conduit units, do not excavate beyond indicated depths. Hand-excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.

3. For pipes and equipment six inches or larger in nominal size, shape bottom of trench to fit of pipe for 90 degrees (bottom 1/4 of the circumference). Fill depressions with tamped fine aggregate backfill. At each pipe joint, dig bell holes to relieve pipe bell of loads and ensure continuous bearing of pipe barrel on bearing surface.

3.9 COLD WEATHER PROTECTION

A. Protect excavation bottoms against freezing when atmospheric temperature is less than 35ºF.

B. Protect bottom of excavations and soil around and beneath foundations from frost.

3.10 BACKFILL AND FILL

A. General: Place acceptable soil materials in layers to required elevations. On-site soils (Controlled Materials) shall only be reused beneath approved Engineered Controls (impervious cap, Type 1 and Type 2 soil cap). They shall not be used as backfill near finished grades or surface soils.

B. Backfill operations shall follow all RAWP requirements, including:

1. EP oversight

2. Dust suppression

3. Stockpile management

4. Maintaining minimum cap thicknesses

5. Protecting the demarcation layer from exposure.

C. Backfill of utility trenches below groundwater is unexpected. If trenches encounter groundwater notify the EP and Owner immediately prior to backfilling.

3.11 PLACING AND COMPACTION

A. General

1. All compacted fill shall be placed in layers. Each layer shall be systemically compacted by approved compaction equipment to the density specified herein.

2. Place backfill and fill materials in layers not more than twelve (12) inches in loose depth for material compacted by heavy compaction equipment, and not more than six (6) inches in loose depth for material compacted by hand-operated equipment and tampers.

3. Compaction equipment in open areas shall consist of a vibratory roller having a minimum drum weight of 10,000 pounds and a dynamic force of at least 20,000 pounds.

4. Compaction in confined areas (in trenches and adjacent to walls) shall be accomplished by hand-operated vibratory equipment or mechanical tampers as approved by the Engineer.

5. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

6. Place backfill and fill materials evenly adjacent to structures to required elevations. Prevent wedging action of backfill against structures by carrying material uniformly around structures to approximately same elevation in each lift.

7. The work area shall be graded, shaped and otherwise drained in such a manner as to minimize soil erosion, siltation of drainage channels, damage to existing vegetation and damage to property outside the limits of the work area.

8. The Contractor shall use extra care when compacting adjacent to walls. Where walls are buried on both sides, backfill and compaction shall proceed on both sides of the wall so that the difference in top of fill level on either side of the wall shall not exceed two feet (2 ft.) at any stage of construction. Where buried walls are backfilled on only one side, only hand-operated rollers or plate compactors shall be used within a lateral distance of five feet (5 ft.) of back of wall.

9. In freezing weather, a layer of fill shall not be left in an uncompacted state at the close of a day's operations. Prior to terminating operations for the day, the final layer of fill, after compaction, shall be rolled with a smooth-wheeled roller to eliminate ridges of soil left by tractors, trucks and compaction equipment.

10. The Contractor shall not place a layer of compacted fill on snow, ice or frozen soil. Removal of these unsatisfactory materials will be required as directed by the Owner.

11. All on-site soils placed as fill shall be treated as Controlled Materials and may be reused only below approved engineered controls. Fill placement shall not reduce required clean soil cap thicknesses.

12. EP oversight (Owner representative) is required during placement of any Controlled Materials to ensure proper separation from clean imported fill, maintenance of demarcation layer integrity, confirmed cap thickness after compaction, and no placement of Controlled Materials above the demarcation layer.

B. Ground surface preparation: remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.

1. Proof-roll proposed pavement and foundation subgrades as described herein.

2. Prior to placing new fill, surface compact the subgrade in areas where existing foundations, slabs, and pavements have been demolished.

3. When existing ground surface has a density less than that specified in this section for particular area classification, break up ground surface and pulverize, moisture condition as required to achieve optimum moisture content, and compact to required depth and percentage of density.

4. Ground surfaces serving as a base for Engineered Controls shall be inspected by the EP prior to placing the demarcation layer or clean cap soils. No Controlled Materials shall be left exposed at completion of daily earthwork operations.

C. Backfilling of Utilities:

1. After pieces and joints have been inspected and approved by the Owner, sand shall be carefully placed and tamped in 6-inch layers under, around, and one foot over the pipe to ensure a uniform bearing surface and to prevent lateral movement of the pipe.

2. The remainder of the backfill may, if it meets fill specifications listed above, be material removed from the utility excavation and shall be placed in approximately 8-inch layers and compacted to the required density.

3. Where trench spoils consist of Controlled Materials, they may only be reused beneath the engineered controls and not be used as final cover or near finished grades. Spoils must be stockpiled on polyethylene sheeting and covered in accordance with the RAWP.

D. Backfill below Pavement Subbase:

1. Backfill below pavement subbase shall be placed in layers having a maximum loose lift thickness of 12 inches, if compaction is with a large vibratory drum roller or in maximum loose lift thickness of 8 inches, if compaction is with hand-operated compaction equipment.

E. Subbase and Base Course:

1. Pavement and slab subbase and base courses shall be placed in layers having a maximum loose lift thickness of 12 inches, except in confined areas or within 3 feet of new or existing structures where maximum loose lift thickness shall be 8 inches or less as determined by the Geotechnical Engineer.

3.12 COMPACTION REQUIREMENTS

A. General

1. Backfill shall be compacted to the minimum percentage of density specified for each area classification.

B. Percentage of Maximum Density Requirements:

1. In areas where Controlled Materials are placed, compaction shall not cause displacement, damage, or exposure of the demarcation layer, nor reduce the minimum clean soil cap thickness.

2. Provide not less than the following percentages of the maximum density of soil material compacted at optimum moisture content, as determined by ASTM D-1557, (Modified Proctor Test). Correct improperly compacted areas or lifts as directed by Engineer if soil density tests indicate inadequate compaction.

a. Pavement base course: Compact "Dense Grade Aggregate" base course below bituminous concrete pavement to 95% of the maximum dry density.

b. Pavement subbase: Compact "Sand-Gravel" subbase below base course to 95% of the maximum dry density.

c. All materials below the pavement subbase, with the exception of crushed stone, shall be compacted to 95% of the maximum dry density for heavy-duty areas (access roads), and to 92% of the maximum dry density in all standard duty areas.

d. All soil materials placed below foundations and within "Structure Areas" with the exception of crushed stone shall be compacted to 95% of the maximum dry density.

e. All materials placed behind retaining walls shall be compacted to 95% of the maximum dry density except for the area within 5 feet of the stem, which shall be compacted to between 90% and 93% of the maximum dry density.

f. All soil materials placed on the sides of and above site utilities and duct banks, with the exception of crushed stone, shall be compacted to 92% of the maximum dry density. Where utilities are placed below “Structure Areas” backfill shall be compacted to 95% of the maximum dry density. All pavement and exterior concrete slab base and subbase courses located above utilities and duct banks shall also be compacted to 95% of the maximum dry density.

g. Fill under Landscaped Areas: Ordinary Fill within the top 3 feet of finished grade shall be compacted to at least 90% of the maximum dry density. Ordinary Fill below 3 feet of finished grade shall be compacted to 85% of the maximum dry density.

C. Moisture Control:

1. Where the subgrade or a layer of soil material must be moisture-conditioned before compaction, uniformly apply water to the surface of subgrade or layer of soil material as

needed to obtain optimum moisture content. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.

2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to the specified density.

3. Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

3.13 GRADING

A. General:

1. Final grading shall ensure minimum clean soil cap thickness are met after compaction. Type 1 cap with minimum of 12-inches of clean soil above the demarcation layer, and Type 2 cap with minimum of 24 inches of clean soil above the demarcation layer.

2. At no time shall grading operations exposure the demarcation layer or Controlled Material. If exposure occurs, notify the EP immediately and restore cover thickness with clean soil.

B. Compaction:

1. After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

2. Final cap surfaces shall be inspected by the EP to confirm that grading maintains long-term cap slope stability, positive drainage, and prevents erosion of clean cap soil.

3.14 FIELD QUALITY CONTROL

A. Quality control testing during construction will be provided by the Owner. The Geotechnical Engineer shall be notified 48 hours prior to any fill, backfill, or compaction operations. Emailed notification is satisfactory.

1. Permit the Engineer to observe all subgrades for each layer of fill or backfill. Additional fill or backfill shall not be placed unless the Geotechnical Engineer has approved the subgrade and/or previous layer of fill.

2. When required or requested by the Engineer, the Contractor shall provide field elevations of the compacted subgrade or fill layer.

3. All excavation, stockpile handling, fill placement, and engineered control construction shall occur under EP oversight, consistent with the RAWP. The EP will be representative of the Owner.

B. Compacted materials which are below specified density shall be re-compacted at no additional expense to the Owner.

3.15 MAINTENANCE

A. Protection of Graded Areas:

1. Protect newly graded areas from erosion and keep free of trash and debris.

2. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Reconditioning Compacted Areas:

1. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.

3.16 ON-SITE SOIL MANAGEMENT

A. Dust Control:

1. The Contractor shall implement dust suppression including watering. Stabilized construction entrances/exits shall be constructed using 6 inches of 2-inch crushed stone, maintained throughout the project.

2. Dust control must comply with the RAWP including air monitoring during excavation activities, and action levels. Any visible dust migration offsite shall trigger immediate work suspension and corrected. Dust suppression must include daily wetting of working faces, speed control of work vehicles, and covering of haul loads when transporting.

B. Stormwater Runoff Control:

1. The contractor shall ring storm drains with haybales and silt capture devices and maintain the conditions throughout the project to control entrainment of surficial sediments in stormwater runoff.

2. Erosion controls must be placed and maintained around all Controlled Material stockpile areas, including silt fence and inlet protection, as required by the RAL.

3. No uncontrolled stormwater may erode or contact Controlled Material.

3.17 OFF-SITE SOIL MANAGEMENT

A. Disposal of excess asphalt, debris, and solid waste shall be in accordance with the Contract Documents. Controlled Materials (soil) shall NOT be disposed offsite unless explicitly approved by RIDEM in writing following waste characterization.

B. All existing soils shall remain onsite. Removal of Controlled Materials offsite may occur only with prior written approval from the RIDEM, in accordance with the RAWP and RAL. Owner or Contractor authorization is not sufficient.

END OF SECTION

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SECTION 02210

ROCK EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for removal and disposal of rock.

B. Related Sections

1. Appendix D Standard Form of Agreement
2. Section 13 SUPPLEMENTARY CONDITIONS
3. Section 02200 - Earthwork

1.2 DEFINITIONS

A. Rock-as defined in Division 01.

1.3 REQUIREMENTS

A. Excavate rock if encountered, to the lines and grades indicated on the drawings or as directed, dispose of the excavated material, and furnish acceptable material for backfill in place of the excavated rock.

B. The use of explosives will not be allowed.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 EXCESS ROCK EXCAVATION

A. If rock is excavated beyond the limits of payment indicated on the drawings, specified, or authorized in writing by the Engineer, the excess excavation, whether resulting from overbreakage or other causes, shall be backfilled, by and at the expense of the Contractor, as specified below in this section.

B. In excavations for structures, excess excavation in the rock beneath foundations shall be filled with 3000 psi concrete. Other excess excavation shall be filled with earth as specified in the article titled "Backfilling Around Structures" in SECTION 02200.

3.2 SHATTERING ROCK

A. Shattering rock at ends of pipe and elsewhere as indicated on the drawings, shall be done by mechanical methods. Shattering shall be completed before any pipe or fitting is placed within 50 ft. of rock to be shattered.

3.3 SHATTERED ROCK

A. If the rock below normal depth is shattered due to rock removal operations of the Contractor, and the Engineer considers such shattered rock to be unfit for foundations, the shattered rock shall be removed and the excavation shall be backfilled with concrete as required, except that in pipe trenches screened gravel shall be used for backfill. All such removal and backfilling shall be done by and at the expense of the Contractor.

3.4 PREPARATION OF ROCK SURFACES

A. Whenever so directed during the progress of the work, remove all dirt and loose rock from designated areas and shall clean the surface of the rock thoroughly, using steam to melt snow and ice, if necessary. Water in depressions shall then be removed as required so that the whole surface of the designated area can be inspected to determine whether seams or other defects exist.

B. The surfaces of rock foundations shall be left sufficiently rough to bond well with the masonry and embankments to be built thereon, and if required, shall be cut to rough benches or steps.

C. Before any masonry or embankment is built on or against the rock, the rock shall be scrupulously freed from all vegetation, dirt, sand, clay, boulders, scale, excessively cracked rock, loose fragments, ice, snow, and other objectionable substances. Picking, barring, wedging, streams of water under sufficient pressure, stiff brushes, hammers, steam jets, and other effective means shall be used to accomplish this cleaning. Remove free water left on the surface of the rock.

3.5 REMOVAL OF BOULDERS

A. Remove piles of boulders and loose rock encountered within the limits of earth embankments and dispose in a suitable place.

3.6 DISPOSAL OF EXCAVATED ROCK

A. Excavated rock may be used in backfilling trenches subject to the following limitations:

1. Pieces of rock larger than permitted under the article titled "Backfilling Pipe Trenches" in SECTION 02200 shall not be used for this purpose.
2. The quantity of rock used as backfill in any location shall not be so great as to result in the formation of voids.
3. Rock backfill shall not be placed within 36 in. of the surface of the finish grade.

B. Surplus excavated rock shall be disposed of as specified for surplus excavated material as specified in SECTION 02200.

3.7 BACKFILLING ROCK EXCAVATIONS

A. Where rock has been excavated and the excavation is to be backfilled, the backfilling above normal depth shall be done as specified in SECTION 02200. If material suitable for backfilling is not available in sufficient quantity from other excavations, the Contractor shall, at his own expense, furnish suitable material from outside sources.

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SECTION 02211

EXCAVATION, HANDLING, AND STORAGE OF SPECIAL WASTES

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work specified in this Section includes work associated with unanticipated contaminated materials. The Contractor shall be responsible for demolition, excavation, handling, stockpiling, securing, sampling, characterizing, transporting, and legally disposing of unanticipated contaminated materials or special wastes encountered in accordance with applicable federal state and local regulations governing disposal of urban fill and jurisdictional waste.

B. Unanticipated types and/or levels of contamination may be encountered during prosecution of the work, which The Rhode Island Department of Environmental Management (RIDEM) considers special waste or RIDEM jurisdictional material. These materials must be handled and disposed of in accordance with applicable regulations. Special Wastes that may be encountered on this project are as defined herein.

C. In the event of Contractor generating contamination, the Contractor shall be solely responsible for response, notification procedures, clean-up, removal, and disposal at no expense to the Owner. The Contractor shall not be allowed any compensation for "down time" while a determination is made.

D. In the event that the Contractor excavates material for its convenience or temporary facilities outside the limits of excavation and such materials are found to be contaminated and/or hazardous, the Contractor shall be wholly responsible for disposal of the material.

E. Related work and activities associated with the management of contaminated materials are described in the following Sections:

1. Section 01060 - Regulatory Requirements.
2. Section 01067 - Health and Safety Requirements
3. Section 01300 - Submittals.
4. Section 01560 - Temporary Controls.
5. Section 02050 - Site Preparation.
6. Section 02200 - Earth Excavation, Backfill and Grading
7. Section 02370 - Stormwater Pollution Prevention

1.2 DEFINITIONS

A. Special Waste No.1: Materials such as sludge, sand, grit, debris, etc. which may be encountered when cleaning storm drains, sewers, tanks, or earth that has been contaminated by such materials.

B. Special Waste No 2. Building materials encountered during the execution of the work, such as roofing, membranes, sheathing, pipes, tiles, conduits, couplings, insulation, water-tight fittings, wiring, electrical equipment etc.

1.3 SUBMITTALS

A. Quality Control Submittals:

1. The Contractor shall prepare and submit to the Engineer, a plan that identifies best management procedures for the handling and stockpiling of special wastes that ensures protection of the public health and safety and the environment. This submittal shall also identify temporary storage areas to be used for the stockpiling of contaminated materials. If work requires excavation and hauling the design of the equipment and vehicle decontamination pad shall be included.

2. The Contractor shall submit the qualifications of the individual responsible for the development of this plan and the supervision of the work. The qualifications of this individual shall meet or exceed the requirements for the Contractor Site Health and Safety Officer specified by SECTION 01069, HEALTH AND SAFETY REQUIREMENTS.

3. The Contractor shall submit to the Engineer copies of all bills of lading or manifests accompanying any wastes or soils designated for disposal, analytical data, permits and any documents submitted to RIDEM.

1.4 NOTIFICATION FOR ENCOUNTERING UNANTICIPATED CONTAMINATED MATERIALS

A. It shall be the responsibility of the Contractor to immediately notify the Engineer upon encountering any unanticipated or suspect material, which could be determined to be special wastes; and to advise as to whether such materials could represent a Reportable Concentration for Soil as defined by RIDEM. It shall also be the responsibility of Contractor to notify RIDEM office of Compliance and Inspection in the event of an emergency release or spill.

1.5 APPLICABLE LAWS AND REGULATIONS

A. Work under this Section shall be performed in strict compliance with all applicable Federal, State and local laws, rules, and regulations, including Rhode Island's Remediation Regulations, related to the handling and off-site management of contaminated wastes and regulated soil.

B. Pertinent Federal and State Authorities with jurisdiction over this project include:

1. Occupational Safety and Health Administration (OSHA)

2. Rhode Island Department of Environmental Management (RIDEM)

C. The following OSHA regulations will apply:

1. Occupational Safety and Health Standards, Hazardous Waste Operations and Emergency Response - 29 CFR 1910.120.

2. Safety and Health Regulations for Construction - 29 CFR 1926.

D. All other applicable Federal, State, and Local Regulations.

PART 2 - PRODUCTS

2.1 GENERAL

A. The Contractor shall provide all employees and Subcontractors with personal protective equipment and protective clothing, and training and hazard awareness consistent with the levels of protection for this Work. The Work shall be coordinated and specifically addressed in Contractor's Health and Safety Program in accordance with SECTION 01069.

2.2 MATERIALS

A. Polyethylene Sheeting: The material shall be UV resistant and cold crack resistant to 40 degrees F. The material shall be manufactured in a minimum 12-ft seamless width. Label on rolls shall identify thickness, length, width, and manufacturer's mark number. Listed material specifications are as follows:

1. Bottom Layer – minimum twenty (20) mils thick.
2. Top Layer – minimum ten (10) mils thick

B. When applicable, utilize suitable rope, secured with weights, sandbags, or other similar form of hold-downs ties.

PART 3 - EXECUTION

3.1 GENERAL

A. The Contractor shall perform demolition, removal, excavation, handling and hauling of special wastes in accordance with Contractor's Health and Safety Program and SECTION 02200. Soil excavation work may include special waste or suspect soils excavation, test pits, removal of obstructions, and any incidental work.

B. The Contractor will provide adequate barriers and demarcation of excavations and exclusion zones to warn site visitors and the public of potential hazards.

C. The Contractor will take appropriate means to prevent a release or the spread of hazardous wastes or contaminated materials as a result of the Contractor's operations.

D. The Contractor shall maintain all required field controls as specified herein throughout the performance of the work.

E. All site health and safety controls shall be fully established and in operation prior to beginning any soil excavation.

3.2 PREPARATION

A. Temporary Storage Areas: Prior to storing any special wastes in stockpiles at temporary storage areas approved by the Engineer, the Contractor shall install berm or other perimeter controls around the base of the stockpile area as specified in approved plan.

3.3 EXCAVATION

A. Work and decontamination procedures in areas containing contaminated materials shall be performed in accordance with standard engineering practices.

B. The Contractor shall employ appropriate methods to isolate contaminated soils from non-contaminated areas.

C. The Engineer may direct the Contractor to excavate additional soils outside the defined area.

3.4 STORAGE AND HANDLING OF EXCAVATED MATERIAL

A. The Contractor shall provide a suitable on-site location, located on the work site for the temporary storage/stockpiling of special wastes for appropriate laboratory analytical testing prior to disposal. The Contractor shall temporarily stockpile excavated contaminated soil on the construction site in stockpiles pending soil characterization and analytical results. Soil shall be stockpiled in accordance with this Section. The Contractor shall prevent stormwater pollution from stockpiled material by employing perimeter controls, check dams, temporary dewatering and stilling basins as detailed by SECTION 02370.

B. At a minimum, the storage location must be of sufficient size to stockpile special wastes encountered, storing soils and material which are anticipated to be contaminated, separately from those which are not anticipated to be contaminated. The Contractor shall maintain appropriate space between separated piles for the soil volumes expected by the Contractor to be in storage at any one time based on the Contractor's projected work rate, the environmental site conditions described in the reference materials, and the laboratory testing requirements in this section.

C. Off-site storage of special wastes is not permitted without prior written approval of the Engineer.

D. Special wastes shall in no case be stockpiled for more than ninety (90) days.

E. The Stockpiles shall be securely barricaded and clearly labeled.

F. Soils shall be suitably dewatered prior to leaving the site, to prevent free water from developing during transport to the disposal facility.

G. Hay bales or similar shall be placed around the stockpile as per SECTION 02370.

H. The Contractor shall also maintain appropriate dust control, per SECTION 01500.

I. If stockpiles contain oily soils or debris, the Contractor shall place a minimum 8-inch diameter continuous oil absorbent boom around the entire perimeter of the stockpile.

J. The Contractor shall inspect perimeter controls at least twice per week and provide immediate maintenance as necessary.

3.5 SOIL TRACKING, STOCKPILE SAMPLING, AND ANALYSIS

A. The Contractor shall provide to the Engineer on a daily basis when excavating special wastes, copies of field records documenting the location of stockpiled material and stockpile identification data.

B. The Contractor shall identify each item to be disposed of off-site. The Contractor shall document and track all contaminated soils from excavation to final off-site disposal.

3.6 EQUIPMENT AND VEHICLE DECONTAMINATION

A. If earth excavation is required, the Contractor shall design and construct a decontamination pad to be used to decontaminate equipment and vehicles exiting from contaminated areas. The Contractor shall be responsible for the maintenance and operation of the decontamination station (decontamination pad and wash down equipment, if necessary) throughout the duration of the work activities. The Contractor shall collect, treat and dispose of decontamination pad wash water, if necessary. At the completion of the project, the Contractor shall dismantle and properly dispose of the decontamination pad and resulting contaminated waste products.

3.7 DISPOSAL

A. The Contractor shall be responsible for preparing and submitting to the Engineer for review all waste profile applications and questionnaires, and coordination, with disposal facilities and all Federal and State environmental agencies.

B. The Contractor shall submit to the Engineer, prior to receiving payment, documentation certifying that all materials were transported to, accepted, and disposed of, at the selected disposal facility.

C. Dispose of materials described herein shall be in accordance with all Federal, State, and Local regulations.

D. The Contractor shall perform analyses on stockpiles or in situ as necessary to fulfill any disposal testing requirements of the approved facilities. At a minimum, the Contractor shall sample at a frequency of one per 1,000 CY of excavated material. The Contractor shall submit a copy of all sampling analyses to the Engineer within 2 days of receipt of the laboratory report. The Contractor shall provide disposal facility letters of final waste acceptance, based on the stockpile or in situ sample analysis.

E. The Contractor shall provide the Engineer copies of all manifests and truck load forms, with original certified scale weight slips, both tare and gross, for every load weighted and disposed of at the accepted landfills. Individual truck load weight slips shall be tracked by the original manifest document number that was assigned by the Engineer at the site.

F. Failure to provide manifests and other required forms, truck load tracking sheets, and the weight slips required as payment request backup, may be cause for the Engineer to withhold payment in an amount which the Engineer determines is equivalent to the work until such documentation is provided by the Contractor.

3.8 UNANTICIPATED CONTAMINATED MATERIALS

A. In the event that the Contractor suspects it has encountered unanticipated special wastes or contamination, the Contractor shall immediately discontinue work and make the work area safe. The Contractor shall immediately notify the Engineer, notify RIDEM in accordance with Section 5.0 of the RIDEM's Rules and Regulations of Hazardous Material Releases and implement the Contractor's Environmental Response Plan for Contaminated Media as required by Section 01069, HEALTH AND SAFETY REQUIREMENTS. Prior to re-commencing work at the site of the suspected

contamination the Contractor shall be responsible for submitting and receiving approval for its proposed actions from both RIDEM and the Engineer.

B. The Contractor shall submit to the Engineer the name, location, and classification of the disposal facility for unanticipated contaminated material, along with the name and registration of licensed hauler and the Engineer for review prior to removal off-site. The disposal facility must be approved by RIDEM, and/or applicable federal, state, and/or local agency.

C. In consideration of the fact that the regulations governing disposal of these materials vary from time to time and that the quantity of material that may have to be excavated, stored, and disposed of is indeterminate, allowances have been set up under the Bid to provide compensation for disposal of these materials.

D. Temporary Storage Areas:

1. Prior to storing un-containerized contaminated soils in stockpiles at temporary storage areas approved by the Engineer, the Contractor shall install berm or other perimeter controls around the base of the stockpile area as specified in approved plan.

2. Polyethylene sheeting shall cover the stockpiles and appropriate perimeter controls shall be constructed to prevent generation and migration of leachate and diversion of stormwater runoff.

3. Place appropriate bottom layer polyethylene sheeting beneath all stockpiles with a minimum overlap of 18-inches. The polyethylene sheeting shall extend past the limits of the berm a minimum of 12-inches.

4. The Contractor shall inspect perimeter controls at least twice per week and provide immediate maintenance as necessary.

E. The Contractor shall be responsible for preparing and submitting to the Engineer for review all waste profile applications and questionnaires, and coordination, with disposal facilities and all Federal and State environmental agencies.

F. The Contractor shall be responsible for preparing all waste profiles, hazardous waste manifests and bills of lading with all applicable analytical backup, notification, and control forms. Contractor shall submit these to the Engineer for review and approval at least 5 days before transport.

G. The Contractor shall also provide certified tare and gross weight slips for each load received at the designated disposal facility which shall be attached to each returned manifest and bill of lading.

H. The Contractor shall furnish all copies of the waste manifests to the Engineer for submittal to appropriate Federal and/or State Environmental Agencies and to retain for the Owner's records.

I. The Contractor shall submit to the Engineer, prior to receiving payment, documentation certifying that all materials were transported to, accepted, and disposed of, at the selected disposal facility.

J. Disposal of materials described herein shall be in accordance with all Federal, State, and Local regulations. The Contractor shall select excavation techniques that will minimize the amounts of excavated material and shall select the most economical disposal option allowable in accordance with Federal, State, and local environmental agencies having jurisdiction.

1. The Contractor shall perform analyses on stockpiles or in situ as necessary to fulfill any disposal testing requirements of the approved facilities.

2. The Contractor shall perform sampling and analyses for those tests required by the facilities in excess of those previously performed by the Engineer.
3. The Contractor shall submit a copy of all sampling analyses to the Engineer within 2 days of receipt of the laboratory report. Analytical data shall be kept confidential, distributed to facility, Engineer and RIDEM only.
4. The Contractor shall provide disposal facility letters of final waste acceptance, addressed to RIDEM, based on the stockpile or in situ sample analysis.

K. The Contractor shall provide the Engineer copies of all manifests and truck load forms, with original certified scale weight slips, both tare and gross, for every load weighted and disposed of at the accepted landfills. Individual truck load weight slips shall be tracked by the original manifest document number that was assigned by the Engineer at the site. The Engineer shall only authorize payments upon receipt of the manifests and other required forms, truck load tracking sheets, and the weight slips required as payment request backup.

L. All material described herein shall be removed from the site within 90 days from the start of generation or receipt of analytical results.

END OF SECTION

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SECTION 02215

AGGREGATE MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for furnishing and placing materials, which include Crushed Stone, Gravel Borrow and Select Borrow.

2. Location of specified materials as detailed on the Drawings or as directed by the Engineer for excavation below normal depth, utility support, replacement of unsuitable material or elsewhere, as ordered.

B. Related Sections

1. Section 02200 - Earthwork

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO).

1. T11, Amount of Material Finer than 0.075 mm Sieve in Aggregate

2. T27, Sieve Analysis of Fine and Coarse Aggregates.

B. American Society for Testing and Materials (ASTM).

1. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).

1.3 DEFINITIONS

A. The term Screened Gravel as used in the Contract Documents shall mean Crushed Stone.

1.4 SUBMITTALS

A. Shop Drawings

1. Provide sieve analysis when gradation requirements are given in the Specification.

B. Samples

1. Furnish representative sample including location of source with Shop Drawing transmittal sheet.

1.5 QUALITY ASSURANCE

A. Field Samples

1. The attention of the Contractor is directed to the fact that under Specification SECTION 01600, Materials and Equipment, all materials furnished by the Contractor to be incorporated into the Work shall be subject to the inspection of the Engineer. The Engineer shall be the sole judge as to the acceptability of proposed materials and said judgement shall be final, conclusive, and binding.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Storage and Protection

1. In accordance with Specification SECTION 01600, Materials and Equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Crushed Stone

1. For bedding and pipe zone material for pipe larger than 3 inches diameter. Well graded in size from 3/8 inches to 3/4 inches or such other sizes as may be approved.
2. For bedding and pipe zone material for plastic pipe 3 inches diameter and less, maximum particle size shall be 3/8 inches.
3. Clean, hard, and durable particles or fragments, free from dirt, vegetation, or other objectionable matter, and free from an excess of soft, thin elongated, laminated or disintegrated pieces.
4. Screened Stone of similar size and grading to this specification may be used instead of Crushed Stone.

B. Crushed Stone Under Structures

1. Crushed stone hall be in accordance with the Table in RIDOT Standard Specifications, Subsection M.01.09, Column II.

C. Gravel Borrow

1. Shall be in accordance with the Table in RIDOT Standard Specifications, Subsection M.01.09, Column I (Ia) or (IIb).

D. Select Borrow

1. Use inorganic natural soils and/or rock, having not more than 8 percent by weight passing the No. 200 sieve and having a maximum stone size no greater than 6-inches.
2. Use only material well-graded throughout entire size range, free of roots, leaves and other organic material, ice or frost and aggregations of frozen soil particles.
3. Moisture content to be within plus minus 3 percent optimum at the borrow source.
4. Material must meet compaction requirements indicated or as specified.

E. Pervious Fill

1. Shall be in accordance with the Table in RIDOT Standard Specifications, Subsection M.01.09, Column IV.

F. Filter stone

1. Shall be in accordance with the Table in RIDOT Standard Specifications, Subsection M.01.09, Column V.

2.2 SOURCE QUALITY CONTROL

A. Test, Inspection

1. Engineer may elect to sample material supplied at the source.
2. Assist the Engineer and/or personnel from the designated testing laboratory in obtaining samples.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Crushed Stone

1. Spread in layers of uniform thickness not greater than 6 inches.
2. Compact thoroughly by means of a suitable vibrator or mechanical tamper.

B. Gravel Borrow

1. Spread in layers of uniform thickness not exceeding 12 inches before compaction and moistened or allowed to dry as directed.
2. Compact thoroughly by means of suitable power-driven tampers or other power-driven equipment.
3. Compaction shall conform to 95% of minimum dry density per ASTM D1557.
4. The percolation rate for the compacted bank-run gravel shall not exceed 5 minutes per inch.

C. Select Borrow

1. Spread in layers of uniform thickness not exceeding 12 in. (loose lift) before compaction and moistened or allowed to dry.
2. Compact thoroughly by means of suitable power-driven tampers or other power-driven equipment unless otherwise directed by the Engineer.

3.2 FIELD QUALITY CONTROL

A. Material and compaction testing

1. In accordance with SECTION 01410.

END OF SECTION

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SECTION 02220

RIPRAP

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for the installation of riprap, including: loading, hauling, placing, spreading, grading and other related and incidental work.

B. Related Sections

1. Section 02215 - Aggregate Materials
2. Section 02200 - Earthwork
3. Section 02272 - Geotextile Materials

PART 2 - PRODUCTS

2.1 MATERIAL

A. All riprap used shall be sound, tough and durable stone, not lumpy or frozen, and free from slag, cinders, ashes, rubbish or other deleterious materials. All riprap will be of the size required for each specific application, as shown on the Drawings.

B. The material for riprap shall consist of broken stone produced from sound ledge or large boulders with at least three fractured faces on each particle and shall be free from overburden, spoil, shale or organic material. The stone shall have a minimum density of 160 pounds per cubic foot. It shall be angular in shape with its minimum dimension not less than one third of the maximum dimension.

C. Stone for placed riprap shall have one flat face and shall be roughly square or rectangular to facilitate laying up.

D. Riprap shall conform to the following gradation and shall be well graded within the size required:

National Stone Association Modified NSA No.	Size Inches (square opening) Maximum	Average	Minimum
R-1	2	1	No. 4
R-2	4	2	1
R-3	8	4	2
R-4	14	7	4
R-5	20	10	6
R-6	26	13	8
R-7	34	18	14
R-8	50	24	18

E. "Average size" is that size exceeded by at least 50 percent of the total weight of the tonnage shipped; i.e., 50 percent of the tonnage shall consist of pieces larger than the "average" size (normally half the specified nominal top size).

F. Pieces smaller than the minimum size shown shall not exceed 15 percent of the tonnage shipped.

G. Geotextile material in accordance with SECTION 02272.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Preparation

1. Areas to receive riprap shall be free of brush, trees, stumps, and other objectionable material and be dressed to a smooth surface. All soft or spongy material shall be removed to the depth shown on the plans or as authorized and replaced with gravel borrow conforming to SECTION 02215. Filled areas will be compacted as specified in SECTION 02200.

2. Install Geotextile material at locations indicated on the Contract Drawings in accordance with SECTION 02272.

B. Dumped Riprap

1. Stone for riprap shall be placed on the prepared area in a manner, which will produce, and evenly graded mass of stone with the minimum practical percentage of voids. The entire mass of stone shall be placed so as to conform with the lines, grades, and thicknesses shown on the plans. Riprap shall be placed to its full course thickness at one operation and in such a manner as to avoid displacing the underlying material. Placing of riprap in layers, or by dumping into chutes, or by similar methods likely to cause degradation will not be permitted.

2. All riprap shall be placed and distributed with no large accumulations of either the larger or smaller size of stone.

3. It is the intent of these specifications to produce a compact riprap installation in which all sizes of material are placed in their proper proportions. Hand placing or rearranging of individual stones by mechanical equipment may be required to the extent necessary to secure the results specified.

4. When riprap and bedding material are dumped under water, thickness of the layers shall be increased as shown on the Drawings.

C. Placed Riprap

1. Stone for placed riprap shall be placed on a prepared surface in a pattern that contains minimum voids. Top surface of riprap shall conform to a true and even plane with a tolerance of plus or minus 4-inches.

2. Joints shall be broken as much as practicable, chocking openings with smaller stones.

3. Larger stones placed near base of slopes, stones laid to rest on the prepared surface and not on other stones, Stones placed on slopes shall be done from the top down.

D. Riprap placed outside the specified limits will not be measured or paid for, and the Contractor may be required to remove and dispose of the excess riprap without cost to the Owner.

END OF SECTION

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SECTION 02250

EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 SCOPE

A. The work specified in this section includes the installation, maintenance, and removal of perimeter erosion controls, check dams, temporary dewatering basins, storm drain protection, stilling basins for water pollution control, and construction accesses. Soil erosion and sediment controls shown on the Plans shall be installed by the Contractor. Some soil erosion and sediment controls specified herein may or may not be shown or detailed on the Drawings but may be utilized by the Contractor. Soil erosion and sediment controls not detailed on the Plans shall be in accordance with this specification and the Rhode Island Department of Environmental Management Soil Erosion and Sediment Control Handbook, 1989, and all addendums. The methods described in this section are approved means for soil erosion and sediment control, the actual means and methods shall be determined by the Contractor. The Contractor shall be responsible for preparing and establishing a stormwater pollution prevention plan at each work site for approval by the Engineer.

B. Related Work Described Elsewhere:

1. Earthwork – Section 02200

1.2 GENERAL REQUIREMENTS

A. Perimeter Erosion Controls: Work shall consist of the provision of perimeter erosion controls in reasonably close conformity with the dimensions and details indicated on the Drawings, all in accordance with these Specifications. Perimeter erosion controls consist of the following two types:

1. Compost Filter Socks: Filter socks shall be constructed as indicated on the Drawings.
2. Silt Fence: Silt fencing shall consist of oak fence posts to which are attached industrial support netting and sediment control filter fabric and are constructed as indicated on the Drawings.

B. Storm Drain Protection: Work shall consist of the provision of temporary storm drain protection facilities. Storm drain protection facilities shall consist of the following three types:

1. Sandbag Gutter Inlet Sediment Barrier: This work consists of placing a sandbag barrier upstream of a gutter inlet prior to the placement of roadway pavement.
2. Silt Fence Catch Basin Inlet Protection: This work consists of placing a temporary filter fabric fence around inlet grates.
3. Baled Hay Catch Basin Inlet Protection: This work consists of placing baled hay around catch basin inlets. Baled hay inlet protection shall be constructed as indicated on the Drawings.

C. Check Dams: if so required work shall consist of the provision of check dams and dikes in reasonably close conformity with the RIDEM Soil Erosion and Sediment Control Handbook. Check dams consist of the following three types:

1. Baled Hay Ditch and Swale Erosion Checks: Baled hay ditch and swale erosion checks shall consist of baled hay or straw, each bale of which is embedded and attached to the ground with wood stakes.
2. SandBag Erosion Dikes: This work shall consist of the placement of sandbags across either riprap or earth ditches, thereby forming a dike, to create temporary stilling basins for pollution control.
3. Stone Check Dams: This work shall consist of the placement of stone in ditches or drainage swales to reduce flow velocities, to prevent soil erosion.

D. Temporary Dewatering Basins: If so required work shall consist of the provision of temporary dewatering basins for the purpose of controlling water pollution caused by sediment-laden discharge from excavation sites. The basins shall be constructed in reasonably close conformity to means and methods of the RIDEM Soil Erosion and Sediment Control Handbook. Temporary dewatering basins consist of the following two types:

1. Dewatering Basin: The basin consists of a rectangular concrete barrier enclosure, the bottom and sides of which are lined with filter fabric. The bottom fabric is stabilized with filter stone. The basin is divided into the required number of 12-foot sections by stone berms approximately 18-inches high.
2. Filter Fabric Retention Basin: The basin consists of a rectangular enclosure formed by a 2-foot high chain link fence. Both the fence and the bottom of the enclosure are lined with filter fabric which is stabilized by a layer of rock riprap.

E. Stilling Basins for Water Pollution Control: Work shall consist of the provision of temporary and/or permanent stilling basins in accordance with the RIDEM Soil Erosion and Sediment Control Handbook.

1.3 QUALITY CONTROL

A. Provide Quality Assurance / Quality Control services in accordance with Section 01400.

1.4 SUBMITTALS

A. None required.

1.5 REFERENCE STANDARDS

A. Rhode Island Department of Environmental Management (RIDEM). 1988. Recommendations of the Stormwater Management and Erosion Control Committee Regarding the Development and Implementation of Technical Guidelines for Stormwater Management. RIDEM, Office of Environmental Coordination, Providence, RI.

B. Rhode Island Department of Environmental Management and USDA Soil Conservation Service (SCS). 1989. Rhode Island Soil Erosion and Sediment Control Handbook. RIDEM, Providence, RI.

C. Rhode Island Discharge Elimination System. General Permit for Discharges Associated with Construction Activities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Perimeter Erosion Controls:

1. Compost Filter Socks: Filter sock materials and compost materials shall be in accordance with AASHTO Designation MP 9-06. To avoid damage to existing pavement compost socks may be weighted down with concrete blocks at 5-foot on-center intervals with prior approval by the engineer. If utilized, wooden stakes shall be 1 inch by 1 inch, installed at 10-foot intervals on center, and of a length that shall project into the soil 1 foot leaving 3-4 inches protruding above the filter sock.
2. Baled Hay Erosion Checks: Baled hay or straw shall be baled within twelve months of use. Bindings shall be sufficiently strong to act as handles when placing bales in position by hand. The minimum dimension of any bale shall be 18-inches. Wood stakes shall be oak, 1-inch by 1-inch in section, and at least 3.0 feet in length.
3. Silt Fence: The filter fabric shall be a material suitable for erosion control applications. Wood posts shall be oak, 2-inch by 2-inch in section, and at least 4.5 feet in length. Support netting shall be heavy-duty plastic mesh. For prefabricated silt fence, 1-inch by 1-inch wood posts will be permitted.

B. Check Dams:

1. Baled Hay Ditch and Swale Erosion Checks: Baled hay or straw shall be baled within twelve months of use. Bindings shall be sufficiently strong to act as handles when placing bales in position by hand. The minimum dimension of any bale shall be 18-inches. Wood stakes shall be oak, 1-inch by 1-inch in section, and at least 3.0 feet in length.
2. Sandbag Erosion Dikes: The sandbags and the sand material shall be of a quality acceptable to the Engineer. Dumped stone, when required, shall meet the requirements for Modified NSA Class R-4 riprap in Table II. The filled sandbags will weigh a minimum of 60 pounds.
3. Stone Check Dams: The stone shall meet the requirements for Filter Stone under RIDOT FS 2.

C. Temporary Dewatering Basins:

1. Dewatering Basins: Precast concrete barrier units shall conform to the RIDEM Soil Erosion and Sediment Control Handbook. Filter fabric shall conform to the applicable requirements of Article 2.1, Item A, Para. 2; Silt Fence, of these Specifications. Filter stone shall conform to the requirements of RIDOT FS-2. Sandbags shall be of a quality acceptable to the Engineer. Hay bales and wood stakes shall conform to the requirements of Article 2.1, Item A, Para. 1 of these Specifications.

D. Storm Drain Protection:

1. Sandbag Gutter Inlet Sediment Barrier: The sandbags and the sand material shall be of a quality acceptable to the Engineer.
2. Silt Fence Catch Basin Inlet Protection: The filter fabric shall be a material suitable for erosion control applications utilized. Wood posts shall be oak, 2-inch by 2-inch in section, and at least 4.5 feet in length. Support netting shall be heavy-duty plastic mesh. For prefabricated silt fence, 1-inch by 1-inch wood posts will be permitted.

3. Baled Hay Catch Basin Inlet Protection: Baled hay or straw and wood stakes shall conform to the requirements of Article 2.1, Item A, Para. 1 of these Specifications.

E. Stilling Basins for Water Pollution Control: The various materials required for the construction of stilling basins will be determined by the Contractor and provided in the Soil Erosion and Sediment Control Plan for approval by the Engineer.

PART 3 - EXECUTION

3.1 GENERAL

A. Construction Methods: Those erosion and pollution controls indicated on the Drawings shall be installed to the satisfaction of the Engineer before the commencement of any construction.

3.2 INSTALLATION

A. Perimeter Erosion Controls:

1. Compost Filter Socks: Filter socks shall be constructed at the locations, and in accordance with the details indicated on the Drawings to the satisfaction of the Engineer. The following stipulations also apply:

   a. Trenching is not required. Compost filter socks shall be placed over the top of pavement or existing ground, weighted with concrete blocks or secured with wooden stakes shall be driven through the center of the filter socks to anchor them to the ground. To ensure optimum performance, heavy vegetation shall be cut down or removed, and extremely uneven surfaces shall be graded to ensure that the compost filter sock uniformly and snugly contacts and conforms to the ground surface.

   b. Compost tubes may be vegetated by incorporating seed into the compost, prior to placing it in the tube.

   c. Compost Filter Socks do not require trenching but must be weighted or staked.

   d. Installation: No trenching is required; therefore, soil is not disturbed upon installation. Once the filter sock is filled and put in place, it should be anchored. The preferred anchoring method is to drive stakes through the center of the sock at regular intervals; alternatively, stakes can be placed on the downstream side of the sock. The ends of the filter sock should be directed upslope, to prevent stormwater from running around the end of the sock. The filter sock may be vegetated by incorporating seed into the compost when filling the filter sock.

   e. Since compost filter socks do not have to be trenched into the ground, they can be installed on frozen ground, pavement or cement. For placement on pavement or cement concrete blocks can placed to hold the sock in place.

2. Baled Hay Erosion Checks: Baled hay erosion checks shall be constructed at the locations, and in accordance with the details indicated on the Drawings to the satisfaction of the Engineer. The following stipulations also apply:

   a. Bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another.

b. The erosion check shall be entrenched and backfilled. The trench shall be excavated the width of the bale and the length of the check to a minimum depth of 3-inches. After the bales are staked and chinked, the excavated soil shall be backfilled against the check. Backfill shall conform to the ground level on the downhill side and shall be built up to 4-inches against the uphill side.

c. The bales are to be installed so that the bindings are oriented around the sides of the bales rather than along their tops and bottoms.

d. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together.

e. The gaps between bales shall be chinked (filled by wedging) with straw to prevent water from escaping between bales. Loose straw shall be scattered over the area immediately uphill from the bale erosion check to increase efficiency.

f. At approximate intervals of 100 feet, one bale is to be placed against those bales positioned along the limit of clearing. This bale is to be placed at a right angle to the line of the toe of slope.

3. Silt Fence: Silt fence shall be constructed at the locations, and in accordance with the details indicated on the Drawings, to the satisfaction of the Engineer. The following stipulations also apply:

a. A 6-inch x 6-inch minimum trench shall be dug where the fence is to be installed.

b. The fence shall be positioned in the trench with the fence posts set at 8-feet on center (maximum).

c. The sedimentation control fabric and the industrial netting shall be stapled to each post. When joints are necessary, filter fabric shall be spliced together only at support posts. Splices shall consist of a 6-inch overlap and shall be securely sealed.

d. Each wood post with industrial support netting and filter fabric attached shall be driven into the undisturbed soil in the trench as indicated on the Drawings.

e. The trench shall be backfilled, and the soil compacted over the filter fabric.

f. The installed height of the fence shall be 2.5 feet (minimum). However, height shall not exceed 36-inches since higher barriers impound volumes of water sufficient to cause failure of the fence structure.

B. Check Dams:

1. Baled Hay Ditch and Swale Erosion Checks: Erosion checks shall consist of two or more bales placed and staked perpendicular to the flow line of a ditch formed by the intersection of its slopes. The following stipulations also apply:

a. A pair of erosion checks shall be placed a minimum of 12 feet apart at each location.

b. The ditch erosion checks shall be entrenched and backfilled. The trench shall be excavated the width of the bale(s) and the length of the check to a minimum depth of 3-inches. After the bales are staked and chinked, the excavated soil shall be backfilled against the check. Backfill shall conform to the ground level on the downhill side and shall be built up to 4-inches against the uphill side.

c. The bales are to be installed so that the bindings are oriented around the sides of the bales rather than their tops and bottoms.

d. The edges of overlapped bales shall overlap in such a manner that there will be no opening between the bales. Where bales butt together the gap between bales shall be chinked with loose straw to prevent water from escaping.

e. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together.

f. All earth ditch areas are required to have the protection of baled hay ditch erosion checks prior to their outfall onto existing ground, or natural or man-made water courses.

g. The haybale barrier shall be extended such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale. This configuration will ensure that the sediment-laden runoff will flow either through or over the barrier, but not around it.

2. Sandbag Erosion Dikes: Sandbags will be placed a minimum of four layers high. Over the center of the ditch the top layer of sandbags will have a weir opening equal to one half the bottom ditch width. The sandbags shall be extended such a length that the bottom of the end sandbags are higher in elevation than the top of the lowest middle sandbag. When the sandbag dike is constructed across an earth ditch, the downstream side of the dike at the weir opening is to be protected with Modified NSA Class R-4 dumped riprap.

3. Stone Check Dams: Stone shall be placed across the ditch or swale to achieve complete coverage and shaped to the required configuration by the use of hand tools. The stone shall be sloped from the sides of the ditch/swale towards the center such that the center is 6-inches lower than the stone at the sides of the ditch/swale. The check dam shall have 2-horizontal to 1-vertical side slopes and shall not exceed 2-feet in height.

C. Temporary Dewatering Basins:

1. Dewatering Basin: The following stipulations shall apply:

a. The precast concrete barrier units shall be placed on level, or nearly level, ground.

b. Filter fabric shall be placed on the bottom of the entire area enclosed by the concrete barrier units. If more than one sheet of fabric is required, the adjacent section shall be overlapped a minimum of 12-inches to ensure full coverage. Filter fabric shall be turned up along the inside face of the concrete barriers to the top of same, there to be folded across the top of the barriers. The fabric will be maintained in position by the placement of sandbags, end-to-end, along the top of the concrete barrier enclosure.

c. A minimum layer of 6-inches of filter stone shall be spread over the bottom of the basin. Stone berms shall be constructed at 12-foot intervals along the length of the basin.

2. Filter Fabric Retention Basin: The following stipulations shall apply:

a. The filter fabric retention basin will be placed on stabilized and level, or nearly level, ground to prevent erosion by water exiting the basin.

b. A 6-inch by 6-inch minimum trench shall be dug where the basin is to be constructed.

c. The filter fabric and wire backing shall be 3-feet wide (minimum) positioned in the trench and secured to metal posts positioned 4-feet on center (maximum).

d. The metal posts shall be driven into undisturbed soil next to the trench to a minimum depth of 12-inches.

e. Fill material shall be placed in the trench and compacted.

f. The installed height of the fence shall be 2-feet (minimum).

g. A minimum layer of 6-inches of filter stone (Modified NSA Class R-4 riprap) shall be spread evenly over the bottom of the basin.

D. Storm Drain Protection:

1. Sandbag Gutter Inlet Sediment Barrier: The following stipulations shall apply:

a. The sandbags shall be placed in a curved row extending from the curb or berm. The row shall be at least 6-feet upstream of the inlet and should overlap the curb or berm.

b. Several layers of sandbags shall be placed over the first layer to a minimum height of 1-foot. The bags shall be overlayed and packed tightly together.

c. A gap of one sandbag should be left in the middle of the top row to serve as a spillway. The spillway shall be at least 8-inches high.

d. Additional sediment storage capacity can be obtained by constructing a series of these barriers along the gutter upstream of the inlet.

2. Silt Fence Catch Basin Inlet Protection: The following stipulations shall apply:

a. Posts shall extend at least 1 foot below grade.

b. The filter fabric shall extend to a height at least 12-inches above the top of the inlet grate but shall not exceed 3 feet in height.

c. The support netting shall extend to the full height of the filter fabric.

d. A trench shall be excavated approximately 6-inches wide and 6-inches deep around the outside perimeter of the stakes. The filter fabric and support netting shall extend at least 6-inches into the trench. After the fabric and support netting are fastened to the stakes the trench should be backfilled and compacted to original grade.

e. The filter fabric and support netting fence shall be securely fastened to the stakes using heavy duty wire staples at least 1-inch long. Ends of the filter fabric must meet at a stake, be overlapped, folded and stapled to the stake.

3. Baled Hay Catch Basin Inlet Protection: The baled hay inlet protection shall be constructed as indicated on the Drawings. The following stipulations shall also apply:

a. The bales shall be entrenched and backfilled. The trench shall be excavated the width of the bale and the length of the check to a minimum depth of 3-inches. After the bales are staked and chinked, the excavated soil shall be backfilled against the check. Backfill shall conform to the ground level on the inside and shall be built up to 4-inches around the outside.

b. The bales are to be installed so that the bindings are oriented around the sides of the bales rather than along their tops and bottoms.

c. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together.

d. The gaps between bales shall be chinked (filled by wedging) with straw to prevent water from escaping between bales.

E. Stilling Basins for Water Pollution Control:

1. The stilling basins will be constructed in such a manner to allow any material which may cause a natural water course or the surrounding environment to be damaged to be retained in the basin. During the life of the Contract, the Contractor will be required to periodically clean the pool and to maintain the basin to the satisfaction of the Engineer. If the basin is temporary, the Contractor will be required to fill the basin with suitable material and to restore the area in which the basin was located to either its original condition or to the requirements of the Contract.

2. In all cases the stilling basins are to be constructed immediately after the clearing and grubbing operation and before commencement of any excavation and/or embankment. The single exception to this requirement is the construction of a leveling course to create a work platform. Excavation for stilling basins is to take place from the downstream end of the basin and to proceed upstream. Prior to the start of excavation, temporary baled hay ditch erosion checks are to be constructed immediately beyond the downstream end of the basin. When the basin is complete the above temporary erosion control measures are to be removed.

3.3 MAINTENANCE AND CLEANING

A. Definitions:

1. Cleaning consists of removing debris and accumulated sediment-laden deposits from the upstream side of perimeter controls, check dams and temporary drainage protection and from the bottom of temporary dewatering basins and stilling basins. All material so removed shall be legally disposed of in accordance with Federal, State, and local regulations.

2. Maintenance consists of the repair and restoration to original configuration of damage sustained by erosion and pollution controls caused by "normal" rainfall events. (Abnormal weather events are defined in Article 3.3, Item I)

B. Methods:

1. Erosion and pollution controls shall be maintained by the Contractor to the satisfaction of the Engineer. Erosion and pollution controls must be able to prevent, under normal weather conditions, both the movement of soil materials and the intrusion of sediment-laden discharges into environmentally sensitive areas.

2. Construction shall not commence or continue until all specified erosion and pollution controls are in place, properly installed and accepted by the Engineer.

3. Erosion and pollution controls shall be routinely inspected by the Engineer. The Engineer shall notify the Contractor immediately if problems develop. The Contractor shall commence cleaning and maintenance measures no later than the next consecutive calendar day after receiving a directive from the Engineer to perform such measures. The Contractor shall aggressively and expeditiously perform such cleaning and maintenance work until the original

problem is remedied to the complete satisfaction of the Engineer. In the event of a weekend storm, the Contractor must have resources available to restore, and, if necessary, to replace any damaged controls.

C. Applicable Controls:

1. The specific erosion and pollution control facilities to be cleaned and maintained under this Section are outlined in Article 1.2 and consist of the following:

a. Perimeter Controls:

1) Compost Filter Socks

2) Baled Hay Erosion Checks

3) Silt Fence

b. Check Dams:

1) Baled Hay Ditch and Swale Erosion Checks

2) Sandbag Erosion Dikes

3) Stone Check Dams

c. Temporary Dewatering Basins:

1) Dewatering Basins

2) Filter Fabric Retention Basins

d. Storm Drain Protection:

1) Sandbag Gutter Inlet Sediment Barrier

2) Silt Fence Catch Basin Inlet Protection

3) Baled Hay Catch Basin Inlet Protection

e. Stilling Basins

D. Materials:

1. Materials required to repair and restore damaged erosion and pollution controls shall meet the applicable requirements of Article 2.1, Items A through E; for Perimeter Erosion Controls, Check Dams, Temporary Dewatering Basins, Storm Drain Protection, and Stilling Basins, respectively, of these Specifications.

E. Threshold for Cleaning Erosion Controls:

1. Erosion and pollution controls will be cleaned when directed by the Engineer, after a rainstorm, and when sediment deposits reach the heights indicated in the following table:

Perimeter Controls	Height
a. Baled Hay Erosion Checks	1/2 Bale Height
b. Silt Fence	6-inches

2. Check Dams

a. Baled Hay Erosion Checks	1/2 Bale Height

b. Sandbag Erosion Dike 1/2 Dike Height

c. Stone Check Dam 1/2 Dam Height

3. Temporary Dewatering Basins

a. Dewatering Basins 1/2 Original Basin Height

b. Filter Fabric Retention Basin 1/2 Original Basin Height

4. Storm Drain Protection

a. Sandbag Gutter Inlet Sediment Barrier 1/2 Dike Height

b. Silt Fence Catch Basin Inlet Protection 6-inches

1) Baled Hay Catch Basin Inlet Protection 1/2 Bale Height

5. Stilling Basins 1/2 Depth Below Outlet Elevation

F. Other Requirements:

1. Perimeter Controls, Check Dams and Storm Drain Protection: The following requirements apply:

a. Damaged controls will be repaired or replaced after each storm events.

b. Before controls are removed all accumulated sediment on the upstream side shall be removed and legally disposed of.

c. Erosion controls shall not be removed until the adjacent exposed areas are relatively free from future uncontrolled discharges.

d. The Engineer has the authority to verify, enforce, and to specify maintenance activities and to ensure that erosion and pollution controls have been properly maintained.

2. Temporary Dewatering Basins and Stilling Basins: The following requirements apply:

a. The basins will be periodically inspected for signs of erosion around the basin and downslope area.

b. Repairs will be promptly carried.

c. The Engineer has the authority to verify, enforce, and to specify maintenance activities and to ensure that controls have been properly maintained.

G. Failure of Erosion and Pollution Controls:

1. This Article 3.3; Maintenance and Cleaning, is based on the concept that erosion and pollution controls will essentially remain intact under normal rainfall events and that any damage sustained by said controls under normal rainfall may be repaired under the maintenance provisions set forth herein.

2. However, under abnormal weather events it is possible that erosion and pollution controls may be damaged to the extent that the Engineer may direct that they be replaced in their entirety. Under such abnormal conditions the Contractor will replace the particular facilities, and be compensated for same, under the applicable provisions set forth in regarding PERIMETER CONTROLS, CHECK DAMS, TEMPORARY DEWATERING BASINS, STORM DRAIN PROTECTION, and STILLING BASINS, respectively, of these Specifications.

H. Definition of Abnormal Weather Conditions:

1. For the purposes of Article 3.3, Item G, abnormal weather events are defined as follows:

   a. For a duration of 1-hour; rainfall equal to or greater than 1/2-inch.

   b. For a duration of 12-hours; rainfall equal to or greater than 2-inches.

   c. For a duration of 24-hours; rainfall equal to or greater than 3-inches.

   d. Extreme weather conditions such as hurricanes, tornadoes, floods, blizzards, etc. Daily rainfall records may be obtained from the National Weather Service.

3.4 REMOVAL

A. Perimeter Erosion Controls:

1. Compost Filter Socks: All stakes and compost filter socks must be removed at a time designated by the Engineer. The compost filter socks may be removed only when the adjacent exposed area has been stabilized, i.e., the area has an established grass or stone cover or has been paved and is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the haybales shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications. Immediately upon removal of the bales the remaining exposed areas (under the bales) will be backfilled, raked, and graded as necessary to match the surrounding grade and then seeded.

2. Baled Hay Erosion Checks: All stakes must be removed from the haybales at a time designated by the Engineer. In general, the bales will be allowed to rot in place. If the Contract requires the haybales to be removed, they may be removed only when the adjacent exposed area has been stabilized, i.e., the area has an established grass or stone cover or has been paved and is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the haybales shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications. Immediately upon removal of the bales the remaining exposed areas (under the bales) will be backfilled, raked, and graded as necessary to match the surrounding grade and then seeded.

3. Silt Fence: This work will include the removal of the silt fence erosion checks and posts. Silt fence will not be left to rot in place. The silt fence may be removed only when the adjacent exposed area is stabilized, i.e., the area has an established grass or stone cover or has been paved and is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the silt fence shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications. Immediately upon removal of the bales the remaining exposed areas (under the bales) will be backfilled, raked, and graded as necessary to match the surrounding grade and then seeded.

B. Check Dams:

1. Baled Hay Ditch and Swale Erosion Checks: Bales of hay used in this work will not normally be left to rot in place. The bales may be removed only when the adjacent exposed area is stabilized, i.e., the area has an established grass or stone cover or has been paved and is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the respective erosion checks shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications. Immediately

upon removal of the bales, the remaining exposed areas (under the bales) will be backfilled, raked, and graded as necessary to match the surrounding grade and then seeded.

2. Sand Bag Erosion Dikes: Sandbag erosion dikes will be removed prior to the completion of the project at a time designated by the Engineer. Prior to such removal, however, all silt, mud, and debris entrapped by the erosion dike shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications.

3. Stone Check Dams: Stone check dams will be removed prior to the completion of the project at a time designated by the Engineer. Prior to such removal, however, all silt, mud and debris entrapped by the check dam shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications.

C. Temporary Dewatering Basins:

1. Dewatering Basin: The dewatering basin will not be removed until all dewatering operations are complete. Prior to such removal, however, all accumulated sediment within the basin shall be removed and legally disposed of in accordance with the applicable requirements of Article 3.3 of these Specifications. The area covered by the basin shall be seeded and mulched immediately after the basin is removed.

2. Filter Fabric Retention Basin: Removal requirements for the filter fabric retention basin are the same as set forth above for the dewatering basin.

D. Storm Drain Protection:

1. Sandbag Gutter Inlet Sediment Barrier: The sandbag sediment barrier will be removed prior to the completion of the project at a time designated by the Engineer. Prior to such removal, however, all silt, mud, and debris entrapped by the sediment barrier shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications.

2. Silt Fence Catch Basin Inlet Protection: The silt fence inlet protection shall be removed, and the area prepared for pavement construction once the contributing drainage area is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the silt fence shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications.

3. Baled Hay Catch Basin Inlet Protection: The baled hay inlet protection shall be removed, and the area prepared for pavement construction the contributing drainage area is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the baled hay shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.3 of these Specifications.

END OF SECTION

SECTION 02272

GEOTEXTILE MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for installation of geotextile filter fabric in trenches and under riprap.

B. Related Sections

1. Section 02100 – Site Clearing
2. Section 02200 – Earthwork
3. Section 02215 – Aggregate Materials

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. D3786, Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics: Diaphragm Bursting Strength Tester Method
2. D4355, Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
3. D4491, Test Method for Water Permeability of Geotextiles by Permittivity
4. D4533, Test Method for Trapezoid Tearing Strength of Geotextiles
5. D4632, Test Method for Grab Breaking Load and Elongation of Geotextiles
6. D4751, Test Method for Determining Apparent Opening Size of a Geotextile
7. D4833, Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
8. D5261, Measuring Mass Per Unit Area of Geotextiles.
9. D6241, Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

1.3 QUALITY ASSURANCE

A. General

1. Producer of fabric to maintain competent laboratory at point of manufacture to ensure quality control in accordance with ASTM testing procedures.
2. Laboratory to maintain records of quality control results.

1.4 SUBMITTALS

A. Shop Drawings

1. Submit in accordance with SECTION 01300
2. Include manufacturer's recommended method of joining of adjacent fabric panels.

B. Certificate of Conformance

1. Upon each shipment/delivery of product to the work site, furnish mill certificate(s) from the company manufacturing the fabric attesting that the fabric meets the chemical, physical, manufacturing and performance requirements specified. Fabric will be rejected if it is found to have defects, rips, flaws, deterioration or other damage.

1.5 DELIVERY, STORAGE AND HANDLING

A. Provide fabric in rolls wrapped with a heavy-duty protective covering to protect fabric from mud, dirt, dust, debris and other deleterious sources until it is installed. Label each roll of fabric with number or symbol to identify production run.

B. Do not expose fabric to ultraviolet radiation (sunlight) for more than 20 days total in period of time following manufacture until fabric is installed and covered.

C. If Engineer determines material is damaged in any way or has excessive sunlight exposure, the Contractor shall immediately make all repairs and replacements as directed by the Engineer, at no additional cost to the Owner.

1.6 SCHEDULING

A. Schedule Work so that the covering of the fabric with a layer of the cover material is accomplished immediately after inspection and approval of the placed fabric by the Engineer. Failure to comply with this requirement shall require replacement of the fabric.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER/MATERIAL

A. The geotextile fabric shall be nonwoven polypropylene designated as MIRAFI 140N as manufactured by US Fabrics, Cincinnati, Ohio; or acceptable equivalent and shall meet the following minimum requirements:

Property (Unit)	Unit	Test Method	Minimum Requirements
Weight	oz/sy	ASTM D5261	4.5
Grab Tensile Strength	lbs	ASTM D4632	120
Grab Tensile Elongation	%	ASTM D4632	50
CBR Puncture Strength	lbs	ASTM D6241	310
Trapezoid Tear Strength	lbs	ASTM D4533	50
Apparent Opening Size (AOS)	US Std. Sieve (mm)	ASTM D4751	70 (0.21)
Permittivity	sec -1	ASTM D4491	1.7

Permeability	cm/sec	ASTM D4491	0.22
Flow Rate	gal/min/sf	ASTM D4491	135
Ultraviolet Resistance (strength retained at 500 hrs)	%	ASTM D4355	70

B. To keep the number of overlay joints to a minimum, fabric shall be provided in sections not less than fifteen (15) feet in width unless otherwise approved by the Engineer prior to delivery to the site.

PART 3 - EXECUTION

3.1 SUBGRADE PREPARATION

A. For Riprap

1. Prepared areas to receive geotextile in accordance with SECTION 02100 and SECTION 02200
2. Clear subgrade of all sharp objects, large stones, roots, debris, or any other foreign materials that may contribute to puncturing, shearing, rupturing or tearing of the geotextile.
3. Grade area as smooth as possible and compact in accordance with SECTION 02200, with a vibratory roller or other method approved by the Engineer.
4. Inspect subgrade and repair all unstable areas or soft spots with the installation of gravel and recompact prior to the placement of geotextile.

3.2 FABRIC INSTALLATION

A. For Riprap

1. Place at the locations shown on the Contract Drawings.
2. Unroll directly onto the prepared slope in a continuous manner. Join adjacent sections by overlapping the fabric a minimum of 12-inches. Join end sections by overlapping the fabric a minimum of 2-feet with field-sewn joints or as recommended by the manufacturer.
3. Place fabric on slopes creating a “shingled” effect in the direction of anticipated water flow.
4. Lay fabric smooth, maximizing surface contact with the prepared subbase, free of tension, stress, folds, wrinkles, or creases.
5. Securely anchor fabric sections at the top of the slope as recommended by the manufacturer. Use anchoring pins, nails, staples or other such means to secure fabric to the subbase surface to prevent fabric movement caused by wind uplift, and/or placement of cover material.
6. Maintain sufficient amount of cover material (minimum depth of 6-inches) to protect fabric during placement of riprap. Dozer buckets or blades, or other heavy or damaging equipment shall not be in direct contact with the fabric.
7. Minimize the height from which cover material is dumped and/or dropped directly onto the fabric material in order to avoid fabric damage or movement. Equipment used for spreading and compacting the cover material shall be of the type and size to avoid damage or movement to the underlying geotextile fabric.

8. Spread cover material in the direction of fabric overlap and in a manner that avoids creating undue tension, stress, sagging, buckling and/or other movement of the underlying fabric.

B. Fabric Installation in Trenches

1. In accordance with manufacturers' recommendations
2. Place fabric in trench prior to placing crushed stone pipe bedding.
3. Overlap fabric 18-inches minimum for unsewn lap joints.
4. Do not permit equipment to travel directly on fabric.
5. Place fabric in smooth condition to prevent tearing or puncture.
6. Lay fabric loosely, without wrinkles or creases.
7. Leave slack in fabric to allow for adjustment.

3.3 PROTECTION

A. Protect the work before, during and after installation, and protect the installed work covered by other Sections.

3.4 REPAIR

A. Geotextile fabric damaged during installation shall be repaired by a piece of geotextile material cut, placed and adequately anchored over the damaged area, subject to a 3-foot minimum overlap requirement or as directed by the Engineer.

B. If detrimental movement of the geotextile fabric occurs during any step of the installation, as determined solely by the Engineer, the Contractor shall remove the cover material and/or sections of fabric to the limits deemed necessary and reinstall the fabric.

C. Any fabric damage during its installation or during placement of cover materials shall be replaced by the Contractor at no additional cost to the Owner.

END OF SECTION

SECTION 02370

STORMWATER POLLUTION PREVENTION

PART 1 - GENERAL

1.1 SCOPE

A. The work specified in this section includes the installation, maintenance, and removal of perimeter erosion controls, check dams, temporary dewatering basins, storm drain protection, stilling basins for water pollution control, turbidity curtains/floating silt curtains, and construction accesses. Soil erosion and sediment controls shown on the Plans shall be installed by the Contractor. Some soil erosion and sediment controls specified herein may or may not be shown or detailed on the Drawings but may be utilized by the Contractor. Soil erosion and sediment controls not detailed on the Plans shall be in accordance with this specification and the latest edition of the Rhode Island Department of Environmental Management (RIDEM) Soil Erosion and Sediment Control Handbook, and all addendums. The methods described in this section are approved means for soil erosion and sediment control, the actual means and methods shall be determined by the Contractor. The Contractor shall be responsible for preparing and establishing a stormwater pollution prevention plan at each work site for approval by the Engineer.

B. Related Work Described Elsewhere:

1. Section 02200 -- Earthwork
2. Section 02215 -- Aggregate Materials

1.2 GENERAL REQUIREMENTS.

A. Perimeter Erosion Controls: Work shall consist of the provision of perimeter erosion controls in reasonably close conformity with the dimensions and details indicated on the Drawings, all in accordance with these Specifications. Perimeter erosion controls consist of the following two types:

1. Baled Hay Erosion Checks. Baled hay erosion checks shall consist of baled hay or straw, each bale of which is embedded and attached to the ground with wood stakes and are constructed as indicated on the Drawings.
2. Silt Fence. Silt fencing shall consist of oak fence posts to which are attached industrial support netting and sediment control filter fabric and are constructed as indicated on the Drawings.

B. Check Dams: Work shall consist of the provision of check dams and dikes in reasonably close conformity with the RIDEM Soil Erosion and Sediment Control Handbook. Check dams consist of the following three types:

1. Baled Hay Ditch and Swale Erosion Checks. Baled hay ditch and swale erosion checks shall consist of baled hay or straw, each bale of which is embedded and attached to the ground with wood stakes.
2. Sandbag Erosion Dikes. This work shall consist of the placement of sandbags across either riprap or earth ditches, thereby forming a dike, to create temporary stilling basins for pollution control.

3. Stone Check Dams. This work shall consist of the placement of stone in ditches or drainage swales to reduce flow velocities, to prevent soil erosion.

C. Temporary Dewatering Basins: Work shall consist of the provision of temporary dewatering basins for the purpose of controlling water pollution caused by sediment-laden discharge from excavation sites. The basins shall be constructed in reasonably close conformity to means and methods of the RIDEM Soil Erosion and Sediment Control Handbook. Temporary dewatering basins consist of the following two types:

1. Dewatering Basin. The basin consists of a rectangular concrete barrier enclosure, the bottom and sides of which are lined with filter fabric. The bottom fabric is stabilized with filter stone. The basin is divided into the required number of 12-foot sections by stone berms approximately 18-inches high.

2. Filter Fabric Retention Basin. The basin consists of a rectangular enclosure formed by a 2-foot high chain link fence. Both the fence and the bottom of the enclosure are lined with filter fabric which is stabilized by a layer of rock riprap.

D. Storm Drain Protection: Work shall consist of the provision of temporary storm drain protection facilities. Storm drain protection facilities shall consist of the following three types:

1. Sandbag Gutter Inlet Sediment Barrier. This work consists of placing a sandbag barrier upstream of a gutter inlet prior to the placement of roadway pavement.

2. Silt Fence Catch Basin Inlet Protection. This work consists of placing filter fabric between frames and grates (beneath grates) of catch basins.

3. Baled Hay Catch Basin Inlet Protection. This work consists of placing baled hay around catch basin inlets. Baled hay inlet protection shall be constructed as indicated on the Drawings.

E. Stilling Basins for Water Pollution Control: Work shall consist of the provision of temporary and/or permanent stilling basins in accordance with the RIDEM Soil Erosion and Sediment Control Handbook.

F. Construction Accesses: Work shall consist of the provision of temporary construction accesses of stabilized stone pads for the purpose of reducing the amount of mud that construction vehicles track onto Town roadways.

1.3 QUALITY CONTROL.

A. The turbidity curtain shall be installed and removed by a professional with three (3) years or more experience in the installation and removal of turbidity curtains.

B. Provide Quality Assurance / Quality Control services in accordance with Section 01400.

1.4 SUBMITTALS.

A. In accordance with Section 01300 submit a Stormwater Pollution Prevention Plan in conformance with the requirements specified in the General Permit for Storm Water Discharges Associated with Construction Activities (Section 01060).

1.5 REFERENCE STANDARDS.

A. Rhode Island Department of Environmental Management (RIDEM). 1988. Recommendations of the Stormwater Management and Erosion Control Committee Regarding the Development and Implementation of Technical Guidelines for Stormwater Management. RIDEM, Office of Environmental Coordination, Providence, RI.

B. Latest Version of RI Stormwater Design & Installation Standards Manual

C. Rhode Island Department of Environmental Management and USDA Soil Conservation Service (SCS). 1989. Rhode Island Soil Erosion and Sediment Control Handbook. RIDEM, Providence, RI.

D. Rhode Island Discharge Elimination System. General Permit for Discharges Associated with Construction Activities.

E. Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, together with all errata addenda additional revisions, and supplemental specifications, (referred to as the Standard Specification).

F. American Society for Testing and Materials (ASTM)

1. ASTM B928/B928M-09 – Standard Specification for High Magnesium Aluminum Alloy Sheet and Plate for Marine Service and Similar Environments.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Perimeter Erosion Controls:

1. Baled Hay Erosion Checks. Baled hay or straw shall be baled within twelve months of use. Bindings shall be sufficiently strong to act as handles when placing bales in position by hand. The minimum dimension of any bale shall be 18-inches. Wood stakes shall be oak, 1-inch by 1-inch in section, and at least 3.0 feet in length.

2. Silt Fence. The filter fabric shall be a material suitable for erosion control applications. Wood posts shall be oak, two (2) inch by two (2) inch in section, and at least four and one half (4-1/2) feet in length. Support netting shall be heavy-duty plastic mesh. For prefabricated silt fence, one (1) inch by one (1) inch wood posts will be permitted.

B. Check Dams:

1. Baled Hay Ditch and Swale Erosion Checks. Baled hay or straw shall be baled within twelve months of use. Bindings shall be sufficiently strong to act as handles when placing bales in position by hand. The minimum dimension of any bale shall be 18 inches. Wood stakes shall be oak, 1-inch by 1-inch in section, and at least three (3) feet in length.

2. Sandbag Erosion Dikes. The sandbags and the sand material shall be of a quality acceptable to the Engineer. Dumped stone, when required, shall meet the requirements for Modified NSA Class R-4 riprap in Section 02220. The filled sandbags will weigh a minimum of 60 pounds.

3. Stone Check Dams. The stone shall meet the requirements for Filter Stone under Table I, Column V.

C. Temporary Dewatering Basins:

1. Dewatering Basins. Precast concrete barrier units shall conform to the RIDEM Soil Erosion and Sediment Control Handbook. Filter fabric shall conform to the applicable requirements of Article 2.01, Item A, Para. 2; Silt Fence, of these Specifications. Filter stone shall conform to the requirements of Section 02215. Sandbags shall be of a quality acceptable to the Engineer. Hay bales and wood stakes shall conform to the requirements of Article 2.01, Item A, Para. 1 of these Specifications.

D. Storm Drain Protection:

1. Sandbag Gutter Inlet Sediment Barrier. The sandbags and the sand material shall be of a quality acceptable to the Engineer.

2. Filter Fabric Catch Basin Inlet Protection. The filter fabric shall be a material suitable for erosion control applications utilized.

3. Baled Hay Catch Basin Inlet Protection. Baled hay or straw and wood stakes shall conform to the requirements of Article 2.01, Item A, Para. 1 of these Specifications.

E. Stilling Basins for Water Pollution Control: The various materials required for the construction of stilling basins will be determined by the Contractor and provided in the Soil Erosion and Sediment Control Plan for approval by the Engineer.

F. Construction Accesses: Construction access shall consist of crushed stone that meets the requirements of Section 02215. The filter fabric shall be a material suitable for erosion control applications utilized.

PART 3 - EXECUTION

3.1 GENERAL.

A. Construction Methods: Those erosion and pollution controls indicated on the Drawings shall be installed to the satisfaction of the Engineer before the commencement of any construction.

3.2 INSTALLATION.

A. Perimeter Erosion Controls:

1. Baled Hay Erosion Checks. Baled hay erosion checks shall be constructed at the locations, and in accordance with the details indicated on the Drawings to the satisfaction of the Engineer. The following stipulations also apply:

a. Bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another.

b. The erosion check shall be entrenched and backfilled. The trench shall be excavated the width of the bale and the length of the check to a minimum depth of three (3) inches. After the bales are staked and chinked, the excavated soil shall be backfilled against the check. Backfill shall conform to the ground level on the downhill side and shall be built up to four (4) inches against the uphill side.

c. The bales are to be installed so that the bindings are oriented around the sides of the bales rather than along their tops and bottoms.

d. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together.

e. The gaps between bales shall be chinked (filled by wedging) with straw to prevent water from escaping between bales. Loose straw shall be scattered over the area immediately uphill from the bale erosion check to increase efficiency.

f. At approximate intervals of 100 feet, one bale is to be placed against those bales positioned along the limit of clearing. This bale is to be placed at a right angle to the line of the toe of slope.

2. Silt Fence. Silt fence shall be constructed at the locations, and in accordance with the details indicated on the Drawings, to the satisfaction of the Engineer. The following stipulations also apply:

a. A six (6) inch by six (6) inch minimum trench shall be dug where the fence is to be installed.

b. The fence shall be positioned in the trench with the fence posts set at eight (8) feet on center (maximum).

c. The sedimentation control fabric and the industrial netting shall be stapled to each post. When joints are necessary, filter fabric shall be spliced together only at support posts. Splices shall consist of a six (6) inch overlap and shall be securely sealed.

d. Each wood post with industrial support netting and filter fabric attached shall be driven into the undisturbed soil in the trench as indicated on the Drawings.

e. The trench shall be backfilled and the soil compacted over the filter fabric.

f. The installed height of the fence shall be two and one half (2-1/2) feet (minimum). However, height shall not exceed 36-inches since higher barriers impound volumes of water sufficient to cause failure of the fence structure.

B. Check Dams:

1. Baled Hay Ditch and Swale Erosion Checks. Erosion checks shall consist of two or more bales placed and staked perpendicular to the flow line of a ditch formed by the intersection of its slopes. The following stipulations also apply:

a. A pair of erosion checks shall be placed a minimum of 12 feet apart at each location.

b. The ditch erosion checks shall be entrenched and backfilled. The trench shall be excavated the width of the bale(s) and the length of the check to a minimum depth of three (3) inches. After the bales are staked and chinked, the excavated soil shall be backfilled against the check. Backfill shall conform to the ground level on the downhill side and shall be built up to four (4) inches against the uphill side.

c. The bales are to be installed so that the bindings are oriented around the sides of the bales rather than their tops and bottoms.

d. The edges of overlapped bales shall overlap in such a manner that there will be no opening between the bales. Where bales butt together the gap between bales shall be chinked with loose straw to prevent water from escaping.

e. Each bale shall be securely anchored by a least two stakes driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together.

f. All earth ditch areas are required to have the protection of baled hay ditch erosion checks prior to their outfall onto existing ground, or natural or man-made water courses.

g. The haybale barrier shall be extended such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale. This configuration will ensure that the sediment-laden runoff will flow either through or over the barrier, but not around it.

2. Sandbag Erosion Dikes. Sandbags will be placed a minimum of four layers high. Over the center of the ditch the top layer of sandbags will have a weir opening equal to one half the bottom ditch width. The sandbags shall be extended such a length that the bottom of the end sandbags are higher in elevation than the top of the lowest middle sandbag. When the sandbag dike is constructed across an earth ditch, the downstream side of the dike at the weir opening is to be protected with Modified NSA Class R-4 dumped riprap.

3. Stone Check Dams. Stone shall be placed across the ditch or swale to achieve complete coverage and shaped to the required configuration by the use of hand tools. The stone shall be sloped from the sides of the ditch/swale towards the center such that the center is six (6) inches lower than the stone at the sides of the ditch/swale. The check dam shall have two to one (2:1) horizontal to vertical side slopes and shall not exceed two (2) feet in height.

C. Temporary Dewatering Basins:

1. Dewatering Basin. The following stipulations shall apply:

a. The precast concrete barrier units shall be placed on level, or nearly level, ground.

b. Filter fabric shall be placed on the bottom of the entire area enclosed by the concrete barrier units. If more than one sheet of fabric is required, the adjacent section shall be overlapped a minimum of 12 inches to ensure full coverage. Filter fabric shall be turned up along the inside face of the concrete barriers to the top of same, there to be folded across the top of the barriers. The fabric will be maintained in position by the placement of sandbags, end-to-end, along the top of the concrete barrier enclosure.

c. A minimum layer of six (6) inches of filter stone shall be spread over the bottom of the basin. Stone berms shall be constructed at 12 foot intervals along the length of the basin.

2. Filter Fabric Retention Basin. The following stipulations shall apply:

a. The filter fabric retention basin will be placed on stabilized and level, or nearly level, ground to prevent erosion by water exiting the basin.

b. A six (6) inch by six (6) inch minimum trench shall be dug where the basin is to be constructed.

c. The filter fabric and wire backing shall be three (3) feet wide (minimum) positioned in the trench and secured to metal posts positioned 4-feet on center (maximum).

d. The metal posts shall be driven into undisturbed soil next to the trench to a minimum depth of 12-inches.

e. Fill material shall be placed in the trench and compacted.

f. The installed height of the fence shall be two (2) feet (minimum).

g. A minimum layer of six (6) inches of filter stone (Modified NSA Class R-4 riprap) shall be spread evenly over the bottom of the basin.

D. Storm Drain Protection:

1. Sandbag Gutter Inlet Sediment Barrier. The following stipulations shall apply:

a. The sandbags shall be placed in a curved row extending from the curb or berm. The row shall be at least six (6) feet upstream of the inlet and should overlap the curb or berm.

b. Several layers of sandbags shall be placed over the first layer to a minimum height of one (1) foot. The bags shall be overlayed and packed tightly together.

c. A gap of one sandbag should be left in the middle of the top row to serve as a spillway. The spillway shall be at least eight (8) inches high.

d. Additional sediment storage capacity can be obtained by constructing a series of these barriers along the gutter upstream of the inlet.

2. Filter Fabric Catch Basin Inlet Protection. The following stipulations shall apply:

a. The filter fabric shall extend to a height between four (4) and six (6) inches above the top of the inlet grate around the entire perimeter of the grate.

b. Filter fabric shall be installed beneath the grate, secured between the frame and the grate.

c. Filter fabric shall be installed with sufficient excess material below the grate to provide at least six (6) inches of vertical clearance between the fabric and the bottom of the grate.

3. Baled Hay Catch Basin Inlet Protection. The baled hay inlet protection shall be constructed as indicated on the Drawings. The following stipulations shall also apply:

a. The bales shall be entrenched and backfilled. The trench shall be excavated the width of the bale and the length of the check to a minimum depth of three (3) inches. After the bales are staked and chinked, the excavated soil shall be backfilled against the check. Backfill shall conform to the ground level on the inside and shall be built up to four (4) inches around the outside.

b. The bales are to be installed so that the bindings are oriented around the sides of the bales rather than along their tops and bottoms.

c. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together.

d. The gaps between bales shall be chinked (filled by wedging) with straw to prevent water from escaping between bales.

E. Stilling Basins for Water Pollution Control:

1. The stilling basins will be constructed in such a manner to allow any material which may cause a natural water course or the surrounding environment to be damaged to be retained in the basin. During the life of the Contract, the Contractor will be required to periodically clean the pool and to maintain the basin to the satisfaction of the Engineer. If the basin is temporary,

the Contractor will be required to fill the basin with suitable material and to restore the area in which the basin was located to either its original condition or to the requirements of the Contract.

2. In all cases the stilling basins are to be constructed immediately after the clearing and grubbing operation and before commencement of any excavation and/or embankment. The single exception to this requirement is the construction of a leveling course to create a work platform. Excavation for stilling basins is to take place from the downstream end of the basin and to proceed upstream. Prior to the start of excavation, temporary baled hay ditch erosion checks are to be constructed immediately beyond the downstream end of the basin. When the basin is complete the above temporary erosion control measures are to be removed.

F. Construction Accesses: Construction accesses shall be constructed at the locations, and in accordance with the details as indicated on the Drawings, to the satisfaction of the Engineer. Construction access shall be constructed as detailed in Section 211 of the Standard Specifications.

3.3 MAINTENANCE AND CLEANING.

A. Definitions:

1. Cleaning consists of removing debris and accumulated sediment-laden deposits from the upstream side of perimeter controls, check dams and temporary drainage protection and from the bottom of temporary dewatering basins and stilling basins. All material so-removed shall be legally disposed of.

2. Maintenance consists of the repair and restoration to original configuration of damage sustained by erosion and pollution controls caused by "normal" rainfall events. (Abnormal weather events are defined in Article 3.03, Item 1)

B. Methods:

1. Erosion and pollution controls shall be maintained by the Contractor to the satisfaction of the Engineer. Erosion and pollution controls must be able to prevent, under normal weather conditions, both the movement of soil materials and the intrusion of sediment-laden discharges into environmentally sensitive areas.

2. Construction shall not commence or continue until all specified erosion and pollution controls are in place, properly installed and accepted by the Engineer.

3. Erosion and pollution controls shall be routinely inspected by the Engineer. The Engineer shall notify the Contractor immediately if problems develop. The Contractor shall commence cleaning and maintenance measures no later than the next consecutive calendar day after receiving a directive from the Engineer to perform such measures. The Contractor shall aggressively and expeditiously perform such cleaning and maintenance work until the original problem is remedied to the complete satisfaction of the Engineer. In the event of a weekend storm, the Contractor must have resources available to restore, and, if necessary, to replace any damaged controls.

C. Applicable Controls:

1. The specific erosion and pollution control facilities to be cleaned and maintained under this Section are outlined in Article 1.02 and consist of the following:

a. Perimeter Controls:

1) Baled Hay Erosion Checks
2) Silt Fence

b. Check Dams:
1) Baled Hay Ditch and Swale Erosion Checks
2) Sandbag Erosion Dikes
3) Stone Check Dams

c. Temporary Dewatering Basins:
1) Dewatering Basins
2) Filter Fabric Retention Basins

d. Storm Drain Protection:
1) Sandbag Gutter Inlet Sediment Barrier
2) Filter Fabric Catch Basin Inlet Protection
3) Baled Hay Catch Basin Inlet Protection

e. Stilling Basins

f. Construction Accesses

D. Materials:

1. Materials required to repair and restore damaged erosion and pollution controls shall meet the applicable requirements of Article 2.01, Items A through G; for Perimeter Erosion Controls, Check Dams, Temporary Dewatering Basins, Storm Drain Protection, Stilling Basins and Construction Accesses, respectively, of these Specifications.

E. Threshold for Cleaning Erosion Controls:

1. Erosion and pollution controls will be cleaned when directed by the Engineer, after a rainstorm, and when sediment deposits reach the heights indicated in the following table:

a. Perimeter Controls	Height
1) Baled Hay Erosion Checks	1/2 Bale Height
2) Silt Fence	6-inches
b. Check Dams	
1) Baled Hay Erosion Checks	1/2 Bale Height
2) Sandbag Erosion Dike	1/2 Dike Height
3) Stone Check Dam	1/2 Dam Height
c. Temporary Dewatering Basins	
1) Dewatering Basins	1/2 Original Basin Height
2) Filter Fabric Retention Basin	1/2 Original Basin Height
d. Storm Drain Protection	

1)	Sandbag Gutter Inlet Sediment Barrier	1/2 Dike Height
2)	Filter Fabric Catch Basin Inlet Protection	4 inches

e. Baled Hay Catch Basin Inlet Protection 1/2 Bale Height

1) Stilling Basins 1/2 Depth Below Outlet Elevation

F. Other Requirements:

1. Perimeter Controls, Check Dams and Storm Drain Protection. The following requirements apply:
   a. Damaged controls will be repaired or replaced after each storm events.
   b. Before controls are removed all accumulated sediment on the upstream side shall be removed and legally disposed of.
   c. Erosion controls shall not be removed until the adjacent exposed areas are relatively free from future uncontrolled discharges.
   d. The Engineer has the authority to verify, enforce, and to specify maintenance activities and to ensure that erosion and pollution controls have been properly maintained.
2. Temporary Dewatering Basins and Stilling Basins. The following requirements apply:
   a. The basins will be periodically inspected for signs of erosion around the basin and downslope area.
   b. Repairs will be promptly carried.
   c. The Engineer has the authority to verify, enforce, and to specify maintenance activities and to ensure that controls have been properly maintained.
3. Construction Accesses. The following requirements apply:
   a. The construction access shall be maintained to keep mud and debris from tracking onto public roadways. This may require additional stone or additional length as required.
   b. Erosion controls shall not be removed until the adjacent exposed areas are relatively free from future uncontrolled discharges.
   c. The Engineer has the authority to verify, enforce, and to specify maintenance activities and to ensure that erosion and pollution controls have been properly maintained.

G. Failure of Erosion and Pollution Controls:

1. This Article 3.03; Maintenance and Cleaning, is based on the concept that erosion and pollution controls will essentially remain intact under normal rainfall events and that any damage sustained by said controls under normal rainfall may be repaired under the maintenance provisions set forth herein.
2. However, under abnormal weather events it is possible that erosion and pollution controls may be damaged to the extent that the Engineer may direct that they be replaced in their entirety. Under such abnormal conditions the Contractor will replace the particular facilities, and be compensated for same, under the applicable provisions set forth in regarding PERIMETER CONTROLS, CHECK DAMS, TEMPORARY DEWATERING BASINS, STORM DRAIN PROTECTION, STILLING BASINS, and SILT FENCE, respectively, of these Specifications.

H. Definition of Abnormal Weather Conditions:

1. For the purposes of Article 3.03, Item G, abnormal weather events are defined as follows:

   a. For a duration of 1-hour; rainfall equal to or greater than 1/2-inch.

   b. For a duration of 12-hours; rainfall equal to or greater than 2-inches.

   c. For a duration of 24-hours; rainfall equal to or greater than 3-inches.

   d. Extreme weather conditions such as hurricanes, tornadoes, floods, blizzards, etc. Daily rainfall records may be obtained from the National Weather Service.

3.4 REMOVAL.

A. Perimeter Erosion Controls:

1. Baled Hay Erosion Checks. All stakes must be removed from the haybales at a time designated by the Engineer. In general, the bales will be allowed to rot in place. If the Contract requires the haybales to be removed, they may be removed only when the adjacent exposed area has been stabilized, i.e., the area has an established grass or stone cover or has been paved and is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the haybales shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.03 of these Specifications. Immediately upon removal of the bales the remaining exposed areas (under the bales) will be backfilled, raked, and graded as necessary to match the surrounding grade and then seeded.

2. Silt Fence. This work will include the removal of the silt fence erosion checks and posts. Silt fence will not be left to rot in place. The silt fence may be removed only when the adjacent exposed area is stabilized, i.e., the area has an established grass or stone cover or has been paved and is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the silt fence shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.03 of these Specifications. Immediately upon removal of the bales the remaining exposed areas (under the bales) will be backfilled, raked, and graded as necessary to match the surrounding grade and then seeded.

B. Check Dams:

1. Baled Hay Ditch and Swale Erosion Checks. Bales of hay used in this work will not normally be left to rot in place. The bales may be removed only when the adjacent exposed area is stabilized, i.e., the area has an established grass or stone cover or has been paved and is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the respective erosion checks shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.03 of these Specifications. Immediately upon removal of the bales, the remaining exposed areas (under the bales) will be backfilled, raked, and graded as necessary to match the surrounding grade and then seeded.

2. Sandbag Erosion Dikes. Sandbag erosion dikes will be removed prior to the completion of the project at a time designated by the Engineer. Prior to such removal, however, all silt, mud, and debris entrapped by the erosion dike shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.03 of these Specifications.

3. Stone Check Dams. Stone check dams will be removed prior to the completion of the project at a time designated by the Engineer. Prior to such removal, however, all silt, mud and debris

entrapped by the check dam shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.03 of these Specifications.

C. Temporary Dewatering Basins:

1. Dewatering Basin. The dewatering basin will not be removed until all dewatering operations are complete. Prior to such removal, however, all accumulated sediment within the basin shall be removed and legally disposed of in accordance with the applicable requirements of Article 3.03 of these Specifications. The area covered by the basin shall be seeded and mulched immediately after the basin is removed.

2. Filter Fabric Retention Basin. Removal requirements for the filter fabric retention basin are the same as set forth above for the dewatering basin.

D. Storm Drain Protection:

1. Sandbag Gutter Inlet Sediment Barrier. The sandbag sediment barrier will be removed prior to the completion of the project at a time designated by the Engineer. Prior to such removal, however, all silt, mud, and debris entrapped by the sediment barrier shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.03 of these Specifications.

2. Filter Fabric Catch Basin Inlet Protection. The filter fabric inlet protection shall be removed and the area prepared for pavement construction once the contributing drainage area is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the filter fabric shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.03 of these Specifications.

3. Baled Hay Catch Basin Inlet Protection. The baled hay inlet protection shall be removed and the area prepared for pavement construction the contributing drainage area is free from future uncontrolled discharges. Prior to such removal, however, all silt, mud, and debris entrapped by the baled hay shall be removed and the area cleaned up in accordance with the applicable provisions of Article 3.03 of these Specifications.

E. Construction Accesses: This work will include the removal of the construction accesses. Construction access may be removed only when the adjacent exposed area is stabilized, i.e., the area has an established grass or stone cover or has been paved and is free from future uncontrolled discharges. The construction accesses shall be removed and the area prepared for final cover.

END OF SECTION

SECTION 02607

PRECAST CONCRETE MANHOLES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Requirements for modular precast concrete manhole sections with tongue-and-groove joints, cast iron covers, accessories and appurtenances.

B. Related Sections

1. Section 03300 - Cast-In-Place Concrete

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. A48/A48M-00 Standard Specification for Gray Iron Castings
2. A615/A615M-01b Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
3. C32-93(1999)e1 Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale), AASHTO Designation M91-42, Red Sewer Brick Only Grade SS.
4. C144-02 Standard Specification for Aggregate for Masonry Mortar
5. C150-02a Standard Specification for Portland Cement
6. C207-91(1997) Standard Specification for Hydrated Lime for Masonry Purposes
7. C443-02 Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
8. C478-02a Standard Specification for Precast Reinforced Concrete Manhole Sections
9. C923-00 Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
10. C990-01a Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
11. D4101-02a Standard Specification for Polypropylene Injection and Extrusion Materials

B. This specification makes reference to the requirements of additional specifications as listed. The Contractor shall obtain and familiarize himself with all requirements referenced by this specification.

1. Rhode Island Department of Transportation, Standard Specifications for Road and Bridge Construction, including all addenda, (referred to as the Standard Specification).

1.03 SYSTEM DESCRIPTION

A. Design Requirements

1. Manholes shall conform in shape, size, dimensions, materials, and other respects to the details indicated in the Contract drawings.
2. All manholes shall have concrete bases. Invert channels shall be brick construction.
3. Manhole walls (barrels and cones) shall be precast concrete sections. The top of the cone (not to be more than 12-in.) shall be built of brickwork to permit adjustment of the frame to meet the finished surface.
4. The inverts shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent, within the manhole, to the centerlines of adjoining pipelines.

1.04 SUBMITTALS

A. Shop Drawings

1. In accordance with Specification Section 01300.

B. Samples

1. Provide representative samples of materials if requested by the Engineer.

PART 2 PRODUCTS

2.01 PRECAST CONCRETE SECTIONS

A. Conform to the ASTM C478 with the following exceptions and additional requirements:

1. All cast in place concrete shall conform to the requirements specified under Section 03300.
2. Wall sections to be 5-inch thick minimum.
3. Type II cement in accordance with ASTM C150.

4. 4.0 feet and 5.0 feet diameter manholes minimum of 4,000 psi - 28 days compressive strength.
5. 6.0 foot diameter manhole minimum of 5,000 psi. - 28 days compressive strength except as otherwise permitted.
6. Sections shall be cured by subjecting them to thoroughly saturated steam at a temperature between 100°F and 130°F. for a period of not less than 12 hours or, when necessary for such additional item as may be needed to enable the sections to meet the strength requirements.
7. No more than two lift holes may be cast or drilled into each section.
8. The date of manufacture and the name of trademark of the manufacturer shall be clearly marked on the inside of the barrel.
9. Acceptance of the sections will be on the basis of material tests and inspection of the completed product.

B. Flat Slab Tops

1. Thickness and reinforcement as indicated on the drawings and in accordance with ASTM C478.

C. Cones

1. Cones shall be precast sections of construction similar to above.

D. Bases

1. The tops of the bases shall be suitably shaped by means of accurate bell-ring forms to receive the barrel sections.
2. All holes for pipes shall be cast in the base sections so that there is a clear distance of four inches minimum between the inside bottom of the base section and the pipe invert.
3. Base pad shall be pre-cast with extended base as indicated on drawings and herein specified.
4. Openings for pipe and materials to be embedded in the wall of the base for these joints shall be cast in the base at the required locations during the manufacture of the base.

2.02 COMPONENTS

A. Pipe Seals

1. Pre-molded elastomeric-sealed joints fitted or cast integrally into the pipe opening of the manhole base and/or wall section.
2. Provide a watertight joint.
3. Maximum 10-degree omni-directional deflection.

4. In accordance with ASTM C923.
5. Seals to be:
    a. Lock Joint Flexible Manhole Sleeve by Interpace Corp., Parsippany, NJ;
    b. Kor-N-Seal by National Pollution Control Systems, Inc., Nashua, NH;
    c. A-LOK manhole pipe seal by A-LOK Corp., Trenton, NJ;
    d. or an acceptable equivalent product.
6. All materials, accessories and construction methods used in making the joints shall be supplied or approved by the manufacturer of the pre-molded elastomeric-sealed joint. Furnish manufacturer's written instructions to the Engineer.

B. Aluminum Manhole Steps
1. Cast into walls of the precast sections to form a continuous ladder with a distance of 12 inches between steps.
2. Aluminum drop-front type.
3. Acceptable Manufacturers:
    a. Stock No. 12653B made by Aluminum Company of America, Pittsburgh, PA.
    b. Stock No. F-14-2-B made by New Jersey Aluminum Co., New Brunswick, N.J.,
    c. Approved Equal.
4. Before the steps are built into the masonry and after thorough cleaning, those parts of aluminum steps which will be embedded shall be given a protective coating of an acceptable, heavy-bodied, bituminous material. The cleaning shall be done by suitable means and with suitable cleaning agents to ensure that the surfaces to be coated are free from all foreign matter such as dirt, oil, and grease. The steps shall be thoroughly rinsed and dried before the coating is applied and the coating shall have become
5. thoroughly dry before the steps are built into the masonry.

C. Plastic Manhole Steps
1. Install in walls of the precast sections to form a continuous ladder with a distance of twelve inches (12) between steps.
2. Copolymer Polypropylene plastic manhole step Model PS2-PFSL as manufactured by M. A. Industries, Inc., Peachtree City, Georgia or approved equal.
3. Plastic steps to be in conformance with ASTM D4101 for Type II propylene copolymers.
4. Plastic to encase 1/2-inch grade 60 steel reinforcing rod conforming to ASTM A615.

D. Exterior Coating
1. The material shall be:
    a. Minwax Fibrous Brush Coat made by the Minwax Co., New York, N.Y. or
    b. Tremco 121 Foundation Coating made by the Koppers Co., Inc., Pittsburgh, PA; or

c. Acceptable equivalent product.

E. Rubber Gaskets (between manhole sections)

1. In accordance with ASTM C443.
2. Gasket configuration per manufacturer's recommendation.

F. Butyl Resin Gaskets (between manhole sections)

1. In accordance with ASTM C990.
2. Gasket configuration per manufacturer's recommendation.

2.03 ACCESSORIES

A. Manhole Frames and Covers

1. Furnish all cast-iron manhole frames and covers conforming to the details shown on the drawings, or as hereinbefore specified.
2. Castings shall be of good quality, strong, tough, even-grained cast iron, smooth, free from scale, lumps, blisters, sand holes, and defects of every nature which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined to prevent rocking of covers.
3. Casting shall be thoroughly cleaned and subject to a careful hammer inspection.
4. Castings shall be at least Class 25 conforming to ASTM A48.
5. Standard drain manhole frames and covers to have 24 inch opening, and be manufactured by E.L. LeBaron Foundry Co. (East Jordan Iron Works), Model no. LK256-2-000 or approved equal. Pattern of cover and lettering shall comply with the Owner's standards.
6. Standard sanitary sewer manhole frames and covers to have a 24 inch opening, and be E.L. LeBaron Foundry Co. (East Jordan Iron Works), Model LC246, or approved equal. Pattern of cover and lettering shall comply with the Owner's standards.
7. Watertight sanitary sewer manhole frames and covers to have 24 inch diameter covers with 4 bolts, and gasket, and be E.L. LeBaron Foundry Co., Model LCB246, or approved equal. Pattern of cover and lettering shall comply with the Owner's standards.

B. Brick

1. Sound, hard, and uniformly burned brick, regular and uniform in shape and size, of compact texture, and satisfactory to the Engineer.
2. In accordance with ASTM C32.
3. In accordance with AASHTO M91-42, Red Sewer Brick Only Grade SS.
4. Reject brick shall be immediately removed from the work.

C. Mortar for Brickwork

1. Composed of Portland cement, hydrated lime, and sand in which the volume of sand shall not exceed three times the sum of the volume of cement and lime.
2. The proportions of cement and lime shall be 1:1/4.
3. Cement shall be Type II Portland cement in accordance with Specification SECTION 03300.
4. Hydrated lime shall be Type S conforming to the ASTM C207.
5. Hydrated lime shall be "Mortaseal" manufactured by U.S. Gypsum,"4X Hydrate" manufactured by the New England Lime Company or approved equal.
6. Sand shall conform to ASTM C144.

2.04 STUBS IN MANHOLES

A. The stubs shall be of PVC pipe and shall have PVC stoppers sealed with premolded gasket joints.

B. Lengths as indicated on the Drawings.

2.05 DROP INLETS

A. Construct with pipe as specified with precast concrete sections provided by the manhole manufacturer with all materials conforming to this Specification.

2.06 STRUCTURES FOR DRAINAGE WORK

A. All Manholes, Inlets and Catch Basins to be used for drains shall be in accordance with Section 702 of the Rhode Island Standard Specification.

PART 3 EXECUTION

3.01 INSTALLATION

A. Manhole Sections

1. Set so as to be vertical and with sections and steps in true alignment.
2. Rubber gaskets shall be installed in all joints in accordance with the manufacturer's recommendations.
3. All holes in sections used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose or with mortar. The mortar shall be one (1) part cement to one and one half (1-1/2) parts sand, mixed slightly damp to the touch (just

short of "balling"), hammered into the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush w

4. ith the adjoining surfaces.

B. Rubber and/or Butyl Resin Gaskets (between manhole sections)

1. In accordance with manufacturers recommendation.
2. Install in all joints between precast sections.

C. Brickwork

1. Only clean bricks shall be used.
2. Bricks shall be moistened by suitable means, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.
3. Each brick shall be laid in a full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and shall be thoroughly bonded.

D. Plastering And Curing Brick Masonry

1. Outside faces of brick masonry adjustment courses shall be plastered with mortar to a thickness of on half (1/2) inch.
2. If required, the masonry shall be properly moistened prior to application of the mortar.
3. The plaster shall be carefully spread and troweled. After hardening, the plaster shall be carefully checked by being tapped for bond and soundness.
4. Unbonded or unsound plaster shall be removed and replaced.
5. Brick masonry and plaster shall be protected from too rapid drying by the use of burlaps kept moist, or by other suitable means, and shall be protected from the weather and frost, to insure maximum strength.

E. Exterior Coating

1. The exterior surfaces of all manholes shall be given two coats of bituminous waterproofing material.
2. The waterproofing material shall be applied by brush or spray and in accordance with the instructions of the manufacturer.
3. Time shall be allowed between coats to permit sufficient drying so that the application of the second coat has no effect on the first coat.

3.02 SETTING MANHOLE FRAMES AND COVERS

A. Manhole frames shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface or as indicated on the drawings or directed. Frames shall be set concentric with the top of the masonry and in full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be

completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

B. Manhole covers shall be left in place in the frames on completion of work at the manholes.

C. Manhole frames and covers installed in State Roads to have concrete collars in accordance with RI Standard Detail 4.95.

3.03 INSTALLING STUBS IN MANHOLES

A. Stubs shall be set accurately to the required line and elevation and shall be installed in the manhole as indicated on the drawings.

3.04 DROP INLETS

A. Construct to the required line and elevations as indicated on the Drawings.

3.05 CLEANING

A. Manholes to be free of construction debris prior to final inspection.

3.06 STRUCTURES FOR DRAINAGE WORK

A. Installation of all Manholes, Inlets and Catch Basins to be used for drains shall be in accordance with Section 702 of the Rhode Island Standard Specification.

END OF SECTION

SECTION 02612

ENVIRONMENTAL HEALTH AND SAFETY

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. Under this item, the Contractor shall establish protocols and provide procedures to protect the health and safety of its employees and subcontractors as related to the proposed construction activities performed within the Project Limits. Work under this Item consists of the development and implementation of a HASP that addresses the relative risk of exposure to potential hazards present within the Project limits, including those related to soil excavation and handling/removal of contaminated railroad ties. This also includes possible entry into confined spaces or excavations with the potential for vapors to accumulate. In addition to the former stated risks, the HASP must also address the associated risks with the excavation and handling of contaminated soil. The HASP shall establish health and safety protocols that address the relative risk of exposure to regulated substances in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. Such protocols shall only address those potential concerns directly related to site conditions.

1. Note: The Engineer will prepare a site-specific HASP, which is compatible with the Contractor's HASP, and will be responsible for the health and safety of all Project Inspectors, employees, and consulting engineers.

1.3 SUBMITTALS

A. Three copies of the HASP shall be submitted to the Engineer within four (4) weeks after the Award of Contract or four (4) weeks prior to the start of any work on the Project, whichever is first, but not before the Award of the Contract.

B. The HASP shall be developed by a qualified person designated by the Contractor. This qualified person shall be a Certified Industrial Hygienist (CIH), Certified Hazardous Material Manager (CHMM), or a Certified Safety Professional (CSP). He/she shall have review and approval authority over the HASP and be identified as the Health and Safety Manager (HSM). The HASP shall bear the signature of said HSM indicating that the HASP meets the minimum requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

C. The Engineer will review the HASP within four (4) weeks of submittal and provide written comments as to deficiencies in and/or exceptions to the plan, if any, to assure consistency with the specifications, applicable standards, policies and practices and appropriateness given potential or known site conditions. Items identified in the HASP that do not conform to the specifications will be brought to the attention of the Contractor, and the Contractor shall revise the HASP to correct the deficiencies and resubmit it to the Engineer for determination of

compliance with this item. The Contractor shall not be allowed to commence work activities on the Project, as shown on the Plans, or where site conditions exist that may pose a risk to worker health and safety and/or the environment, until the HASP has been reviewed and accepted by the Engineer. No claim for delay in the progress of work will be considered for the Contractor's failure to submit a HASP that conforms to the requirements of the Contract.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The Contractor must provide chemical protective clothing (CPC) and personal protective equipment (PPE) as stipulated in the Contractor's HASP during the performance of work in areas identified as potentially posing a risk to worker health and safety for workers employed by the Contractor and all subcontractors.

PART 3 - EXECUTION

3.1 EXISTING INFORMATION

A. The Contractor shall utilize all available information and existing records and data pertaining to chemical and physical hazards associated with any of the regulated substances identified in the environmental site investigation to develop the HASP. The documents containing this data are referenced in "Notice to Contractor – Environmental Investigations." Note that as indicated in the Notice to Contractor for this project, the chemical data obtained at this site indicates impacts to soil or groundwater within the Project limits.

3.2 GENERAL

A. The requirements set forth herein pertain to the provision of workers' health and safety as it relates to proposed Project activities when performed in the presence of hazardous or regulated materials or otherwise environmentally sensitive conditions. THE PROVISION OF WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS POSED TO CONTRACTOR EMPLOYEES IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

B. The Contractor shall be responsible for the development, implementation, and oversight of the HASP throughout the performance of work within the limits of the Project, as identified in the Contract Documents, and in other areas identified by the Engineer or by the HASP where site conditions may pose a risk to worker health and safety and/or the environment. No physical aspects of the work on the Project shall begin until the HASP is reviewed by the Engineer and is determined to meet the requirements of the specifications. However, the Contract time, in accordance with Article 1.03.08, will begin on the date stipulated in the Notice to Proceed.

3.3 REGULATORY REQUIREMENTS

A. All construction related activities performed by the Contractor within the limits of the Project or in other areas where site conditions may pose a risk to worker health and safety and/or the environment shall be performed in conformance with 29 CFR 1926, Safety and Health

Regulations for Construction and 29 CFR 1910, Safety and Health Regulations for General Industry. Conformance to 29 CFR 1910.120, Hazardous Waste Site Operations and Emergency Response (HAZWOPER) may also be required, where appropriate.

3.4 HASP PROVISIONS

A. General Requirements

1. The Contractor shall prepare a HASP covering all Project site work regulated by 29 CFR 1910.120(b)/1926.65(b) to be performed by the Contractor and all subcontractors under this Contract. The HASP shall establish in detail the protocols necessary for the recognition, evaluation, and control of all hazards associated with each task performed under this Contract. The HASP shall address site-specific safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. The level of detail provided in the HASP shall be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted. Therefore, the HASP shall address, in as much detail as possible, all anticipated tasks, their related hazards and anticipated control measures.
2. The HASP shall interface with the Contractor's Safety and Health Program. Any portions of the Safety and Health Program that are referenced in the HASP shall be included as appendices to the HASP. All topics regulated by the 29 CFR 1910.120(b)(4) and those listed below shall be addressed in the HASP. Where the use of a specific topic is not applicable to the Project, the HASP shall include a statement to justify its omission or reduced level of detail and establish that adequate consideration was given the topic.

B. Elements

1. Site Description and Contamination Characterization
   a. The Contractor shall provide a site description and contaminant characterization in the HASP that meets the requirements of 29 CFR 1910.120/1926.65.
2. Safety and Health Risk Analysis/Activity Hazard Analysis
   a. The HASP shall address the safety and health hazards on this site for every operation to be performed. The Contractor shall review existing records and data to identify potential chemical and physical hazards associated with the site and shall evaluate their impact on field operations. Sources, concentrations (if known), potential exposure pathways, and other factors as noted in CFR 1910.120/126.65, paragraph (c)(7) employed to assess risk shall be described. The Contractor shall develop and justify action levels for implementation of engineering controls and PPE upgrades and downgrades for controlling worker exposure to the identified hazards. If there is no permissible exposure limit (PEL) or published exposure level for an identified hazard, available information from other published studies may be used as guidance. Any modification of an established PEL must be fully documented.
   b. The HASP shall include a comprehensive section that discusses the tasks and objectives of the site operations and logistics and resources required to complete each task. The hazards associated with each task shall be identified. Hazard prevention techniques, procedures and/or equipment shall be identified to mitigate each of the hazards identified.
3. Staff Organization, Qualifications and Responsibilities
   a. The HASP shall include a list of personnel expected to be engaged in site activities and certify that said personnel have completed the educational requirements stipulated in 29 CFR 1910.120 and 29 CFR 1926.65, are currently monitored under a medical surveillance program in compliance with those regulations, and that they are fit for work under "Level C" conditions.

b. The Contractor shall assign responsibilities for safety activities and procedures. An outline or flow chart of the safety chain of command shall be provided in the HASP. Qualifications, including education, experience, certifications, and training in safety and health for all personnel engaged in safety and health functions shall be documented in the HASP. Specific duties of each on-site team member should be identified. Typical team members include but are not limited to Team Leader, Scientific Advisor, Site Safety Officer, Public Information Officer, Security Officer, Record Keeper, Financial Officer, Field Team Leader, and Field Team members.

c. The HASP shall also include the name and qualifications of the individual proposed to serve as Health and Safety Officer (HSO). The HSO shall have full authority to carry out and ensure compliance with the HASP. The Contractor shall provide a competent HSO on site who is capable of identifying existing and potential hazards in the surroundings or working conditions that are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate or control them. The qualifications of the HSO shall include completion of OSHA 40-hour HAZWOPER training, including current 8-hour refresher training, and 8-hour HAZWOPER supervisory training; a minimum of one year of working experience with the regulated compounds that have been documented to exist within Project limits; a working knowledge of federal and state safety regulations; specialized training or documented experience (one year minimum) in personal and respiratory protective equipment program implementation; the proper use of air monitoring instruments, air sampling methods and procedures; and certification training in first aid and CPR by a recognized, approved organization such as the American Red Cross.

d. The primary duties of the HSO shall be those associated with worker health and safety. The Contractor's HSO responsibilities shall be detailed in the written HASP and shall include, but not be limited to the following:
   1) Directing and implementing the HASP.
   2) Ensuring that all Project personnel have been adequately trained in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to illness or injury (29 CFR 1926.21). All personnel shall be adequately trained in procedures outlined in the Contractor's written HASP.
   3) Authorizing Stop Work Orders, which shall be executed upon the determination of an imminent health and safety concern.
   4) Contacting the Contractor's HSM and the Engineer immediately upon the issuance of a Stop Work order when the HSO has made the determination of an imminent health and safety concern.
   5) Authorizing work to resume, upon approval from the Contractor's HSM.
   6) Directing activities, as defined in the Contractor's written HASP, during emergency situations; and
   7) Providing personal monitoring where applicable, and as identified in the HASP.

4. Employee Training Assignments
   a. The Contractor shall develop a training program to inform employees, supplier's representatives, and official visitors of the special hazards and procedures (including PPE, its uses and inspections) to control these hazards during field operations. Official visitors include but are not limited to, Federal Agency Representatives, State Agency Representatives, Municipal Agency Representatives, Contractors, subcontractors, etc. This program shall be consistent with the requirements of 29 CFR 1910.120 and 29 CFR 1926.65.
5. Personal Protective Equipment
   a. The plan shall include the requirements and procedures for employee protection and should include a detailed section on respiratory protection. The Contractor shall describe in detail and provide appropriate PPE to ensure that workers are not

exposed to levels greater than the action level for identified hazards for each operation stated for each work zone. The level of protection shall be specific for each operation and shall be in compliance with all requirements of 29 CFR 1910 and 29 CFR 1926. The Contractor shall provide, maintain, and properly dispose of all PPE.

6. Medical Surveillance Program
   a. All on-site Contractor personnel engaged in 29 CFR 1910.120/1926.65 operations shall have medical examinations meeting the requirements of 29 CFR 1910.120(f) prior to commencement of work.
   b. The HASP shall include certification of medical evaluation and clearance by the physician for each employee engaged in 29 CFR 1910.120/1926.65 operations at the site.
7. Exposure Monitoring / Air Sampling Program
   a. The Contractor shall submit an Air Monitoring Plan as part of the HASP, which is consistent with 29 CFR 1910.120, paragraphs (b)(4)(ii)(E), (c)(6), and (h). The Contractor shall identify specific air sampling equipment, locations, and frequencies in the air-monitoring plan. Air and exposure monitoring requirements shall be specified in the Contractor's HASP. The Contractor's CIH shall specify exposure monitoring/air sampling requirements after a careful review of the contaminants of concern and planned site activities.
8. Site Layout and Control
   a. The HASP shall include a map, work zone delineation (support, contamination, reduction and exclusion), on/off-site communications, site access controls, and security (physical and procedural).
9. Communications
   a. Written procedures for routine and emergency communications procedures shall be included in the Contractor's HASP.
10. Personal Hygiene, Personal Decontamination and Equipment Decontamination
    a. Decontamination facilities and procedures for PPE, sampling equipment, and heavy equipment shall be discussed in detail in the HASP.
11. Emergency Equipment and First Aid Requirements
    a. The Contractor shall provide appropriate emergency first aid kits and equipment suitable to treat exposure to the hazards identified, including chemical agents. The Contractor will provide personnel that have certified first aid/CPR training on site at all times during site operations.
12. Emergency Response Plan and Spill Containment Program
    a. The Contractor shall establish procedures in order to take emergency action in the event of immediate hazards (i.e., a chemical agent leak or spill, fire or personal injury). Personnel and facilities supplying support in emergency procedures will be identified. The emergency equipment to be present on site and the Emergency Response Plan procedures, as required 29 CFR 1910.120, paragraph (1)(1)(ii) shall be specified in the Emergency Response Plan. The Emergency Response Plan shall be included as part of the HASP. This Emergency Response Plan shall include written directions to the closest hospital as well as a map showing the route to the hospital.
13. Logs, Reports and Record Keeping
    a. The Contractor shall maintain safety inspections, logs, and reports, accident/incident reports, medical certifications, training logs, monitoring results, etc. All exposure and medical monitoring records are to be maintained according to 29 CFR 1910 and 29 CFR 1926. The format of these logs and reports shall be developed by the Contractor to include training logs, daily logs, weekly reports, safety meetings, medical surveillance records, and a phase-out report. These logs, records, and reports shall be maintained by the Contractor and be made available to the Engineer.

b. The Contractor shall immediately notify the Engineer of any accident/incident. Within two working days of any reportable accident, the Contractor shall complete and submit to the Engineer an accident report.

14. Confined Space Entry Procedures
    a. Confined space entry procedures, both permit required and non permit required, shall be discussed in detail.
15. Pre-Entry Briefings
    a. The HASP shall provide for pre-entry briefings to be held prior to initiating any site activity and at such other times as necessary to ensure that employees are apprised of the HASP and that this plan in being followed.
16. Inspections/Audits
    a. The HSM or HSO shall conduct Inspections or audits to determine the effectiveness of the HASP. The Contractor shall correct any deficiencies in the effectiveness of the HASP.

C. HASP Implementation
1. The Contractor shall implement and maintain the HASP throughout the performance of work. In areas identified as having a potential risk to worker health and safety, and in any other areas deemed appropriate by the HSO, the Contractor shall be prepared to immediately implement the appropriate health and safety measures, including but not limited to the use of PPE, and engineering and administrative controls.
2. If the Engineer observes deficiencies in the Contractor's operations with respect to the HASP, they shall be assembled in a written field directive and given to the Contractor. The Contractor shall immediately correct the deficiencies and respond, in writing, as to how each was corrected. Failure to bring the work area(s) and implementation procedures into compliance will result in a Stop Work Order and a written directive to discuss an appropriate resolution(s) to the matter. When the Contractor demonstrates compliance, the Engineer shall remove the Stop Work Order. If a Stop Work Order has been issued for cause, no delay claims on the part of the Contractor will be honored.
3. Disposable CPC/PPE (i.e., disposable coveralls, gloves, etc.) which come in direct contact with hazardous or potentially hazardous material shall be placed into 55 gallon USDOT 17-H drums and disposed of in accordance with federal, state, and local regulations. The drums shall be temporarily staged and secured within the WSA until the material is appropriately disposed.

D. HASP Revisions
1. The HASP shall be maintained on site by the Contractor and shall be kept current with construction activities and site conditions under this Contract. The HASP shall be recognized as a flexible document, which shall be subject to revisions and amendments, as required, in response to actual site conditions, changes in work methods and/or alterations in the relative risk present. All changes and modifications shall be signed by the Contractor's HSM and shall require the review and acceptance by the Engineer prior to the implementation of such changes.
2. Should any unforeseen hazard become evident during the performance of the work, the HSO shall bring such hazard to the attention of the Contractor and the Engineer as soon as possible. In the interim, the Contractor shall take action, including Stop Work Orders and/or upgrading PPE as necessary to re-establish and maintain safe working conditions and to safeguard on-site personnel, visitors, the public and the environment. The HASP shall then be revised/amended to reflect the changed condition.

SECTION 02613

NOTIFICATION OF ENVIRONMENTAL INVESTIGATIONS

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. Work under this Section shall also comply with the RIDEM approved Remedial Action Work Plan (RAWP, March 2023),, and the RIDEM Remedial Decision Letter dated March 14, 2023. Where conflicts exist the more stringent requirements shall govern.

1.2 SUMMARY

A. Environmental site investigations conducted at the Site (2013 SIR/TBA, 2018 Addendum, 2021 Supplemental SI) identified widespread historic urban fill containing total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), and certain metals (arsenic and lead) in soil at concentrations exceeding RIDEM Residential Direct Exposure Criteria (RDEC). Based on these findings, the entire Site is classified as an Area of Environmental Concern (AOEC) and all soils encountered shall be treated as Controlled Materials requiring management in accordance with the RAWP and associated documents.

B. Groundwater is present at approximately 1.6-14 feet below grade, but groundwater impacts were not identified, and groundwater is not anticipated to be encountered during this phase of work, consistent with RAWP findings. If groundwater is encountered, the Contractor shall notify the Engineer and City.

C. Previous investigations confirmed exceedances of RAWP contaminants of concern (PAHs, TPH, arsenic, and lead) in shallow fill across the Site. Accordingly, the Site is designated an AOEC and all soils encountered are Controlled Materials, subject to the restrictions and engineered control requirements established by the RAWP and RIDEM RAL.

D. The Contractor is hereby notified that Controlled Materials requiring special management will be encountered during construction. Contractor shall implement a site-specific Health and Safety Plan (HASP) meeting 29 CFR 1910.20 and the SMP provided in the RAWP. These measures shall include, but are not limited to, engineering controls, personal protective equipment and decontamination, equipment decontamination, and personnel training. WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

E. Controlled Materials excavated from the Site may be reused only onsite and may be temporarily stockpiled within designated Waste Stockpile Areas (WSA). Stockpiles shall be placed on and covered with polyethylene sheeting and protected using erosion and sediment controls, and/or placed on impervious areas to be removed without the underlying poly. All reuse activities must comply with the RAWP procedures.

F. Controlled Material shall be reused onsite prior to import of clean fill, consistent with the RAWP requirement to minimize handling and potential cross-contamination of materials.

G. All Controlled Materials reused onsite shall meet the following conditions:
   1. Structurally suitable for use as fill, as determined by the Engineer,
   2. Not placed below the groundwater table,
   3. Placed below an approved engineer control, including:
      a. Impervious caps (pavement, concrete)
      b. Type I (1-foot) soil caps, or
      c. Type II (2-feet) soil caps, as defined in the RAWP Sections 4.2.3-4.2.5.
   4. Not placed in areas subject to erosion.

H. Controlled Materials shall not be transported, relocated, reused, or disposed of offsite, except for PPE and decontamination residuals approved for disposal. All impacted soils must remain onsite and be incorporated into the engineered remedy beneath the final cap materials, per the RAWP and RAL.

I. An Environmental Professional (EP) shall be onsite during excavation, grading, WSA operations, and engineered cap construction to monitor compliance with the RAWP, interpret field conditions, and prevent cross-contamination

J. The WSA shall be used exclusively for temporary stockpiling of Controlled Materials generated within the Site. Materials originating offsite shall not be placed, mixed, or stored within the WSA at any time.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

SECTION 02614

REINFORCED-CONCRETE PIPE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Requirements for furnishing and installing the reinforced-concrete pipe as indicated on the drawings.

B. Related Sections

1. Section 02200 - Earthwork.
2. Section 02215 - Aggregate Materials.

1.02 QUALITY ASSURANCE

A. Reinforced-concrete pipe shall be made by a manufacturer of established good reputation in the industry and in a plant adapted to meet the design requirements of the pipe.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM).

1. C76, Specification for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.
2. C361, Specification for Reinforced Concrete Low-Head Pressure Pipe.
3. C443, Specification for Joints for Circular Concrete Culvert and Sewer Pipe, Using Rubber Gaskets.

1.04 SUBMITTALS

A. In accordance with SECTION 01300 submit for review drawings showing the pipe dimensions reinforcement, joint, and other details for each type and class of pipe to be furnished for the project. All pipe furnished under the contract shall be manufactured only in accordance with the specifications and the reviewed drawings.

PART 2 PRODUCTS

2.01 PIPE

A. Each unit of pipe shall have an interior surface, which is free from roughness, projections, indentations, offsets, or irregularities of any kind. The pipe units shall be of the classes indicated on the drawings and shall conform to ASTM C76 with the following exceptions and additions:

1. Type II cement shall be used unless otherwise permitted by the Engineer. Admixtures shall not be used except with the prior permission of the Engineer.
2. Aggregates shall conform to the requirements set forth hereinafter.
3. Elliptical reinforcement will not be permitted. Longitudinal reinforcement shall be continuous. Reinforcement shall have a minimum cover of three fourths (3/4) inches.
4. Absorption shall be as specified under "inspection, Tests and Acceptance."
5. Pipe units have a minimum laying length of eight (8) feet., except as otherwise indicated or permitted by the Engineer.
6. Pipe units shall be cured by subjecting them to thoroughly saturated steam at a temperature between 100 and 130 degrees. F for a period of not less than 12 hours or, when necessary, for such additional time as may be needed to enable the pipe units to meet the strength requirements.
7. Pipe units shall not be shipped until they have aged for at least 450 day-degrees which includes the steam curing period. Day-degrees are the total number of days times the average daily air temperature at the surface of the pipe units. (Example: Five days at a daily average temperature of 60 degrees. F equals 300 day-degrees.) Wherever the average daily temperatures are below 60 degrees. F the Contractor shall submit to the Engineer records of average daily temperatures and number of days the pipe units
8. have been cured.
9. There shall be no lift holes in the pipe.
10. Mortar used for repairs shall have a minimum compressive strength of 4,000 psi. at the end of seven (7) days and 5,000 psi. at the end of 28 days, when tested in three (3) inches by six (6) inches cylinders stored in the standard manner. Only those repairs permitted by the above-mentioned ASTM C76 will be allowed.
11. The date of manufacture, class of pipe unit, size of pipe unit, and trademark of the manufacturer shall be clearly and permanently marked on the inside and the outside at one end of each pipe unit.
12. Certified copies of tests on materials and the pipe units will be required.

B. Specials, if required, shall conform to the specifications for straight pipe insofar as applicable. Special design or construction necessary for specials shall be subject to acceptance by the Engineer.

2.02 JOINTS

A. Pipe joints shall be of the rubber gasket type in which the gaskets are in compression and which will permit both longitudinal and angular movement. Each unit of pipe shall be provided with proper ends made of concrete formed true to size and formed on machined rings to ensure accurate joint surface. Joints and gaskets shall be O-ring or ribbed gasket type and shall conform to the requirements of ASTM C443, or ASTM C361 and to the additional requirements specified.

2.03 INSPECTION, TESTS AND ACCEPTANCE

A. Acceptance will be on the basis of tests of materials, absorption tests, plant load-bearing tests, pressure tests, and inspection of the complete product. The required tests are enumerated hereinafter. The quality of all materials used in the pipe, the process of manufacture, and the finished pipe shall be subject to inspection by the Engineer. Inspection may be made at the place of manufacture, or on the work site after delivery, or both, and the pipe shall be subject to rejection at any time due to failure to meet any of the specification requirements, even though sample pipe units may have been accepted as satisfactory at the place of manufacture. All pipe which is rejected shall be immediately removed from the project site by the Contractor.

B. Tests and certified copies in triplicate of test results will be required for the materials and the finished pipe units as described herein. If less than 100 units of a given size and class of pipe are required, the Contractor may submit certified copies of tests made on identical pipe units made by the same manufacturer within the past year. If more than 100 units of a given size and class of pipe are required, the Contractor shall, at his own expense, engage the services of an acceptable independent testing laboratory to perform or witness all tests, other than mill tests on reinforcing steel and cement, and certify the results. In addition, the Owner reserves the right to have any or all pipe units inspected or tested, or both, by an independent testing labora

C. tory at either the manufacturer's plant or elsewhere. Such additional inspection and/or tests shall be at the Owner's expense and shall be the test results of record.

D. All pipe units to be tested shall be selected at random by the Engineer. Unless otherwise permitted, all load-bearing tests on pipe units shall be made in the presence of the Engineer.

E. All tests shall be made in accordance with the latest applicable ASTM specifications.

1. Reinforcing Steel--Mill test reports, or reports on samples taken from each shipment to the pipe manufacturer, shall be submitted for reinforcing steel to be used on this project stating that the reinforcing meets the specified requirements.

2. Cement--Mill test reports shall be submitted for each shipment to the pipe manufacturer of cement to be used on this project stating that the cement meets the specified requirements. All cement accepted for this project shall be kept segregated from other cement.

3. Aggregates--Tests reports shall be submitted stating that the aggregates to be used on this project meet the requirements for concrete aggregates as specified "Fine Aggregate" and "Coarse Aggregate" under SECTION 03300. The first report shall be submitted prior to the manufacturer of any pipe for this project. Additional tests and reports shall be made monthly thereafter during the production of the pipe.

4. Absorption Tests--Three cores shall be taken from each pipe unit that is to be load tested. The cores shall be taken before the load-bearing tests are performed. All cores shall be tested for absorption by the boiling absorption test. Average absorption shall not exceed 8 percent of the dry weight and no single test shall exceed nine (9%) percent.

5. Pipe Unit Load-Bearing Tests--A load-bearing test shall be made on one pipe unit of each size and class and the report of the test submitted before delivery to the project of that size and class of pipe unit. An additional test will be required for each 200 units of each size and class of pipe. The load-bearing test shall be performed after the cores for the absorption tests have been taken. Each load-bearing test shall be carried to the specified load to produce the 0.01 inch crack. If the 0.01 inch crack is not formed, the pipe unit may be used in the project. Cored holes shall be plugged with the mortar specified above for repairs.

6. Pressure Test--A pressure test shall be made on two pipe units of each size and class to be used. Each pipe unit shall be bulkheaded independently and then joined together in a normal manner with the joint to be used in the work. The pipe units shall be held in place in such manner that no external compression force is exerted on the joint during the test. The test pressure shall be an average internal hydrostatic pressure of 10 psi and shall be maintained for at least 10 minutes without visible leakage
7. from the joint. A description of the bulk-heading and pipe holding arrangement shall be submitted to the Engineer for review prior to performing the test. All pressure tests shall be made in the presence of the Engineer.

8. Concrete Cylinders--Compression tests shall be made on standard concrete cylinders for the first or test pipe unit and then for every 100 cubic yards of concrete used in pipe manufacture, or for each additional 200 units of pipe, whichever represents the lesser amount of concrete. Four cylinder shall be made for each test and they shall be broken at seven (7), 14, and 28 days with one cylinder as a spare to be used in the event of an unsatisfactory break. The reports shall be submitted within three days after each of the compression tests.

PART 3 EXECUTION

3.01 HANDLING PIPE

A. Each pipe unit shall be handled into its position in the trench only in such manner and by such means as is acceptable to the Engineer.

B. The Contractor will be required to furnish suitable devices to permit satisfactory support of all parts of the pipe unit when it is lifted.

3.02 INSTALLATION

A. Each pipe unit shall be inspected before being installed. Any pipe discovered to be defective either before or after installation shall be removed and replaced with a sound pipe.

B. Except as otherwise indicated on the drawings, the pipe shall be supported by compacted crushed stone. No pipe or fitting shall be permanently supported on saddles, blocking, or stones. Crushed stone shall be as specified under SECTION 02215.

C. Suitable bell holes shall be provided, so that after placement only the barrel of the pipe receives bearing pressure from the supporting material.

D. All pipe units shall be cleared of all debris, dirt, etc., before being installed and shall be kept clean until accepted in the completed work.

E. Pipe and fittings shall be installed to the lines and grades indicated on the drawings or as required by the Engineer. Care shall be taken to ensure true alignments.

F. Before any joint is made, the unit shall be checked to assure that a close joint with the next adjoining unit has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be given down to the required grade by striking it with a shovel handle, timber, or other unyielding object.

G. All joint surfaces shall be cleaned. Immediately before jointing the pipe, the bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. Suitable devices shall be used to force the pipe unit together so that they will fit with a minimum open recess inside and outside and have tightly seated joints. Care shall be taken not to use such force as to wedge apart and split the bell or groo

H. ve ends. Joints shall not be pulled or cramped without the permission of the Engineer.

I. Immediately after the pipe joint is completed, the position of the gasket in the joint shall be inspected using a suitable feeler gage furnished by the Contractor, to be sure it is properly

put together and is tight. Joints in which the gasket is damaged or not properly positioned shall be pulled apart and remade using a new gasket.

J. Where any two pipe units do not fit each other closely enough to enable them to be properly jointed, they shall be removed and replaced with suitable units and new gaskets.

K. Details of gasket installation and joint assembly shall follow the directions of the manufacturer of the joint materials and of the pipe, all subject to acceptance by the Engineer. The resulting joints shall be watertight and flexible.

L. After each pipe to be supported on screened gravel has been properly bedded, enough gravel shall be placed between the pipe and the sides of the trench, and thoroughly compacted, to hold the pipe in correct alignment. Bell holes provided for jointing shall be filled with sc

M. reened gravel and compacted, and then screened gravel shall be placed and compacted to complete the pipe bedding, as indicated on the drawings.

N. The Contractor shall take all necessary precautions to prevent floatation of the pipe in the trench.

O. At all times when pipe installation is not in progress, the open ends of the pipe shall be closed with temporary watertight plugs or by other suitable means. If water is in the trench when work is to be resumed, the plug shall not be removed until all conditions are suitable to prevent water, earth, or other material from entering the pipe.

P. Pipelines shall not be used as conductors for trench drainage during construction.

3.03 CLEANING

A. Care shall be taken to prevent earth, water, and other materials from entering the pipeline. As soon as possible after the pipe and manholes are completed, the Contractor shall clean out pipelines and manholes, being careful to prevent soil, water, and debris from entering any existing pipe.

END OF SECTION

SECTION 02615

CONTROLLED MATERIAL HANDLING

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. All work shall comply with the RIDEM approved Remedial Action Work Plan (RAWP, March 2023), , Construction SMP (in the RAWP, 2022), and RIDEM Remedial Decision Letter dated April 2023. The more stringent requirement shall govern.

1.2 SUMMARY

A. Work under this Item is intended to provide specific procedural requirements to be followed by the Contractor during the excavation of Controlled Materials from within the site, as shown on the Project Plans. Work under this Item shall include any transporting and stockpiling materials at the Temporary Waste Stockpiles (TWSs) and covering, securing, and maintaining the stockpiled materials throughout the duration of the Project. Large pieces of stone, concrete, asphalt, or other anthropogenic debris should be generally removed from the soil to the extent practical and be stockpiled separately for off-site disposal as standard solid waste material or construction debris.

B. Controlled Materials consisting of soil containing levels of regulated substances including total petroleum hydrocarbons (TPH), metals (arsenic and lead), and polyaromatic hydrocarbons (PAHs) have been documented to exist within the Project. Such contamination is documented in the reports listed in the "Notice to Contractor – Environmental Investigations". Where contaminated soils are excavated, special handling and documentation procedures will be required. Controlled Materials excavated within the site may be reused as fill/backfill only within the site at the direction of the Engineer. Excess or unsuitable Controlled Material that cannot be reused during the Project will be re-located to a TWS located within the Site boundary. Upon completion of the project the Controlled Material shall be re-used within the Site boundary at the direction of the Engineer. The re-used material shall not be placed where subject to erosion, or below the groundwater table. Any single stockpile should be, to the extent practical, no larger than 100 cubic yards in size and should be located near to the excavation in which it was generated.

PART 2 - PRODUCTS

2.1 MATERIALS

1. The required materials are detailed on the Project Plans. All materials shall conform to the requirements of the Contract.
2. Plastic Sheet: Polyethylene plastic sheeting for covering excavated material shall be a thickness of at least ten (10) mil and shall be at least ten (10) feet wide.
3. Covers for roll-off/storage containers shall be made of polyethylene plastic, or similar water-tight material, that is of sufficient size to completely cover top opening and can be securely fastened to the container.

4. Sandbags: Sandbags used to secure polyethylene covers shall be at least thirty (30) pounds.

PART 3 - EXECUTION

A. General
1. When Controlled Materials are encountered during the course of the work, health and safety provisions shall conform to the appropriate sections of the Contract. Provisions may include implementation of engineering controls, air and personal monitoring, the use of chemical protective clothing (CPC), personal protective equipment (PPE), implementation of engineering controls, air and personal monitoring, and decontamination procedures.
2. Controlled Materials removed from any excavation within the site shall be reused within the site. Controlled Materials that are to be reused within the site shall be temporarily stockpiled adjacent to the excavation for immediate reuse or at temporary WSA.
3. Controlled Materials that are to be reused at a later date within the site shall be transported and stockpiled within the temporary WSA, which shall be located within the Site boundary. Only the volume of Controlled Material that is reasonably estimated to be reused within the site shall be temporarily stockpiled in this way. Stockpiles of Controlled Materials that are to be reused at a later date shall be placed on and covered with polyethylene plastic sheeting at all times, except when the piles are being worked.
4. Controlled Materials may not be transported off site or re-used outside of the Site boundary without approval from the RIDEM and Engineer.
5. Construction of the WSA shall be completed prior to the initiation of construction activities generating Controlled Materials. Measures shall be implemented to divert rainfall away from the WSA. Placement of sorbent boom along the perimeter of the WSA shall be conducted when soil is saturated with free-draining liquids.

B. WSA Maintenance
1. The Contractor shall provide all necessary materials, equipment, tools, and labor for anticipated activities within the WSA. Such activities include, but are not limited to, handling and management of stockpiles and drummed CPC/PPE; uncovering and recovering stockpiles; maintenance of WSA; replacement of damaged components (i.e. sandbags, plastic polyethylene sheeting, etc.); and waste inventory record management. The Contractor shall manage all materials in the WSA in such a way as to minimize tracking of potential contaminated materials across the site and off site and minimize dust generation.
2. No regulated soil will be stockpiled on-site for greater than 30 days and no larger quantity than 500 cubic yards.
3. Any jurisdictional stockpile shall be placed on polyethylene sheeting if placed on pervious surface to prevent cross contamination or impacts to clean engineered controls or placed on existing impervious surfaces that are to be removed as part of construction.
4. Each stockpile shall be securely covered when not in active use with a cover of sufficient size to prevent generation of dust and infiltration of precipitation.
5. The staged stockpiles shall be inspected at least daily by the Contractor to ensure that the cover and containment have not been damaged and that there is no apparent leakage from the piles. If the cover has been damaged, or there is evidence of leakage from the piles, the Contractor shall immediately replace the cover or containment as needed to prevent the release of materials to the environment from the piles.
6. An inventory of stockpiled materials and drummed CPC/PPE shall be conducted on a daily basis. Inventory records shall indicate the approximate volume of material/drums stockpiled per day; the approximate volume of material/drums stockpiled to date; material/drums loaded and transported off site for disposal; any materials loaded and transported for on-site reuse; and identification of stockpiles relative to their points of generation.

7. At the end of the project any remaining stockpiles will be re-used on site as fill material at the direction of the Engineer. The location of the re-used material will be documented by the Contractor. The re-used material will not be located where subject to erosion or placed below the water table. Following the removal of all stockpiled Controlled Materials, residuals shall be removed from surfaces of the WSA as directed by the Engineer.

C. Decontamination
1. All equipment shall be provided at the work site free of contamination. The Engineer may prohibit from the site any equipment that in his opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the site shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project that has not been thoroughly decontaminated prior to arrival.
2. The Contractor shall furnish labor, materials, tools, and equipment for decontamination of all equipment and supplies that are used to handle Controlled Materials. Decontamination shall be conducted in an area approved by the Engineer and may be required prior to equipment and supplies leaving the Project and between stages of the work.
3. Dry decontamination procedures are recommended. Residuals from dry decontamination activities shall be collected and managed as Controlled Materials. If dry methods are unsatisfactory as determined by the Engineer, the Contractor shall modify decontamination procedures as required subject to the Engineer's approval.

D. Dust Control
1. The Contractor shall implement a fugitive dust suppression program in accordance with the Contract to prevent the off-site migration of particulate matter and/or dust resulting from excavation, loading, and operations associated with Controlled Materials. It shall be the Contractor's responsibility to supervise fugitive dust control measures and to monitor airborne particulate matter. The Contractor shall:
   a. Employ reasonable fugitive dust suppression techniques.
   b. Visually observe the amounts of particulate and/or fugitive dust generated during the handling of Controlled Materials and continuously monitor the amount of airborne dust during handling of Controlled Materials using a digital dust meter. If the amount of fugitive dust and/or particulate matter is not acceptable to the Engineer, the Engineer may direct the Contractor to implement corrective measures at his discretion, including, but not limited to, the following:
      1) apply water to working surfaces
      2) apply water to equipment and excavation faces; and
      3) apply water during excavation, loading, and dumping.
   c. Dust monitoring shall be implemented with a recordable device(s). The Contractor will notify the Engineer prior to Mobilization to the Site, of the make and model of the dust monitor(s) that will be used for monitoring. Dust monitor(s) will be placed at a downwind location of the activity based on wind direction, and moved, if necessary, based on conditions. Dust levels will be recorded hourly or periodically based on Site activities, recorded in daily logs, and retained by the Contractor for the duration of the project. Work will be stopped if dust levels reach above 5 milligrams per cubic meter as an action level

E. Permit Compliance
1. The Contractor shall comply with the terms and conditions of the approved RAWP, and any State of local permits required as part of the project. In particular, the Contractor shall:
   a. Maintain soil stockpiles as required by the approved RAWP, and any other State and/or local permits. Any stockpiled materials must be underlain and covered with polyethylene sheeting and be secured at the end of each day.
   b. Any imported clean fill not immediately placed shall be stockpiled and underlain with polyethylene sheeting unless placed on final designed engineer controls.

c. Maintain a communications system capable of summoning fire, police, and/or other emergency service personnel.
d. Prevent unauthorized entry onto the stockpiles by the use of fences, gates, or other natural or artificial barriers.
e. Isolate and temporarily store incidental waste in a safe manner prior to off-site transport to a facility lawfully authorized to accept such waste.
f. Not store more than 100 cubic yards of incidental waste at any one time.
g. Prevent or minimize the transfer or infiltration of contaminants from the stockpiles to the ground as detailed herein.
h. Securely cover each stockpile of soil as detailed herein.
i. Minimize wind erosion and dust transport as detailed herein.
j. Use anti-tracking measures to ensure the vehicles do not track soil from the project Site onto a public roadway at any time.
k. Instruct the transporters of soil and/or sediment of best management practices for the transportation of such soil (properly covered loads, removing loose material from dump body, etc.).
l. Control all traffic related to the operation of the facility in such a way as to mitigate the queuing of vehicles off site and excessive or unsafe traffic impact in the area where the facility is located.

SECTION 02616

WASTE STOCKPILE AND TREATMENT AREA

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. This work shall comply with the RIDEM approved RAWP (March 2023), and RIDEM Remedial Decisionl Letter (April 2023).

1.2 SUMMARY

Work under this Item includes furnishing, constructing, operating, and dismantling a Temporary Waste Stockpile (WSA) in accordance with the approved RAWP, and RIDEM requirements. All regulated/Controlled Materials generated during construction shall be stockpiled on and under polyethylene sheeting, within fenced limits, and managed in accordance with the RAWP. No soil shall be exported from the Site without written authorization from the Engineer or City.

PART 2 - PRODUCTS

2.1 MATERIALS

1. The required materials are detailed on the Project Plans. All materials shall conform to the requirements of the Contract.
2. Polyethylene plastic sheeting for underlayment and covering shall be minimum 30 mil thickness, installed both beneath and over all Controlled Material stockpiles, or placed on existing impervious surfaces and covered.
3. Sandbags used to secure polyethylene sheeting soil covers shall have a minimum weight of thirty pounds.
4. Roll-off/Storage Containers, if utilized, shall be watertight, steel-body construction, of the size specified and able to handle the storage of the material.
5. If soil exhibits staining, odors, sheen, leaching, or free liquids, leak-proof containers or secondary containment are required, consistent with RIDEM requirements.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

A. The WSA shall be constructed per Contract, RAWP, and RAL requirements. Location shall minimize unauthorized access and avoid stormwater pathways.

B. Construction of the WSA shall be completed prior to the initiation of construction activities generating Controlled Materials. The Contractor is responsible for the maintenance and protection of all utilities potentially affected during WSA construction. The Contractor shall locate and mark all existing utilities potentially affected prior to initiating WSA construction.

C. The proposed location of the WSA shall be cleared of any debris and vegetation as directed by the Engineer. Any objectionable materials, which may result in damage to the polyethylene sheeting underlayment, shall be removed prior to stockpiling controlled materials. WSA shall be located to prevent ponding on or against stockpiled materials.

D. In Contractor shall:
   1. Construct and repair the WSA in conformance with the requirements of any State or local permits, and as described in the RAWP, and RIDEM RAL.
   2. Prevent unauthorized entry onto the stockpiles by the use of fences, gates, or other natural or artificial barriers.
   3. Install anti-tracking measures to ensure the vehicles do not track soil from the WSA onto a public roadway at any time.
   4. Controlled materials stockpiles shall be placed on and covered by polyethylene sheeting at all times except during active work.
   5. Stockpiles shall be limited to 100 cubic yards per pile, total WSA area shall not exceed 500 CY, and no stockpile shall remain more than 30 days, per RIDEM approval.
   6. Clean fill stockpiles shall be placed on and covered by poly sheeting, separate from Controlled Material.

E. Following the handling of Controlled Material, the Contractor shall use dry decontamination procedures for all surfaces of the WSA as directed by the Engineer to reduce the potential for cross-contamination. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

F. The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

G. Upon completion of the Project, any remaining material stockpiled will be relocated within the Site boundary and will not be disposed off or re-used at another parcel. The Contractor shall notify the Engineer of where placement of material will occur before re-use. The Controlled Material will not be placed subject to erosion, or below the water-table within the site boundary.

H. Operation and maintenance of the WSA shall be included under SECTION 02615 – Controlled Material Handling.

SECTION 02617

DEMARCATION LAYER

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. All work shall be performed in accordance with the RIDEM approved Remedial Action Work Plan (RAWP), and RIDEM Remedial Decision Letter dated April 2023.

1.2 SUMMARY

A. Work under this Item shall consist of the furnishing and placement of a demarcation layer on top of the remediation subgrade as shown on the Project Plans and in accordance with the RAWP. The demarcation layer shall serve as a high-visibility warning barrier identifying the interface between regulated historic fill and overlying clean cap material, consistent with the remedial approach described in the RAWP.

B. A minimum of one-foot (Type 1) or two-foot (Type 2) thickness of approved clean material shall be placed over the demarcation layer, as required for the final engineered control caps and as detailed on the Project Plans and RAWP Sections 4.2.4 and 4.2.5. Demarcation layer installation shall not occur beneath impervious surface aps or building foundations, which themselves serve as approved engineer controls.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The required material for the remediation demarcation layer shall be a high-visibility orange demarcation barrier such as Cargo-Guard OD 5340 High Visibility Orange Demarcation Netting, or an approved equal, consistent with the requirements for a geotextile demarcation layer as described in the RIDEM approved RAWP.

B. The demarcation material shall consist of an extruded polypropylene grid with approximately ¼-inch mesh openings and high-visibility orange color, providing a clearly identifiable warning layer between regulated historic fill and the overlying clean soil cap, in accordance with the RAWP.

C. Approved equal products shall meet or exceed the following requirements:
1. High-visibility orange coloration suitable for long-term identification during future intrusive work.
2. Sufficient tensile strength to withstand installation stresses and placement of clean fill.
3. UV resistant adequate for short-term exposure prior to backfilling.
4. Physical characteristics compatible with RAWP defined roles for geotextile demarcation layers beneath Type 1 and Type 2 soil caps.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

A. The Demarcation Layer shall be installed in accordance with the manufacturer's recommendations (if available) and in full compliance with the RIDEM approved RAWP. The demarcation layer shall be placed over the remediation subgrade in all areas receiving a clean soil cap, including areas designed for Type 1 (1-foot) and Type 2 (2-feet) caps, as shown on the Project Plans. The demarcation layer shall not be placed beneath impervious surface caps, including pavement, concrete walkways, or building foundations, which serve as engineered controls under the RAWP.

B. Prior to placement of the Demarcation Layer, the remediation subgrade shall be smoothed and free of debris, protrusions, or sharp materials, consistent with the Soil Management Plan (SMP) provided in the RAWP. The Demarcation Layer shall be installed and promptly covered with approved clean backfill to minimize ultraviolet exposure and prevent degradation. Installation shall not occur during temperatures that could cause embrittlement or material breakage.

C. During installation, the Contractor shall secure the Demarcation Layer as needed to keep it in place against wind or construction disturbance. Anchoring may include stakes, sandbags, soil berms, or other suitable temporary means, provided such measures do not damage the material or interfere with subsequent placement of clean cap material.

D. Overlaps of adjacent Demarcation Layer panels shall be placed at a minimum of 12-inches, unless otherwise recommended by the manufacturer. Joints shall be positioned to maintain continuous visual coverage across the entire capped area.

E. Placement of clean fill above the Demarcation Layer shall conform to the required cap thickness specified in RAWP Sections 4.2.4 and 4.2.5, including:
   1. Type 1 Cap: Minimum 1-foot clean material consisting of topsoil and clean material.
   2. Type 2 Cap: Minimum 2-feet clean material for deeper root zones and planting areas.

F. The Contractor shall protect installed Demarcation Layer from damage during subsequent construction activities. Any tears, rips, or displacement shall be repaired or replaced before placement of clean cap material.

SECTION 02629

UNDERGROUND UTILITY MARKING TAPE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for furnishing and installing metallic (detectable) and non-metallic (non-detectable) marking tape over buried pipelines and conduits.

1.02 REFERENCES

A. APWA - American Public Works Association

1.03 SUBMITTALS

A. Shop Drawings

1. Submit in accordance with Section 01300.

B. Samples

1. Provide samples of submitted products.

1.04 DESCRIPTION

A. General

1. Marking tape to be installed over all sewer service lines, water lines and conduits installed under this Contract.
2. Marking tape for non-ferrous pipe or conduits to be Detectable, magnetic type.
3. Marking tape for ferrous pipe or conduits to be Non-detectable, non-magnetic type.
4. Tape to be 3 inches wide.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Underground utility marking tape to be:

1. Detectable: Magnatec by THOR Enterprises, Inc., Sun Prairie, WI.

2. Non-detectable: Shieldtec by THOR Enterprises, Inc., Sun Prairie, WI.
3. Or product deemed equal by the Engineer.

2.02 MATERIALS

A. Detectable Underground Utility marking Tape

1. Minimum overall thickness: 5.0 mil (0.005”).
2. Aluminum foil core: 35 gauge (0.00035”) minimum.
3. Foil visible from both sides of tape.
4. Protective plastic jacket applied to both sides of foil.
5. Jacket adhesive applied directly to the film and foil.
6. No printing to extend to the edges of the tape.
7. No Dilutants, pigments or contaminants in the adhesive.
8. Adhesive formulated to resist degradation by elements normally found in soil.

B. Non-detectable Underground Utility marking Tape

1. Minimum overall thickness: 4.0 mil (0.004”).
2. Polyethylene plastic film: 100% virgin, low density acid and alkali-resistant.
3. Printing: Permanent, black, environmentally safe.
4. Coloring: color-fast, lead free, organic pigments suitable for direct burial and prolonged exposure to the elements normally found in soil.

C. Marking

1. Tape shall be printed with “BURIED *UTILITY* LINE BELOW”, replacing the word “*UTILITY”* with the word “WATER”, “SEWER”, “DRAIN”, “ELECTRIC’, “GAS”, or otherwise appropriate, repeating continuously every 30-inches max.

D. Color Code in accordance with APWA Standards as follows:

1.	Safety Red	Electric power and high voltage lines
2.	High Visibility Safety Yellow	Gas and oil distribution/Transmission Dangerous materials/Steam
3.	Safety Alert Orange	Fiber optic/telephone/CATV
4.	Safety Precaution Blue	Water and irrigation lines
5.	Safety Green	Sewer/storm/sanitary systems, non-potable water
6.	Safety Brown	Force mains and effluent lines

7. Alert Purple — Reclaimed and effluent re-use lines

PART 3 EXECUTION

3.01 INSTALLATION

A. Install marking tape directly above the pipe line or conduit tape approximately 24 inches below the proposed finished grade.

B. Install marking tape in accordance with manufacturer's recommendations.

C. Install marking tape over existing utilities disturbed by the Contractors operation.

END OF SECTION

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SECTION 02650

WORK ADJACENT TO EXISTING UTILITIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Coordination of improvements to avoid existing utilities to the greatest extent possible. Modify covers of existing electric handhole structures where indicated on the plans.

B. Coordination with the impacted utility entity. Conform to these requirements for relocating existing utilities if there is unresolvable conflict with the proposed Work.

1.2 SUBMITTALS

A. In accordance with Section 01300 submit utility relocation plans indicating limits and details of the relocation work.

1.3 PROJECT/SITE CONDITIONS

A. Existing conditions

1. The presence of utilities within the streets, roads and right of ways customarily indicate service lines connecting the buildings and structures along the route. Safeguard all utilities and their respective service connections from damage during the performance of the Work.

2. The presence of utility poles indicate overhead wires for electric; telephone and cable TV also exist. Protect all overhead wires, including service lines, from damage caused by equipment used to perform the Work under this Contract.

3. Existing utilities, as indicated on the Drawings, are from the best available information. The accuracy of such is not guaranteed.

B. Relocation of Utilities

1. Relocation of existing utilities will be required when;

   a. The existing utility interferes with the location of a structure or open cut piping installations or;

   b. Realignment of the proposed Work will have detrimental effects on the proposed Work or existing utility.

C. Support of Utilities

1. Support of existing utilities will be allowed when;

   a. The location of the existing utility does not interfere with the excavation, excavation support, installation of piping, structures or appurtenances.

   b. Support in place will not be detrimental to the utility itself.

   c. Support of utility is in accordance with the requirements of the utility in question.

1.4 SCHEDULING

A. Coordination

1. Coordinate all existing utility relocation work with the appropriate utility company.
2. Notification of “Dig Safe” in accordance with State of Rhode Island requirements.
3. Conduct test pits to identify utility locations needed to perform the Work only after coordination with the utility company and in time to prevent delay of the Work.
4. Coordinate with local water authority to operate water valves as required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. As required by the utility company, or as specified, or as approved by the Engineer.

B. To be new.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Perform by hand digging test pit excavations and submit as built information to utility company and the Engineer.

3.2 INSTALLATION

A. In strict accordance with the requirements of the Utility Company responsible for the Work.

3.3 TESTING

A. Perform pressure and leakage testing on water lines relocated and infiltration or exfiltration testing on storm drains and sewers relocated in accordance with local agencies responsible for the utility.

3.4 INSPECTION

A. Allow access to the relocation work for inspections and recording as-built information.

END OF SECTION

SECTION 02720

CATCH BASINS & GUTTER INLETS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements to construct, adjust abandon, or rebuild all catch basins as indicated on the drawing and as specified.

B. Related Sections

1. Section 03300 - Cast-In-Place Concrete

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM).

1. A48, Specification for Gray Iron Castings.
2. C32, Specification for Sewer and Manhole Brick (Made from Clay or Shale).
3. C139, Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes.
4. C150, Specification for Portland Cement.
5. C207, Specification for Hydrated Lime for Masonry Purposes.
6. C478, Specification for Precast Reinforced Concrete Manhole Sections.

1.3 DESIGN REQUIREMENTS

A. Catch basins shall conform in shape, size, dimensions, materials, and other respects to the details indicated on the drawings or bound in the specifications or as ordered by the Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Catch basin walls shall be precast concrete masonry units. The top of the cone (not to exceed 6 inches.) shall be built of brickwork to permit adjustment of the frame to meet the finished surface.

B. Catch basin sumps shall be one-piece precast concrete or concrete masonry units on cast-in-place or precast concrete bases.

C. The cast-iron frames and grates shall be the standard as indicated on the drawings.

D. All cast-in-place concrete shall be 4,000 psi and shall conform to the requirements specified under SECTION 03300.

2.2 PRECAST CONCRETE MASONRY UNITS

A. Precast concrete masonry units shall be machine-made solid segments, conforming to ASTM C139 with the following exceptions and additional requirements:

1. Type II cement shall be used except as otherwise permitted.
2. The width of the units shall be as indicated on the drawings.
3. The inside and outside surfaces of the units shall be curved to the necessary radius and so designed that the interior surfaces of the structures shall be cylindrical, except the top batter courses shall be designed to reduce uniformly the inside section of the structure to the required size and shape at the top.
4. Units shall be designed such that only full-length units are required to lay any one course.
5. Acceptance of the units will be on the basis of material tests and inspection of the completed product.

2.3 PRECAST CONCRETE SUMPS

A. Precast concrete sumps shall conform to the ASTM C478, with the following exceptions and additional requirements:

1. The wall section shall be not less than 6-inch thick.
2. Type II cement shall be used except as otherwise permitted.
3. Sumps shall be cured by subjecting them to thoroughly saturated steam at temperature between 100 and 130 degrees. F. for a period of not less than 12 hours or, when necessary, for such additional time as may be needed to enable the sections to meet the strength requirements.
4. No more than two lift holes may be cast or drilled in each sump.
5. Acceptance of the sumps will be on the basis of material tests and inspection of the completed product.

B. All holes in sumps used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose or with mortar. The mortar shall be one part cement to 1-1/2 parts sand, mixed slightly damp to the touch (just short of "balling"), hammered into the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush with the adjoining surfaces.

2.4 BRICKS

A. The brick shall be sound, hard, and uniformly burned brick, regular and uniform in shape and size, of compact texture, and satisfactory to the Engineer. Brick shall conform to ASTM C32 for Grade SS, hard brick, except that the mean of five tests for absorption shall not exceed 8 percent by weight.

B. Rejected bricks shall be immediately removed from the work.

2.5 MORTAR FOR BRICKWORK

A. The mortar shall be composed of Portland cement, hydrated lime, and sand, in which the volume of sand shall not exceed three times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense, hard-burned brick to 1:3/4 for softer brick. In general, mortar for Grade SS Brick shall be mixed in the proportions of 1-1/2:4-1/2.

B. Cement shall be Type II Portland cement conforming to the ASTM C150.

C. Hydrated lime shall be Type S conforming to the ASTM C207.

D. The sand shall comply with the specifications for fine aggregate, specified in Section 03300, except that all of the sand shall pass a No. 8 sieve.

2.6 MORTAR FOR MASONRY UNITS

A. Mortar shall be composed of one part Portland cement and two parts of sand by volume with sufficient water to form a workable mixture. Cement and sand shall be as specified for mortar for brickwork.

2.7 CATCH BASIN FRAMES AND GRATES

A. Furnish and install all cast-iron catch basin frames and grates conforming to the details indicated on the drawings and as specified.

B. Castings shall be of good quality, strong, tough, even-grained cast iron, smooth, free from scale, lumps, blisters, sand holes, and defects of every nature which would render them unfit for the service for which they are intended. Contact surfaces of grates and frame seats shall be machined to prevent cocking of grates.

C. All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

D. Castings shall be at least Class 25 conforming to the ASTM A48.

E. Unless otherwise specified or indicated on the drawings, castings in paved areas shall be capable of withstanding AASHO H-20 loading and shall meet the requirements of the municipality in which they are installed.

2.8 CURB INLETS

A. Granite for curb inlets shall have a horizontal bed. The stone shall be sawn or peen hammered on top, and the front and back edges shall be pitched true to line. The back face for a distance of 3-inches down from the top shall have no projection greater than 1 inch. The front face shall be straight split, free from drill holes, and it shall have no projection greater than 1-inch or depression greater than 1/2 inch for a distance of 10-inch down from the top, and for the remaining distance there shall be no depression or projection greater than 1 inch. The ends shall be squared with the top for the depth of the face finish and so cut that the curb inlet can be set with joints of not more than 1/2 inch.

B. Granite curb inlet shall be, 3 ft. minimum in length, plus or minus 1/2 inch, from 17 to 19 inches in depth, 7 inch wide at the top and at least 7 inches wide at the bottom.

C. A gutter mouth at least 3 inches in depth and at least 2 feet in length shall be cut in the front face of the stone as shown on the plans.

D. Where curb inlets are used to replace a section of existing curbing, the width of the curb inlet shall be the same as the adjoining existing curbing.

PART 3 - EXECUTION

3.1 LAYING BRICKWORK AND GRADING RINGS

A. Only clean bricks and grading rings shall be used. Bricks shall be moistened by suitable means, as directed, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

B. Each brick shall be laid in a full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and shall be thoroughly bonded as directed.

C. Each grading ring shall be laid in a full bed of mortar and shall be thoroughly bonded.

3.2 PLASTERING AND CURING BRICK MASONRY

A. Outside faces of brick masonry shall be plastered with mortar from 1/4 in. to 3/8 in. thick. If required, the masonry shall be properly moistened prior to application of the mortar. The plaster shall be carefully spread and troweled. After hardening, the plaster shall be carefully checked by tapping for bond and soundness. Unbounded or unsound plaster shall be removed and replaced.

B. Brick masonry and plaster shall be protected from too rapid drying by the use of burlaps kept moist, or by other acceptable means, and shall be protected from the weather and frost, all as required.

3.3 SETTING CASTINGS

A. Curb inlets and frames shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface or as indicated on the drawings or directed. Circular frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

B. Grates shall be left in place in the frames on completion of other work at the manholes.

3.4 CATCH BASINS ADJUSTED TO GRADE

A. Existing catch basin tops shall be adjusted to line and grade as indicated on the drawings or as directed by the Engineer.

B. All catch basins adjusted to grade shall be provided with concrete grading rings or brick as specified for new drain manholes.

3.5 REBUILDING OF EXISTING CATCH BASIN

A. Cut suitable openings in existing structures to make connections to drains as indicated on the drawings and as specified or directed. In doing so, confine the cutting to the smallest amount possible consistent with the work to be done.

B. After the drains are installed, carefully fit around, close up, and repair the structures watertight, all as acceptable to the Engineer.

C. Prior to starting work, assemble all tools, materials, and construction equipment required to complete the work in the shortest possible time.

END OF SECTION

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SECTION 02930

LOAMING AND SEEDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for loaming, fertilizing, seeding, and related work in areas disturbed in the process of performing the Work under this contract.

1.2 SUBMITTALS

A. In accordance with SECTION 01330, submit the following:
   1. Submit intended source of loam.
   2. Submit loam sample with laboratory analysis for review and approval.
   3. Submit seed, certificates listing proposed seed mixture, purity, germinating value, and crop year identification.
   4. No loam shall be imported to the site or placed without the Engineers approval.

1.3 DELIVERY, STORAGE AND HANDLING

A. Fertilizer:
   1. Delivered mixed as specified in standard size, unopened containers showing weight, analysis, and name of manufacturer.
   2. Store in a weatherproof place.

B. Seed:
   1. Delivered in original unopened containers with mixture listed.

PART 2 - PRODUCTS

2.1 LOAM

A. Per Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, most current edition. Section M18.

B. Loam, imported to the site, shall be fertile, natural topsoil, typical of locality, without admixture of subsoil, refuse or other foreign materials, and obtained from well-drained arable site. Mixture of sand, silt and clay particles in approximately equal proportions. Free of stumps, roots, heavy or stiff clay, stones large than 1/2 inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other deleterious matter. Use loam having prior vegetative growth that does not contain toxic amounts of either acid or alkaline elements. Acidity range shall be 5.5 pH to 7.6 pH.

C. Loam shall contain neither less than 5 percent nor more than 20 percent organic matter as determined by loss on ignition of oven-dried samples.

D. Loam test samples shall be dried to constant weight at temperature of 230 degrees F., plus or minus nine (9) degrees.

2.2 LIME, FERTILIZER AND SEED

A. Per RIDOT Standard Specifications for Road and Bridge Construction, Section M18 Materials.

B. Agricultural limestone containing not less than 85 percent of total carbonates.

C. Complete fertilizer, at least 50 percent of nitrogen derived from natural organic sources of ureaform and containing following percentages by weight:

Nitrogen (N) 10% Phosphorus (P)10% Potassium (K)10%

D. Grass Seed Type 2 per RIDOT Standard Specifications Section M18 Materials.

Chewings Fescue (Improved)	30%by weight	85% by volume
Kentucky Bluegrass (Improved)	30% by weight	90% by volume
Perennial Ryegrass	40%by weight	90% by volume

E. The seed shall applied at 75 Lbs per acres /4 lbs per 1,000 SF. Seed may be applied using Hydroseeding techniques.

PART 3 - EXECUTION

3.1 GENERAL

A. The Contractor is responsible for providing the Owner with a stand of healthy, well-established grass.

B. The Contractor shall coordinate the loaming and seeding with the installation of the irrigation system. System shall be functional prior to seeding.

C. Contractor is responsible for establishing the seeded grass. Supply suitable quantities of water, hose and related distribution appurtenances.

3.2 LOAM

A. Obtain approval for the Engineer of the rough grade before proceeding with the placement of the loam. If this surface has been compacted, scarify to a depth of 3 inches prior to importing loam to the area.

B. Spread imported loam over areas indicated to ensure a minimum of 4” inch depth after compaction.

C. Hand rake areas uniformly with even transitions. Low points shall only be located as shown on the plans or as directed in the field by the Engineer.

D. Remove and dispose of all sticks, litter, wire, weeds, cobbles, stones or other deleterious materials over ½” in any dimension.

E. When meeting paved surfaces, the finished loam elevation shall be a minimum of ½" below the paved surface unless directed otherwise.

F. After hand raking, utilize a hand roller with a weight of less than 175 lbs. to hand roll the entire area to be seeded.

3.3 LIME, FERTILIZER AND SEEDING

A. Apply lime by mechanical means at rate of 2,000 pounds per acre.

B. Apply fertilizer at a rate of 850 pounds per acre.

C. Remove weeds and/or replace loam & re-establish finish grades, if there have been any delays in seeding lawn areas and weeds have grown on surface, or if loam has washed out prior to sowing seed, without additional compensation.

D. Sow seed at rate of 4 lbs per 1,000 SF. Conduct seeding on a calm day. Do not seed prior to severe weather.

E. If seeding manually, sow one-half of seed in one direction, and other half at right angles to original direction. Rake seed lightly into loam to a depth of not more than 1/4 inch and compact by means of an acceptable lawn roller weighing 100 to 150 pounds per linear foot of width.

F. The Contractor shall coordinate seeding with the installation of the irrigation system. Water lawn areas adequately at time of sowing and daily thereafter with fine spray and continue throughout maintenance and protection period.

G. Seed shall be applied from April 1 to May 31 or from August 15 to October 15. Seed only when weather and soil conditions are suitable for such work, unless otherwise authorized. Coordinate with the installation of the irrigation system.

3.4 MAINTENANCE OF SEEDED AREAS

A. Maintain lawn areas and other seed areas at maximum height of three (3) inches by mowing at least three (3) times. Weed thoroughly once and maintain until time of Final Acceptance.

B. Begin maintenance immediately after each portion of lawn is seeded and continue until Final Acceptance.

C. If determined necessary, scarify, de-thatch, re-seed with original mixtures and re-fertilize, perform additional watering or implement whatever measures are necessary to establish a close stand of grasses over the entire area of lawn, reasonably free of weeds and undesirable coarse native grasses.

D. Repair or replace all seeded areas that, in judgment of Owner, have not survived and grown in satisfactory manner, for a period of one (1) year after acceptance.

E. For seeding replacement, use same seed mixture as specified, and furnish and install as specified.

3.5 ESTABLISHMENT

A. The Contractor is responsible for establishing a uniform stand of healthy grass on all seeded areas.

B. Seeded areas must exhibit uniformly dense, satisfactory growth of grass. The grass must be approved by the Engineer to achieve Final Acceptance.

3.6 TEMPORARY COVER CROP

A. If conditions require, sow a temporary cover crop of domestic annual rye grass or other acceptable seed if there is insufficient time in the planting season to complete seeding, fertilizing, and permanent seeding at the option of Contractor or direction of the Engineer.

B. Cut and water cover crop as necessary until the beginning of the following planting season, at which time it shall be tilled into the soil, the grassed areas re-fertilized and permanent grass seed sown as specified.

END OF SECTION

SECTION 02935

TREE & SHRUB CONSERVATION MEASURES

PART 1 - GENERAL

1.1 WORK INCLUDED:

A. This section consists of providing all labor, equipment, materials, tools, and required professional services for conducting work within existing tree root zones. This work shall include but not be limited to the following:

1. Utilizing hand digging in areas where proposed work is to be conducted within the existing tree root zones. Hand dig to remove and break up soil around existing trees as to not damage the roots and to facilitate root pruning.
2. In areas where existing tree roots are exposed at the surface, remove and break up soils around existing trees to facilitate application of blended soils to the grades shown on the plans. Root prune as required to ensure that roots are no longer exposed once the work is complete. Roots shall be trained to encourage healthy root growth.
3. As needed roots, grade soils per the plans and prune existing exposed roots.
4. Remove and break up of soils around existing trees.
5. Hand dig around existing trees and where existing roots are present.
6. Remove and break up of soils around existing trees to locate tree roots.
7. Remove and break up of soils around existing trees to accommodate proposed site construction.
8. Root collar excavation to expose the lower trunk and buttress roots of the designated trees.
9. Tree Canopy and Root pruning
10. Removal of all rubbish, debris, and all materials to be disposed of as a result of the work in this section.

1.2 RELATED WORK:

A. Section 02100 - Site Clearing

B. Section 02200 – Earthwork

1.3 REFERENCED STANDARDS:

A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

1. American National Standards Institute (ANSI).
    a. Z133.1 Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees, and for cutting brush.

b. A300 Tree Care Operations – Tree, Shrub and Other Woody Plant maintenance – Standard Practices (Parts 2, 5, And 8).

2. Pruning Standards: ANSI A300 Part 1: Trees, Shrubs & Other Woody Plant Maintenance – Standard Practices (Pruning).

1.4 SUBMITTALS:

A. Prepare and submit a "Specialized Root Zone and Soil Excavation Plan," 11x17 format indicating the extent of soils to be root pruned /Air-Spaded. Show all areas of proposed staging, vehicle, or equipment access, trenching, excavating, or other disturbance to soils. No work in this section shall commence prior to approval.

B. Proposed methods, materials, and schedule for pruning and effecting soils and root zones, in accordance with ANSI A300 (all parts, shall be submitted by certified arborist for approval).

C. Specialized root zone and soil excavation operations shall include, but not be limited to:

1. Soil aeration and decompaction.
2. Root pruning.
3. Soil replacement.
4. Root training.
5. Root trenching.

1.5 PROPERTY PROTECTION:

A. Prevent damage to and movement, settlement, or collapse of adjacent services, utilities, structures, and trees. Assume liability for such damage, movement, settlement, or collapse. Promptly repair damage at no cost to the owner.

1.6 TREE DAMAGE PENALTIES:

A. The condition of the trees and damage to trees on the property will be assessed.

B. If at any time during the operation, damage to the trunk or root bark is noticed, the operator shall move the excavation/Air-Spade tool further from the root; or trunk or stop the operation. Bark damage is not acceptable.

C. Trees or roots visibly abraded, split, torn left exposed or otherwise damaged will cause the Owner to withhold from the contractor an assessed amount.

D. If any trees or shrubs designated to be saved are damaged and replacement is required, replacement material shall be furnished and planted by the contractor at no additional expense to the Owner.

1.7 QUALITY ASSURANCE:

A. Work of this section shall be completed by a professional Arborist licensed in the State of Rhode Island with a minimum of five years of experience.

B. Arborist shall have the following minimum qualifications:

1. Certification by:
    a. TCIA -- Tree Care Industry Association, Inc. accredited company
    b. ISA -- International Society of Arborists
2. Meet state requirements for insurance.

C. Equipment utilized to complete the work of this Section shall be operated by experienced technicians, trained, and certified by equipment manufacturer to operate the compressed air-powered tool safely and properly in accordance with manufacturer's Operator's Manual and the “AirSpade Technical Applications Bulletin (2016)”.

D. AirSpade operations shall not be performed in heavy rain or when soil is deemed too wet or too dry by licensed arborist.

E. Tree trunks shall be suitably protected from damage by AirSpade operations during all activities specified.

1.8 SITE MONITORING:

A. While use of an AirSpade can significantly reduce trauma to the tree, it is important to monitor the tree's health and care before, during, and after the procedure. Supplemental watering is typically necessary and should be provided with the direction and continued monitoring of a Licensed Arborist.

B. Site monitoring shall be the responsibility of a Licensed Arborist. Any damage to existing trees shall be immediately reported to the architect. If any tree has been damaged, work shall be halted and reasons for damage assessed. No work shall commence until contractor has submitted a plan for prevention of further tree damage and plan has been approved in writing by Engineer.

1.9 PRE-CONSTRUCTION CONFERENCE:

A. Pre-Construction Conference: Prior to implementing specialized root zone and soil excavation measures, conduct meeting with Engineer, certified arborist, (AirSpade manufacturer's rep), and owner to verify and review the following:

1. Project requirements for tree protection measures as set out in Contract Documents.
2. AirSpade manufacturer's product data including application, operation, and safety instructions.
3. Limits where specialized root zone and soil excavation measures shall be implemented.
4. Areas of proposed staging, vehicle, or equipment access, trenching, or other disturbance to soils.
5. Healthcare needs of individual trees, including specific site conditions, that may affect the project goals or construction implementation strategy. ET. Tree health-care implementation strategies before, during, and after construction.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Specialized root zone operations shall be performed using a compressed air-powered tool, also referred to as an AirSpade. High-pressure air will come from a compressor that matched to the design flow of the tool, producing a focused jet air stream capable of penetrating and fracturing existing soil for a fast, efficient method of excavating.

1. The compressor shall be in good working condition and exhibit no signs of excessive discharge of oil in the air stream.
2. Tool shall be equipped with a "dead-man trigger."

2.2 COMPOST

A. Compost shall comply with Section 02930 Loaming and Seeding with the below exceptions:

1. Compost from the Reservation stockpile, if suitable after testing, and approved by the Engineer, may be applied to the Soil and Vegetation Restoration in place of compost from off-site locations. The Contractor shall coordinate and obtain approval from the Owner for the specific material to be used.
2. Amount of compost to apply shall be determined by recommendations from tests taken on existing loam material. Intent is to mimic soils found along vegetated areas at Purgatory Chasm Reservation Trails.
3. Compost shall have a pH between 4.5 pH and 7.0 pH, and the particle size shall pass through a 1-inch screen or smaller.

2.3 MULCH

A. Straw Mulch - Straw mulch shall consist of stalks or stems of grain after threshing and shall be free of weeds, twigs, debris or other deleterious materials. Hay mulch is not acceptable.

B. Wood Fiber Mulch - Wood fiber mulch shall consist of wood fiber produced from clean, whole, uncooked wood, formed into resilient bundles having a high degree of internal friction and shall be dry when delivered to the project.

PART 3 - EXECUTION

3.1 GENERAL

A. Prior to any work being done, the arborist shall:

1. Check and adjust tree protection fencing.
2. Provide specified protection to tree trunks when construction activities are expected to be in close proximity.
3. Demarcate sensitive root zones within the construction areas and prevent use of the area for potentially damaging activities such as use of heavy machinery.

B. In areas where root zones and construction areas overlap, the contractor shall limit the use of machinery and shall hand dig to avoid damage to existing roots. In areas where roots are within a proposed pavement profile, they shall be evaluated by a certified arborist and root pruned, as needed, to prevent future issues with the installed pavement but to also protect the health of the tree.

3.2 AIR SPADING

A. If air-spading is required to loosen the soil around the roots, the area where air-spading is to be performed shall have restricted access. Only personnel that are involved in the operation shall be permitted within 25 feet of the operation. A temporary screen barrier shall be set up to prevent flying rocks and debris from leaving the immediate work area during the operation.

B. Personnel using the air tool or working in close proximity to the operation shall wear appropriate personal protective equipment, which includes at a minimum:

1. Hard hat with plastic face shield
2. Goggle-type eye protection
3. Ear plugs
4. Earmuffs
5. Long sleeved shirt and long pants.
6. Work boots and socks

C. If the area has active fire ant activity, personnel shall take precautions including sealing of cuffs and the use of insect repellents to avoid fire ant attack.

D. Air hoses used in the operation shall have safety pins and whip guards installed at each hose junction.

E. The air flow heating valve (if present on the compressor) shall be turned off when working near trees so as not to damage bark.

3.3 SOIL PREPARATION SPECIALIZED ROOT ZONE

A. Trees proposed to undergo specialized root zone end soil excavation operations shall be adequately watered before start of operations. Amount and frequency of watering shall be determined by certified arborist. No operations shall commence prior to preparation approval in writing by certified arborist.

B. Soil shall be moist to the point of field capacity prior to and during the operation. If dust is generated during the operation, it shall be stopped, and the soil should be wetted. If turf, large rock, or mulch is present in the area to be included in the excavation, it shall be removed prior to the start of the operation.

3.4 AIR TILLING

A. Contractor shall utilize the AirSpade tool to aerate and de-compact to the specified depth (typically 6-8 in.) of the topsoil layer.

1. Place plywood sheets over adjacent trenches to prevent refilling.
2. Position the AirSpade at an angle of 30° to 45° (depending on target depth) and about I inch from the surface.
3. Move the nozzle from side to side to define the desired trench width.
4. Do not dwell on the same spot.
5. Width, depth, and length of trench, and soil augmentation to be determined based on tree needs and project goals.
6. The adjustable dirt shield should be positioned close to the ground to deflect airborne material away from the operator.
7. Refer to manufacturer's updated safety and operational guidelines.

3.5 ROOT PRUNING AND TRAINING

A. If existing tree roots are identified within the proposed pavement limits and trees are subjected to soil cuts within the root; zone shall be root pruned by a certified arborist utilizing an AirSpade, removing as little of the tree's root system as possible.

B. Once existing roots have been safely exposed, a certified arborist shall determine the best places to make clean cuts using a hand pruner. Smaller roots shall be lowered down into soil horizon to help train them to follow a future path of growth.

C. When the tree's excavated root zone will remain exposed for several days or more, protect and cover roots (for example with soil, mulch, or burlap cloth) and provide supplemental water as required.

3.6 SOIL REPLACEMENT

A. Native soil shall be deposited to the depth shown on the Drawings. Soil shall be deposited to minimize travel and subsequent compression of the underlying material and AirSpaded soil. If sufficient native/local soil is not present, the Contractor shall provide, at no additional cost to the Owner, replacement native/local soil.

3.7 DISPOSAL OF MATERIALS

A. Soil moved during the air-spading operations shall be collected and moved off-site or disposed of on-site if it not visually apparent.

B. Material resulting from the specialized root; zone and soil excavation work and not scheduled to be salvaged and is unsuitable for reuse on the project, shall become the property of the contractor and shall be legally disposed of off-site.

C. Debris, rubbish, and other materials shall be disposed of promptly end shall not be left until final cleanup of site.

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

PART 1 - GENERAL

SUMMARY

A. Section Includes

1. Requirements for forms to be used for all concrete masonry including footings, except as otherwise permitted.

B. Related Sections

1. Section 03200 - Concrete Reinforcement.
2. Section 03300 - Cast-In-Place Concrete.

1.2 REFERENCES

A. American Concrete Institute (ACI)

1. ACI 318, Building Code Requirements for Structural Concrete.
2. ACI 347R, Guide to Formwork for Concrete.

1.3 SUBMITTALS

A. Submit in accordance with Section 01300.

B. Shop Drawings:

1. Layout of panel joints, tie hole pattern, and form liners.
2. Form Ties - Tapered Through-Bolts: Proposed method of sealing form tie hole; coordinate with details shown.

C. Samples: One each as follows:

1. Form liners.
2. Form ties.

D. Quality Control Submittals:

1. Statements of qualifications for formwork designer.
2. Manufacturer's Certificate of Proper Installation. (After installation)

1.4 QUALITY ASSURANCE

A. Qualifications: Formwork, falsework, and shoring designs prepared by an engineer licensed in the State of Rhode Island.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Surfaces to be given burlap-rubbed finish.

1. Form surface in contact with the concrete shall be made of heavy gage metal, new plywood (used plywood which, in the opinion of the Engineer, is substantially equal to new plywood may be used), tempered wood fiberboards with smooth surface, or similar materials.
2. Metal forms or form linings shall have square edges so that the concrete will not have fins or fluting. Joints between form panels shall be well fitted so as to be tight and result in substantially flush concrete surfaces on opposite sides of the joints.
3. Forms shall not be pieced out by use of materials different from those in the adjacent form or in such manner as will detract from the uniformity of the finished surface.

B. Surfaces other than those to be given burlap-rubbed finish.

1. Forms shall be made of wood, metal, or other acceptable material. Wooden forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots. Plywood shall be reasonably good, as accepted. Metal forms shall be of an acceptable type for the work involved. Edges of forms in contact with concrete shall be flush within 1/16 in.

C. Forms shall be of suitable material, design, and construction as to be rigid, tight enough to prevent the passage of mortar, and plane surfaces shall be plane within 1/16 in. in 4 ft. Particular care shall be taken to ensure that forms are true to line where deviations in the concrete would be obvious or objectionable, as where building superstructures are to be built thereon, or where the tops of walls are exposed. All such deviations which may occur shall be corrected by, and at the expense of the contractor, as directed, even to the extent of tearing down and rebuilding the concrete.

D. Forms for walls, columns, or piers shall have removable panels at the bottom for cleaning, inspection, and scrubbing-in of bonding grout. Forms for thin sections (such as walls or columns) of considerable height shall be arranged with suitable openings so that the concrete can be placed in a manner that will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the fresh concrete, unless special spouts are used to place concrete, and so that construction joints can be properly keyed and treated.

E. Forms shall be sufficiently rigid to prevent displacement or sagging between supports and so constructed that the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.

F. Wall Forms and Underside of Slabs and Beams:

1. Materials: Plywood, hard plastic finished plywood, overlaid waterproof particle board, or steel in “new and undamaged” condition, of sufficient strength and surface smoothness to produce specified finish. Use in combination with form liners where required.

G. All Other Forms: Materials as specified for wall forms.

H. Form Sealer:

1. Material: Surface sealer will not bond with, stain, or adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces, when applied to most forms of form liners. A ready-to-use water-based material formulated to reduce or eliminate surface imperfections, containing no mineral oil or organic solvents. Environmentally safe, meeting local, state, and federal regulations and can be used in clean water treatment plants.
2. Manufacturer and Product: Master Builders, Inc.; Rheofinish; or Equal.

I. Rustication Grooves and Beveled Edge Corner Strips: Nonabsorbent material, compatible with form surface, fully sealed on all sides prohibiting loss of paste or water between the two surfaces. Match the rustication grooves with the existing configuration and style located at the plant.

2.2 FORM TIES

A. Form ties to be encased in concrete shall not be made of through-bolts or commonwire, but shall be of a well-established type, so made and installed as to embody the following features:

1. After removal of the protruding part of the tie, there shall be no metal nearer than 1 in. to the face of the concrete.
2. The part of the tie which is to be removed shall be at least 1/2 in. in diameter, or if smaller, it shall be provided with a wood or metal cone 1 in. long placed against the inside of the forms. cones shall be carefully removed from the concrete after the forms have been striped.
3. Ties which pass through walls subject to hydrostatic pressure shall be provided with acceptable water stops, such as washers, securely fastened to the ties.

B. Form Ties:

1. Material: Steel.
2. Spreader Inserts.
    a. Conical or spherical type.
    b. Design to maintain positive contact with forming material.
    c. Furnish units that will leave no metal closer than 1 inch to concrete surface when forms, inserts, and tie ends are removed.
3. Wire ties not permitted.
4. Flat bar ties for panel forms, furnish plastic or rubber inserts with minimum 1 inch depth and sufficient dimensions to permit patching of tie hole.
5. Water Stop Ties: For water-holding structures, basements, pipe galleries, and accessible spaces below finish grade, furnish one of the following:
    a. Integral steel water stop 0.103-inch thick and 0.625 inch in diameter tightly and continuously welded to tie.
    b. Neoprene water stop 3/16-inch thick and 15/16 inch in diameter whose center hole is 1/2 diameter of tie, or a molded plastic water stop of comparable size.
    c. Water Stop: Oriented perpendicular to tie and symmetrical about center of tie.
    d. Design ties to prevent rotation or disturbance of center portion of tie during removal of ends and to prevent water leaking along tie.

6. Through-Bolts: Tapered minimum 1-inch diameter at smallest end.
7. Elastic Vinyl Plug: Design and size of plug to allow insertion with tool to enable plug to elongate and return to original length, and diameter upon removal forming a watertight seal.
    a. Manufacturer and Product: Dayton Superior Co., Miamisburg, OH; Dayton Sure Plug, or equal.

PART 3 - EXECUTION

3.1 SYSTEM DESIGN REQUIREMENTS

A. Design formwork in accordance with ACI 347R and ACI 318 to provide the concrete finishes specified in Section 03300, CAST-IN-PLACE CONCRETE.

B. Make joints in forms watertight.

C. Limit panel deflection to 1/360 of each component span to achieve tolerances specified.

3.2 ERECTION

A. General: Unless specified otherwise, follow the applicable recommendations of ACI347R.

B. Forms shall be so constructed and placed that the resulting concrete will be of the shape, lines, dimensions, and to the elevations indicated on the drawings or specified, and exposed concrete will be substantially free from board or grain marks, poorly matched joints, and other irregularities or defects.

C. Beveled Edges (Chamfer):
    1. Form 3/4-inch bevels at concrete edges, unless otherwise shown.
    2. Where beveled edges on existing adjacent structures are other than 3/4-inch, obtain ENGINEER's approval of size prior to placement of beveled edge.

D. Wall Forms:
    1. Do not reuse forms with damaged surfaces.
    2. Locate form ties and joints in an uninterrupted pattern for smooth and uniform surface.
    3. Inspect form surfaces prior to installation to assure conformance with specified tolerances.

E. Forms for Curbs, Sidewalks, and Driveways:
    1. Provide standard steel or wood forms to prevent movement.
    2. Set forms to true lines and grades and securely stake in position.

F. Form Tolerances: Provide forms in accordance with ACI 347R and ACI 318 and the following tolerances for finishes specified:
    1. Wall Tolerances:
        a. Straight Vertical or Horizontal Wall Surface: Flat planes within tolerance specified.
        b. Plumb within 1/4-inch to 10-feet.

c. Depressions in Wall Surface: Maximum 5/16-inch when 10-foot straightedge is placed on high points in all directions.

d. Thicknesses: Maximum 1/4-inch minus or 1/2-inch plus from dimensions shown.

2. Slab Tolerances:

a. Exposed Slab Surfaces: Comprise of flat planes as required within tolerances specified.

b. Slab Finish Tolerances and Slope Tolerances: Crowns on floor surface not too high as to prevent 10-foot straight edge from resting on end blocks, nor low spots that allow a block of twice the tolerance in thickness to pass under the supported 10-foot straightedge.

c. Steel gauge block 5/16-inch thick.

d. Slab drainage.

1) Finish Slab Elevation: Slope slabs to floor drain and gutter and shall adequately drain regardless of tolerance.

2) Thickness: Maximum 1/4-inch minus or 1/2-inch plus from thickness shown, except where thickness tolerance will not affect slope, drainage, or slab elevation.

3.3 FORM SURFACE PREPARATION

A. Thoroughly clean form surfaces in contact with concrete or previous concrete, dirt,

B. Exposed Wood Forms in Contact with Concrete: Apply form sealer as recommended by the sealer material manufacturer.

C. Steel Forms: Apply form sealer to steel forms as soon as they are cleaned to prevent discoloration of concrete from rust.

3.4 FORM COATINGS

A. All forms shall be oiled with an acceptable nonstaining oil or liquid form coating before reinforcement is placed.

B. Before form material is reused, all surfaces that are in contact with the concrete shall be thoroughly cleaned, all damaged pieces repaired, and all projecting nails withdrawn.

3.5 REMOVAL OF FORMS

A. Except as otherwise specifically authorized by the Engineer. forms shall not be removed until the concrete has aged for the following number of day-degrees*:

1. Formwork not supporting weight of concrete, (i.e., sides of beams, walls, columns, and similar parts of the Work) may be removed after cumulatively curing at not less than a total of three 50-degree F days after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing protection operations are maintained.

2. Leave forms and shoring for elevated structural slabs or beams in place, in accordance with ACI 318, Chapter 6, and until concrete has reached compressive strength equal to 80 percent of the specified 28-day compressive strength as determined by test cylinders.

3. *Day-degree: total number of days times average daily air temperature at surface of concrete. For example, 5 days at a daily average temperature of 60 deg. F. equals 300 day-degrees.

3.6 MANUFACTURERS' SERVICES

A. Provide form manufacturer's representative at site for installation assistance, and inspection.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for reinforcing steel bars, wire fabric and accessories as shown on the drawings, specified herein, and as needed for a complete and proper installation.

B. Related Sections

1. Section 03100 - Concrete Formwork.
2. Section 03300 - Cast-In-Place Concrete.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM).

1. A82, Specification for Steel Wire, Plain for Concrete Reinforcement.
2. A185, Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
3. A497, Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
4. A615, Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
5. A706, Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement.
6. A775, Specification for Epoxy-Coated Reinforcing Steel Bars.

B. American Concrete Institute (ACI).

1. ACI 318, Building Code Requirements for Structural Concrete.

1.3 SUBMITTALS

A. In accordance with Section 01300 submit cutting and bending drawings and schedules for all reinforcement to be furnished.

B. Shop Drawings:

1. Prepare in accordance with Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice and ACI SP-66 Detailing Manual:
    a. Bending lists.
    b. Placing drawings.
2. Welded splice, Cadweld splice, and mechanical threaded splice.

C. Quality Control Submittals:

1. Lab test reports for reinforcing steel showing stress-strain curves and ultimate strengths.

2. Mechanical Threaded Connections:
    a. Current International Conference of Building Officials (ICBO) Research Report or equivalent code agency report listing findings to include acceptance, special inspection requirements, and restrictions.
    b. Manufacturer's instructions.
    c. Verification that device threads have been checked and meet all requirements for thread quality, in accordance with manufacturer's published methods.
3. Epoxy-Coated Reinforcing Bars: Written certification in accordance with paragraph 4.2.1 of ASTM A775.
4. Welding Qualification: Prior to welding, submit welder qualifications and radiographic nondestructive testing procedures.

1.4 QUALITY ASSURANCE

A. The steel shall be newly rolled stock substantially free from mill scale, rust, dirt, oil, grease, or other foreign matter. Bars shall be of billet steel and, unless otherwise indicated, shall be Grade 60 bars.

B. Billet steel bars shall conform to ASTM A 615.

C. All bars shall be rolled by an acceptable mill. The Contractor shall submit at his own expense certified copies of tests of the bars furnished. The tests shall be as specified in the appropriate ASTM Specification referred to above and shall be made by an acceptable laboratory.

D. Welder Qualifications: Certified in accordance with AWS D1.4-79.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Unload, store, and handle bars in accordance with CRSI publication "Placing Reinforcing Bars."

B. Coated Bars:
1. Protect epoxy-coated bars contact areas from handling equipment.
2. Lift bundles of coated bars at multiple pickup points to minimize bar-to-bar abrasion from sags in bundles.
3. Do not drop or drag coated bars or bundles of coated bars.
4. Store coated bars on protective cribbing.
5. Color fading of coating is not cause for rejection of epoxy-coated reinforcing bars.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Deformed Billet-Steel Reinforcing Bars:
1. Includes stirrups, ties, and spirals.

2. ASTM A615, Grade 60, including Supplemental Requirements S1 where welding is not required.
3. ASTMA706, Grade 60, including Supplemental Requirements for reinforcing to be welded.

B. Splices and Mechanical Connections:

1. Metal Sleeve: Furnish with cast filler metal, capable of developing, in tension or compression, 125 percent of minimum tensile strength of the bar.
2. Mechanical Threaded Connections: Furnish metal coupling sleeve for splicing reinforcing in secondary members or in areas of low stress with internal threads engaging threaded ends of bars developing in tension or compression 125 percent of yield strength of bar.
    a. Manufacturers and Products:
        1) Erico Products, Inc., Cleveland, OH; Lenton Reinforcing Steel Couplers.
        2) Richmond Screw Anchor Co., Inc. Fort Worth, TX; Richmond DB-SAE Dowel Bar Splicers.
        3) Or equal.

C. Epoxy-Coated Reinforcing Bars: ASTM A775, deformed bars with bond strength not less than 80 percent of uncoated bars.

D. Welded Wire Fabric:

1. ASTM A185, or A497, and ACI 318/318R, using ASTM A82, wire of 75 ksi minimum tensile strength.
2. Furnish flat sheets only, rolled sheets not permitted.

E. Reinforcement shall be accurately formed to the dimensions indicated on the drawings. Stirrups and tie bars shall be bent around a pin having a diameter not less than two times the minimum thickness of the bar. Bends for other bars shall be made around a pin having a diameter not less than six times the minimum thickness except for bars larger than 1 in., in which case the bends shall be made around a pin of eight bar diameters. All bars shall be bent cold.

F. Bars shall be shipped to the work site with bars of the same size and shape fastened in bundles with securely wired-on metal identification tags giving size and mark.

G. Deformations on bars for concrete reinforcement shall conform to the requirements of the above-mentioned ASTM Specifications.

2.2 ACCESSORY MATERIALS

A. Tie Wire:

1. Black, soft-annealed 16-gauge wire.
2. Nylon-, epoxy, or plastic-coated wire.

B. Bar Supports and Spacers:

1. Precast concrete bar supports, cementitious fiber-reinforced bar supports, or all plastic bar supports and side form spacers meeting the requirements of CRSI Manual of Standard Practice. Do not use other types of supports or spacers.

2. In Beams, Columns, Walls, and Slabs Exposed to View After Stripping: Small rectangular concrete blocks made up of same color and strength as concrete being placed around them or all-plastic bar supports and side form spacers.
3. Use supports made of dielectric material for epoxy-coated reinforcing bars supported from formwork.
4. If epoxy-coated reinforcing is used, furnish epoxy-coated reinforcing bars for spreader bars.
5. Precast concrete supports of same strength as concrete for reinforcing in concrete place don grade.

C. Welded steel wire fabric shall conform to the ASTM A 185. The gage and spacing of wires shall be as indicated on the drawings.

D. Soffit Clips: Made galvanized steel wire not lighter than No. 12 Stl. W.C. They shall be shared so that the greater portion of the wire is held about 1 in. from the flange of the steel beam and shall be spaced not less than 9 in. on centers, the spacing being maintained by suitable longitudinal wires.

2.3 FABRICATION

A. Follow CRSI Manual of Standard Practice.

B. Bend all bars cold.

PART 3 - EXECUTION

3.1 PREPARATION

A. Notify ENGINEER when reinforcing is ready for inspection and allow sufficient time for inspection prior to placing concrete.

B. Repair epoxy coating damaged due to handling, shipment, and placing. Repair with patching material in accordance with ASTM A775, and manufacturer's recommendations.

C. Clean metal reinforcement of loose mill scale, oil, earth, and other contaminants.

D. Coat wire projecting from precast concrete bar supports with dielectric material, epoxy, or plastic.

E. Before being placed in position, reinforcement shall be thoroughly cleaned of loose mill and rust scale, dirt, and other coatings, including ice, that tend to interfere with development of proper bond. Where there is delay in depositing concrete after reinforcement is in place, bars shall be reinspected and cleaned when necessary.

F. Reinforcement which is to be exposed for a considerable length of time after having been placed shall be painted with a heavy coat of cement grout, if required.

3.2 REINFORCING BAR INSTALLATION

A. Bundle or space bars, instead of bending where construction access through reinforcing is necessary.

B. Spacing and Positioning: Conform to ACI 318/318R.

C. Location Tolerances: In accordance with CRSI publication, “placing Reinforcing Bars”.

D. Splicing:

1. Follow ACI 318/318R.
2. Use lap splices unless otherwise shown or permitted in writing by ENGINEER.
3. Welded Splices: Accomplish by full penetration groove welds and develop at least 125 percent of yield strength of bar.
4. Stagger splices in adjacent bars.
5. Metal sleeves may be used.

E. Mechanical Splices and Connections:

1. Use only in areas specifically approved in writing by the ENGINEER.
2. Install as required by manufacturer with threads tightened and in accordance with ICBO Research Report.
3. Maintain minimum edge distance and concrete cover.

F. Tying Deformed Reinforcing Bars:

1. Tie every other intersection on mats made up of Nos. 3, 4, 5, and 6 bars to hold them firmly at required spacing.
2. Bend all noncoated tie write to prevent tie wire from being closer than 1 inch from the surface of concrete.
3. Epoxy-Coated Bars:
    a. Use epoxy-coated or nonmetallic clips.
    b. Repair coating damage at clipped or welded intersection.

G. Reinforcement Around Openings: Place an equivalent area of steel bars or fabric around pipe or opening and extend as shown, on each side sufficiently to develop bond with each bar. See drawing details.

H. Welding Reinforcement:

1. Only A706/A706M bars may be welded.
2. Do not perform welding until welder qualifications are approved.
3. Provide suitable ventilation when welding epoxy-coated reinforcing bars.
4. After completion of welding on epoxy-coated reinforcing bars, repair coating damage, welds, and steel splice members with same material as used for repair of coating damage.

I. Straightening and Rebending: Field bending of reinforcing steel bars is not permitted.

J. Unless permitted by Engineer, do not cut reinforcing bars in the field. When epoxy-coated reinforcing bars are cut in the field, coat ends of bars with same material used for repair of coating damage.

K. Reinforcement shall be accurately positioned as indicated on the drawings and secured against displacement by using annealed iron wire ties or suitable clips at intersections. Concrete blocks

having a minimum bearing area of 2 in. by 2 in., and equal in quality to that specified for the slab, shall be used for supporting reinforcing bars for slabs on grade. Where the underside of slabs will be exposed to view in the finished work, stainless-steel supports shall be used

L. Furnish and place all concrete reinforcement as indicated on the drawings and as herein specified. Concrete reinforcement in sizes No. 3 (3/8 in.) and larger shall be deformed steel bars of the shapes and sizes indicated on the drawings.

3.3 WELDED WIRE FABRIC INSTALLATION

A. Extend fabric to within 2 inches of edges of slab and lap splices at least 1-1/2 courses of fabric or minimum 8 inches.

B. Tie laps and splices securely at ends and at least every 24 inches with tie wire.

C. Place welded wire fabric on concrete blocks at correct distance as shown, above bottom of slab and rigidly support equal to that provided for reinforced bars. Do not use broken concrete, brick, or stone.

D. Follow ACI 318/318R and current Manual of Standard Practice, Welded Wire Fabric.

E. Do not use fabric that has been rolled. Install flat sheets only.

3.4 TESTS AND INSPECTION

A. Test 10 percent of all welds using radiographic, nondestructive testing procedures referenced in AWS D1.4-79.

B. Inspect each splice and verify each component is in accordance with manufacturer's instructions and ICBO Research Report.

END OF SECTION

SECTION 03250

EXPANSION, CONSTRUCTION, AND CONTROL JOINTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for making joints in concrete and masonry.

B. Related Sections

1. Section 03200 - Concrete Reinforcing
2. Section 03300 - Cast-In-Place Concrete
3. Section 03600 – Epoxy Grout
4. Section 07900 - Joint Sealants

1.2 REFERENCES

A. Army Corp. of Engineers.

1. CRD-C-572, Specification for Polyvinyl chloride Waterstop.

B. American Society for Testing and Materials (ASTM)

1. A36, Specification for Carbon Structural Steel.
2. D226, Specification for Asphalt-Saturated Organic Felt used in Roofing and Waterproofing.
3. D227, Specification for Smooth-Surfaced Asphalt Roll Roofing and Waterproofing.
4. D994, Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
5. D1506, Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.
6. D1751, Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

C. National Sanitation Foundation (NSF).

1. 61-90,

1.3 SUBMITTALS

A. Shop Drawings:

1. Plastic Type Water Stops: Details of splices to be used and method of securing water stop in the forms and supporting water stop so as to maintain proper orientation and location during concrete placement.
2. Construction Joints: Layout and location indicating type to be used.
3. Joint fillers for horizontal and sloped joints.

4. Preformed control joints.
5. Water stop.

B. Samples: Splice, joint, and fabricated cross of each size, shape, and fitting of water stop(s) proposed for use.

C. Quality Control Submittals:

1. Water stop manufacturer's written instructions for product shipment, storage, handling, installation field splices, and repair.
2. Joint filler and primer. Manufacturer's written instructions for product shipment, storage, handling, application and repair.
3. Preformed Control Joint: Manufacturer's written instructions for product shipment, storage, handling, application, and repair.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Acceptance of pourable joint filler for potable water structures by federal EPA or by a state health agency.

1. Pourable Joint Filler: Certified as meeting NSF 61-90.

1.5 DELIVERY, STORAGE AND HANDLING

A. Acceptance at Site: Verify that water stops delivered are in accordance with cross-section dimensions as shown and manufacturer's product data prior to unloading and storing on site.

PART 2 - PRODUCTS

2.1 PLASTIC WATER STOP

A. Extruded from an elastomeric plastic compound of which the basic resin shall be polyvinyl chloride (PVC). Reclaimed PVC in the compound is not acceptable.

B. Specific Gravity: Approximately 1.37.

C. Shore Durometer Type A Hardness: Approximately 80.

D. Performance Requirements: Corps of Engineers' Specification CRD-C-572.

E. Type: Center bulb with a number of parallel ribs or protrusions on each side of strip center.

F. Corrugated or tapered type water stops are not acceptable.

G. Thickness: Constant from bulb edge to the outside stop edge.

H. Minimum Weight per Foot of Water Stop:

1. 0.90 pound for 3/16 inch by 4 inch.
2. 1.62 pounds for 3/8 inch by 6 inch.
3. 2.30 pounds for 3/8 inch by 9 inch.

I. Manufacturers and Catalog Numbers:

1. Vulcan Metal Products, Inc., Construction Materials Division, Birmingham, AL; Catalog No. 3/81-15M: Type 8067 (4 inch by 3/16 inch), Type 8069 (6 inch by 3/8 inch), and Type 8070 (9 inch by 3/8 inch).
2. Vinylex Corp., Knoxville, TN; Catalog No. 03250/VIN (1987): No. RB6-38H (6 inch by 3/8 inch) and No. RB9-38H (9 inch by 3/8 inch).
3. Greenstreak Plastic Products, St. Louis, MO; Catalog No. 03250/GRD (1987): Style 732 (6 inch by 3/8 inch) and Style 735 (9 inch by 3/8 inch).
4. A.C. Horn, Inc., Beltsville, MD; Catalog No. CSP-162 (1987): Type 3 (4 inch by 3/16 inch), Type 9 (6 inch by 3/8 inch), and Type 10 (3/8 inch by 9 inch).

2.2 WIRE LOOPED PLASTIC WATER STOP

A. Furnish as an alternative to plastic water stops.

B. Same material and geometry as plastic water stops.

C. Furnish with continuous galvanized wire looping at edge for convenience in positioning and securing stop in place in the forms.

D. Manufacturers and Catalog Numbers:

1. Paul Murphy Plastics, Roseville, MI; “Wire Stop Water Stop”; geometry numbers ACR 6380, ACR 9380, as shown on Paul Murphy Plastics Co. Drawing No. CCP-120-12M dated 12-89.
2. Or equal.

2.3 BOND BREAKER

A. Tape for Expansion Joints: Adhesive-backed glazed butyl or polyethylene tape, same width as the joint, that will not adhere to the pre-molded joint material.

B. Use either bond breaker tape or a bond prevention material as specified in SECTION 03300, except where a tape is specifically called for.

2.4 PREMOLDED JOINT FILLER

A. Bituminous Type: ASTM D994 or D1751.

B. Sponge Rubber: Neoprene, closed-cell, expanded; ASTM D1056-85, Type 2C5, with a compression deflection, 25 percent deflection (limits), 119 to 168 kPa (17 to 24 psi) minimum.

1. Manufacturer and Product:
   a. Rubatex Corp.; R451N
   b. Or equal.

2.5 PREFORMED CONTROL JOINT

A. One-Piece, Flexible, Polyvinyl Chloride Joint Former:

1. Manufacturer and Product:

a. Vinylex Corp., Knoxville, TN; Kold-Seal Zip-Per Strip KSF-150-50-50.

b. Or equal.

B. One-Piece Steel Strip with Preformed Groove:

1. Manufacturer and Product:

a. Burke Concrete Accessories, Inc., San Mateo, CA; Keyed Kold Retained Kap.

b. Or equal.

C. Furnish in full-length, unspliced pieces.

2.6 POURABLE JOINT FILLERS

A. Filler for Nonpotable Water Structure:

1. Specific Gravity: Greater than 1.0 for cured, in-place filler.

2. Sloped Joints: Furnish Gun Grade material that will remain as placed in joints and will not run down slope.

3. Manufacturers and Products:

a. W.R. Meadows, Inc., Elgin, IL: No. 164 Polymeric sealing compound, hot-pour, or Hi-Spec Polymeric joint sealing, hot-pour compound; or

b. A.C. Horn, Inc., North Bergen, NJ: No-Track two-component material (Code 2323), cold-applied, self-leveling filler; or

c. W.R. Meadows, Elgin, IL: Gardox, two-component, cold-applied compound filler.

2.7 STEEL EXPANSION JOINT DOWELS

A. Dowels: ASTM A36 round smooth steel bars.

B. Bar Coating: Two-coat system, fusion bonded, steel dowel coating, with a factory-applied lubricating coating.

2.8 ACCESSORIES

A. Joint Sealants: As specified in SECTION 07900.

B. Nonshrink Grout:

1. As specified in SECTION 03600.

2. Compatible with joint sealant.

C. Roofing Felt: ASTM D226, Type II, 30-pound asphalt-saturated or equal weight of ASTM D227 coal-tar saturated felt.

D. Reinforcing Steel: As specified in SECTION 03200.

E. Nails: As required for securing bituminous type premolded joint filler.

F. Masking Tape: As required to temporarily adhere to concrete at each side of joint to receive filler.

PART 3 - EXECUTION

3.1 GENERAL

A. Construct straight joints; make vertical or horizontal, except where walls intersect sloping floors.

B. Commence concrete placement after the joint preparation is complete.

C. Time Between Concrete Pours: As specified in SECTION 03300.

3.2 SURFACE PREPARATION

A. Construction Joints: Prior to placement of abutting concrete, clean contact surface:

1. Remove laitance and spillage from reinforcing steel and dowels.
2. Roughen surface to a minimum of 1/4-inch amplitude:
    a. Sandblast after the concrete has fully cured.
    b. Water blast after the concrete has partially cured.
    c. Green cut fresh concrete with high pressure water and hand tools.
3. Perform cleaning so as not to damage water stop, if one is present.

B. Expansion Joint with Pourable Filler:

1. Use motorized wire brush or other motorized device to mechanically roughen and thoroughly clean concrete surfaces on each side of joint from plastic water stop to the top of the joint.
2. Use clean and dry high pressure air to remove dust and foreign material, and dry joint.
3. Prime surfaces before placing joint filler.
4. Avoid damage to water stop.

C. Expansion Joint without Pourable Filler:

1. Coat concrete surfaces above and below plastic water stop with bond breaker.
2. Do not damage water stop.

D. Control Joint:

1. Coat concrete surfaces above and below plastic water stop with bond breaker.
2. Do not damage water stop.
3. Furnish correct type and size of reinforcing and dowels.

3.3 INSTALLATION OF WATER STOPS

A. General:

1. Join water stops at intersections to provide continuous seal.
2. Center water stop on joint.
3. Secure water stop in correct position to avoid displacement during concrete placement.

4. Repair or replace damaged water stop.
5. Place concrete and vibrate to obtain impervious concrete in the vicinity of all joints.
6. Joints in Footings and Slabs:
    a. Ensure that space beneath plastic water stop is completely filled with concrete.
    b. During concrete placement, make a visual inspection of the entire water stop area.
    c. Limit concrete placement to elevation of water stop in first pass, vibrate the concrete under the water stop, lift the water stop to confirm full consolidation without voids, then place remaining concrete to full height of slab.
    d. Apply procedure to full length of plastic water stops.

B. Plastic Water Stop:
1. Install in accordance with manufacturer's written instructions.
2. Splice in accordance with the water stop manufacturer's written instructions using a thermostatically controlled heating iron. Butt splice unless specifically detailed otherwise.
    a. Allow at least 10 minutes before the new splice is pulled or strained in any way.
    b. Finished splices shall provide a cross-section that is dense and free of porosity with tensile strength of not less than 80 percent of the unspliced materials.
3. Wire looped plastic water stop may be substituted for plastic water stop.

3.4 EXPANSION JOINT INSTALLATION

A. General:
1. Place bond breaker above and below water stop when premolded joint filler and pourable joint filler is not used.
2. Premolded Joint Filler:
    a. Sufficient in width to completely fill the joint space where shown.
    b. If a water stop is in the joint, cut premolded joint filler to butt tightly against the water stop and the side forms.
3. Precut premolded joint filler to the required depth at locations where joint filler or sealant is to be applied.
4. Form cavities for joint filler with either precut, premolded joint filler, or smooth removable accurately shaped material. Entire joint above water stop, in slabs, shall beformed and removed so that entire space down to water stop can be filled with the pourable joint filler.
5. Vibrate concrete thoroughly along the joint form to produce a dense, smooth surface.

B. Bituminous Type Premolded Joint Filler:
1. Drive nails approximately 1 foot 6 inches on center through the filler, prior to installing, to provide anchorage embedment into the concrete during concrete placement.
2. Secure premolded joint filler in forms before concrete is placed.

3. Install in walkways, at changes in direction, at intersections, at each side of driveway entrances, and at 45-foot intervals, maximum.

C. Pourable Joint Filler:

1. General: Install in accordance with the manufacturer's written instructions, except as specified below:
   a. Apply primer prior to pouring joint filler.
   b. Fill entire joint above the water stop with joint filler as shown.
   c. Use masking tape on top of slabs at sides of joints; clean spillage. Remove masking tape afterwards.
2. Rubber Asphalt Type, Hot-Applied:
   a. Heat filler material in a double-walled boiler.
   b. Place filler in the joint by means of a nozzle from a portable pouring type container to prevent spillage outside of the joint.
   c. Begin pouring joint filler at the bottom of the horizontal joint and proceed upwards in a manner that will preclude the possibility of trapping air in the joint.
3. Rubber Asphalt Type, Cold-Applied: Place cold-applied two-component fillers in accordance with manufacturer's written instructions.
4. Multicomponent Type for Potable Water Structures: Install in accordance with manufacturer's written instructions.

D. Steel Expansion Joint Dowels:

1. Install coated and lubricated bars parallel to wall or slab surface and in true horizontal position perpendicular to the joint in both plan and section view, so as to permit joint to expand or contract without bending the dowels.
2. Secure dowels tightly in forms with rigid ties.
3. Install reinforcing steel in the concrete as shown to protect the concrete on each side of the dowels and to resist any forces created by joint movement.

3.5 CONTROL JOINT INSTALLATION

A. Locate reinforcing and dowels as shown.

B. Install PVC water stop.

C. Concrete surfaces shall be dense and smooth.

D. Install bond breaker to concrete surfaces above and below water stop.

3.6 PREFORMED CONTROL JOINTS

A. Use only where specifically shown; do not use in water-holding basins.

B. Locate flush, or slightly below the top of slab.

C. Install in accordance with manufacturer's written instructions in straight, full-length unspliced pieces.

D. Steel Strip Type with Preformed Groove: Brace to withstand pressure of concrete during and after placement.

END OF SECTION

SECTION 03252

WATERSTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for,

1. Flexible PVC waterstops at construction, contraction, and expansion joints in new concrete construction as shown on the Contract Drawings.
2. Hydrophilic rubber waterstops at construction joints between new and existing concrete, or where installation of center bulb-type waterstops is not possible.
3. Preparation of existing concrete surfaces where hydrophilic rubber waterstops are to be installed.

1.2 RELATED SECTIONS

A. Section 03250 – Expansion, Construction and Control Joints

B. Section 03300 – Cast-In-Place Concrete

1.3 REFERENCES

A. Except as noted, work shall conform to the latest edition of the following codes specifications and standards:

1. American Society for Testing and Materials (ASTM)
2. Army Corps of Engineers, “Specifications for Polyvinyl chloride Waterstop”, CRD-C572-74

1.4 SUBMITTALS

A. Submit shop drawings in accordance with Section 01300.

B. B. Manufacturer’s Data: for all types and sizes of waterstops, including but not limited to:

1. Product data and material specifications
2. Installation instructions
3. Accessories including: crosses, tees, splices, fasteners and adhesives

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: shall demonstrate five years (minimum) continuous, successful experience in production of waterstops.

B. Installer Qualifications: Qualified to perform work specified by reason of experience or training provided by the product manufacturer.

1.6 DELIVERY, STORAGE AND HANDLING

A. Store Products in a location protected from dampness, damage, construction activity, dirt, and direct sunlight in strict accordance with the manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. PVC Waterstop

1. Provide flexible PVC waterstop as detailed on the Contract Drawings.
2. The PVC waterstop shall be extruded from an elastomeric plastic material of which the basic resin is prime virgin polyvinyl chloride. The PVC compound shall not contain any scrapped or reclaimed material or pigment whatsoever.
3. Performance requirements are as follows:
    a. Minimum Tensile Strength, 2000 psi
    b. Specific Gravity, Approx. 1.4
    c. Shore Durometer Type A Hardness , 65 to 80
4. Type: Center bulb with a number of parallel ribs or protrusions on each side of strip center.
5. Corrugated or tapered type waterstops are not acceptable.
6. Thickness: Constant from bulb edge to the outside stop edge.
7. Minimum Weight per Foot of Waterstop:
    a. 1.62 pounds for 3/8 inch by 6 inch.
8. Manufacturers of Products:
    a. Greenstreak, Inc., St. Louis, MO; Style 732 (3/8 inch by 6 inch).
    b. Vinylex Corp., Knoxville, TN; No. RB6-38H (3/8 inch by 6 inch).

B. Vulcan Metal Products, Birmingham, AL; Type 8069 (3/8 inch by 6 inch).

C. Or approved equal.

2.2 ACCESSORIES

A. PVC Waterstop

1. Provide factory made waterstop fabrications for all changes in direction, intersections, and transitions leaving only straight butt joint splices for the field.
2. Provide hog rings or grommets spaced at 12 inches on center along the length of the waterstop.
3. Provide Teflon coated thermostatically controlled splicing irons for field butt splices.

PART 3 - EXECUTION

3.1 INSTALLATION

A. PVC Waterstop

1. Field butt splices shall be heat fused welded using a Teflon coated thermostatically controlled waterstop splicing iron at the manufacturer's recommended temperature. Follow approved manufacturer's installation procedures.
    a. Lapping of waterstop, use of adhesives, or solvents shall not be allowed.
    b. Allow at least 10 minutes before the new splice is pulled or strained in any way.
    c. Finished splices shall provide a cross-section that is dense and free of porosity.
2. Center waterstop in joint and secure waterstop in correct position using hog rings or grommets at 12 inches on center along the length of the waterstop and wire tie to adjacent reinforcing steel. In no case shall the waterstop be bent over inside the keyways.
3. Place concrete and vibrate to obtain impervious concrete in the vicinity of the waterstop area.
4. Joints in footings and slabs:
    a. Ensure that the space beneath PVC waterstop is completely filled with concrete.
    b. During concrete placement, make a visual inspection of the entire waterstop area.
    c. Limit concrete placement to elevation of waterstop in first pass, vibrate the concrete under the waterstop, lift the waterstop to confirm full consolidation without voids, then place remaining concrete to full height of slab.
    d. Apply procedure to full height of PVC waterstops. Follow similar procedures for joints in walls.

3.2 FIELD QUALITY CONTROL

A. Waterstop splicing defects which are unacceptable include, but are not limited to the following:

1. Tensile strength that is less than 80 percent of parent section.
2. Misalignment of center bulbs, ribs, and end bulbs greater than 1/16 inch.
3. Bond failure at joint deeper than 1/16 inch or 15 percent of material thickness.
4. Misalignment that reduces waterstop cross section more than 15 percent.
5. Visible porosity in the weld.
6. Bubbles or inadequate bonding.
7. Visible signs of splice separation when cooled splice is bent by hand at a sharp angle.
8. Charred or burnt material.
9. Inadequate or incomplete bond between hydrophilic rubber waterstop and concrete surface.

END OF SECTION

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SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for furnishing and installing forms, reinforcing steel, concrete and expansion and/or construction joints

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. A185, Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
2. A615, Specification for deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
3. C31, Practice for Making and Curing Concrete Test Cylinders in the Field.
4. C33, Specification for Concrete Aggregates.
5. C39, Test Method for Compressive Strength of Cylindrical Concrete Specimens.
6. C42, Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
7. C94, Specification for ready Mixed Concrete.
8. C143, Test Method for Slump of Hydraulic Cement Concrete.
9. C150, Specification for Portland Cement.
10. C172, Practice for Sampling Freshly Mixed Concrete.
11. C231, Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
12. C260, Test Method for Air-Entraining Admixtures for Concrete.
13. C494, Specification for Chemical Admixtures for Concrete.
14. C920, Specification for Elastomeric Joint Sealants.
15. D994, Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
16. D1056, Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.
17. D1751, Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

B. American Concrete Institute (ACI):

1. ACI 301, Specification for Structural Concrete for Buildings.
2. ACI 304, Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
3. ACI 305, Recommended Practice for Hot Weather Concreting.
4. ACI 306, Recommended Practice for Cold Weather Concreting.

5. ACI 315, Building Code Requirements for Reinforced Concrete.
6. ACI 347, Guide to Formwork for Concrete.

C. Concrete Reinforcing Steel Institute (CRSI):
1. Manual of Standard Practice.

1.3 SUBMITTALS

A. Submit Shop Drawings in accordance with SECTION 01300 for the following:
1. Reinforcing Steel
a. Furnish in detail and completeness that all fabrication and placement at the site can be accomplished without the use of contract drawings for reference.
b. Include number of pieces, sizes, and grade of reinforcing steel, accessories, and any other information required for fabrication and placement.
c. Show joint layout and design
d. Check structural and site drawings for anchor bolts, anchors, inserts, conduits, sleeves, and any other items which are required to be embedded in concrete, and make necessary provisions as required so that reinforcing steel will not interfere with the placement of such embedded items.
2. Concrete mix designs.
3. Grout manufacturer/design mix (if included in this section)
4. Manufacturer's data for ancillary materials such as joint fillers and sealants, epoxy bonding compound.

1.4 QUALITY ASSURANCE

A. Selection of testing laboratory in accordance with SECTION 01410.

B. Sample and Test Concrete as follows:
1. Test Specimens: Make, cure and have tested, a minimum of one set of four test specimens from the concrete of each day's pour and for each fifty cubic yards of concrete cast in accordance with ASTM C172, C31 and C39. One cylinder shall be broken after seven days and three cylinders after twenty-eight day.
2. Slump: A slump test shall be made for each truckload of concrete in accordance with ASTM C143. Slumps greater than design mix limit will be grounds for rejection of the concrete.
3. Air Content: An air content test shall be made from each day's pour of concrete by the pressure method in accordance with ASTM C231. Air contents above or below the limits specified will be grounds for rejection of the concrete.
4. In the event the compressive strength of the cylinders, when tested, is below the specified minimum, the Engineer may require test cores of the hardened structure to be taken by the Testing Laboratory in accordance with ASTM C42. If such test indicates that the core specimen is below the required strength, the concrete in question shall be removed and replaced without cost to the Owner. Any other work damaged as a result of this concrete removal shall

be replaced with new materials to the satisfaction of the Engineer at no additional cost to the Owner. The cost of coring will be deducted from the contract amount. Where the Testing Laboratory has taken core cylinders and the concrete proves to be satisfactory, core holes shall be filled in a manner satisfactory to the Engineer at no additional cost to the Owner.

5. The Contractor shall coordinate the date and location of tests with the Engineer before any concrete work is started.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Reinforcing steel.

1. Transport to the site, store, and cover in a manner which will ensure that no damage shall occur to it from moisture, dirt, grease, or any other cause that might impair bond to concrete or chip protective epoxy coating.
2. Store on the site at all times, a supply of approved reinforcing steel to ensure that there will be no delay of the work.
3. Identification of steel shall be maintained after bundles are broken.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portland Cement.

1. In accordance with ASTM C150, Type II of U.S. manufacture.
2. Only one brand of cement shall be used on the project.

B. Aggregates.

1. Fine aggregate, in accordance with ASTM C33, clean and graded from 1/4 inch to fines.
2. Coarse aggregate, in accordance with ASTM C33, clean and graded from 1/4 inch to maximum sizes hereinafter specified.

C. Air Entraining Agent.

1. In accordance with ASTM C260.

D. Water Reducing Agent.

1. In accordance with ASTM C494 Type A.

E. Microsilica Admixture.

1. Packaged in easily dispersing form.

F. Water.

1. Clean and potable,
2. Free of impurities detrimental to concrete.

G. Reinforcing Bars.

1. New, deformed billet steel bars, in accordance with ASTM A615, Grade 60.

H. Welded Wire Fabric

1. In accordance with ASTM A185.

I. Accessories.

1. Reinforcement accessories, consisting of spacers, chairs, ties, and similar items shall be provided as required for spacing, assembling, and supporting reinforcement in place.
2. All accessories shall be dielectric coated steel or approved plastic accessories, conforming to the applicable requirements of the CRSI Standards.

J. Tie wire.

1. 16 gauge or heavier black annealed wire.

K. Form Ties and Spreaders.

1. Standard metal form clamp assembled and plastic cone, of type acting as spreaders and leaving no metal within 1 inch of concrete face.
2. Provide form tie with water stop for all walls to be in contact with earth or liquid.
3. Inner tie rod shall be left in concrete when forms are removed.
4. No wire ties or wood spreaders will be permitted. Use ½" x 1" C.T. plastic cones for sinkages.

L. Form Coatings.

1. Non-grain raising and non-staining type that will not leave residual matter on surface of concrete or adversely affect proper bonding of subsequent application of other material applied to concrete surface.
2. "Nox-Crete Form Coating" as manufactured by Nox-Crete Company, or approved equal.
3. Coatings containing mineral oils or the non-drying ingredients will not be permitted.

M. Grout.

1. High-strength, non-shrink grout with saltwater resistance.
2. Five Star Special Grout 120 or equivalent.

2.2 CONCREATE STRENGTHS AND PROPORTIONS

A. Cast-in-place concrete shall have the minimum compressive strength at 28 days as indicated on the Drawings.

B. The exact proportions for the mix, including amounts admixture (if any), and water, shall be determined by the concrete supplier.

C. The proportions of aggregate to cement for any concrete shall be such as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement with the method of placing employed not the work, but without permitting the materials to segregate or excess free water to collect on the surface.

D. Air-Entrainment: The air content in all concrete shall be maintained at 5 to 7 percent.

2.3 PREMOLDED JOINT FILLER

A. Bituminous Type.

1. In accordance with ASTM D994 or D1751.

B. Sponge Rubber Type.

1. Neoprene, closed-cell, expanded in accordance with ASTM D1056, Type 2C5, with a compression deflection, 25 percent deflection (limits), 17 to 24 psi (119 to 168 kPa) minimum.

2.4 POURABLE JOINT FILLERS

A. Filler for Nonpotable Water Structures

1. Specific Gravity: Greater than 1.0 for cured, in-place filler.
2. Vertical and Sloped Joints: Furnish gun grade material that will remain as placed in joints and will not run down slope.
3. Suitable for continuous immersion and exposure to liquid being contained in the structure.

2.5 JOINT SEALANTS

A. In slabs.

1. In accordance with ASTM C920 for poured 2-component polyurethane sealant.
2. Sikaflex-2c, as manufactured by Sika Corporation or approved equivalent.

B. In walls.

1. Type II, Class A, compound conforming to Interim Federal Specification TT-S-00227E (3) (COM-NBS) for Sealing Compound; Elastomeric Type, Multi-Component (for Caulking, Sealing, and Glazing in Buildings and Other Structures).
2. Sikaflex-1a, as manufactured by Sika Corporation or approved equivalent.

2.6 EPOXY BONDING COMPOUND

A. The epoxy bonding compound shall be a three-component, solvent-free, moisture-tolerant, epoxy modified, cementitious product specifically formulated as a bonding agent and anti-corrosion coating. The product shall have suitable contact time, fluidity, and application temperature for this type of application.

PART 3 - EXECUTION

3.1 FORMWORK

A. Falsework for Forms

1. Build and maintain necessary false work for the forms.

B. Construction of Forms

1. General

a. Construct in accordance with ACI 347.

b. Construct of sound material, to the correct shape and dimensions, mortar tight, of sufficient strength, and so braced and tied together that the movement of men, equipment, materials, or placing and vibrating the concrete will not throw them out of line or position.

2. Embedded Items

a. Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, water stops, and other features.

b. Do not embed wood, other than necessary nailing blocks, in concrete.

c. Extended complete cooperation to suppliers of embedded items in their installation.

d. Secure information for embedded items from other trades as required.

e. Securely anchored embedded items in correct location and alignment prior to placing concrete.

3. Openings for Items Passing Through Concrete

a. Establish exact locations, sizes, and other conditions required for openings and attachment of work specified under other sections.

b. Coordination work of this nature in order that there will be no unnecessary cutting and patching of concrete.

c. Cutting and repairing of concrete as a result of failure to provide for such openings shall be paid for by the Contractor at no additional expense to the Owner.

4. Removing Forms and False work

a. Forms shall not be removed for at least 72 hours after concrete has been placed.

b. Forms shall not be removed until the concrete has attained sufficient strength to insure stability.

3.2 REINFORCING STEEL

A. General

1. Place reinforcing steel in accordance with the drawings and approved shop drawings and the applicable requirements of the CRSI, Manual of Practice.

2. Install reinforcement accurately and secure against movement, particularly under the weight of workmen and the placement of concrete.

B. Reinforcing Steel Supports

1. Support bars on approved plastic or dielectric-coated metal chairs or spacers, accurately placed and securely fastened to forms or steel reinforcement in place.

2. Supply additional bars, whether specifically shown on the drawings or not, where necessary to securely fasten reinforcement in place.

3. Support legs of accessories in forms without embedding in form surface.

4. Spacing of chairs and accessories shall conform to CRSI, Manual of Standard Practice. Accurately space hoops and stirrups and wire to the reinforcement.
5. Permit no lose wood inside forms.
6. Lifting of welded wire fabric into proper position while concrete is being poured rather than supporting fabric on chairs will not be permitted.

C. Placing and Tying

1. Set in place, space, and rigidly and securely tie or wire with tie wire at all splices and at all crossing points and intersections in the positions shown, or as directed.
2. Rebending of bars on the job to accommodate the job to accommodate existing conditions will not be permitted without the written approval of the Engineer
3. Points ends of wire ties away from forms.

D. Spacing

1. Minimum center to center distance between parallel bars shall be in accordance with the details on the drawings, or, where not shown, the clear spacing shall be 2 times the bar diameter but in no case less than 1½ inches or less than 1½ times the maximum size aggregate.

E. Splices

1. Maximum 50% of steel spliced occurring within lap length.
2. Top bars shall be 1.3 times values given in 3.01.D.5.c.
3. Splice lengths.
   a. #6 bars and smaller: 50-bar diameter
   b. #7 bars and larger: 60-bar diameter

F. Concrete Covering

1. In accordance with ACI 315, except where shown otherwise on drawings.

3.3 CONCRETE

A. Mixing of Concrete

1. All concrete shall be ready-mixed concrete and shall be mixed and delivered in accordance with ASTM C 94. The batch plant of the concrete producer shall be certified for compliance with the standards established by the National Ready-Mixed Concrete Association.
2. In the event concrete is mixed at a central batching plant, the delivery shall be arranged so that intervals between batches are kept to a minimum, and in any event not more than thirty (30) minutes. Trucks shall be in first class condition and kept in constant rotation during delivery.
3. Concrete shall be placed within 90 minutes after cement has been mixed with aggregate or 45 minutes after addition of water and admixtures.
4. No admixtures, except those mentioned in paragraph 2.1 shall be used. Calcium chloride will not be permitted.

5. Truck delivery slips of all concrete delivered to the job shall indicate the quantity and quality of concrete, additives, date and time of batching and delivery, and the location of placement. Delivery slips shall be forwarded to the Engineer at the end of each pour.

B. Cold Weather Concreting.

1. In accordance with ACI 306.
2. Concrete shall not be mixed or placed when the temperature is below 40 degrees F, or when conditions indicate that the temperature will fall below 40 degrees F within 72 hours unless precautions are taken to protect the concrete.
3. Concrete temperature shall be maintained, when deposited, at not less than 60 degrees F. Reinforcement, forms, and ground which concrete will contact must be completely free of frost.
4. Concrete and formwork must be kept at a temperature of not less than 50 degrees F. for not less than 96 hours after placing.
5. Calcium chloride shall not be used.

C. Hot Weather Concreting.

1. In accordance with ACI 305.
2. The maximum temperature of the concrete, when deposited, shall be 85 degrees F. If the weather causes the placing temperature to exceed 85 degrees F., the mix shall be cooled by methods approved by the Engineer.
3. No concrete shall be deposited when the air temperature is greater than 90 degrees F.

D. Conveying and Placing Concrete.

1. In accordance with ACI 304.
2. Notification: Before placing concrete, forms shall be thoroughly inspected. All chips, dirt, etc., shall be removed, all temporary bracing and cleats taken out, all openings for pipes, etc., properly boxed, all forms properly secured in their correct position and made tight, all reinforcement, anchors, and embedded items secured in their proper places. Concrete which may be on the forms or reinforcement, and which is set and dry, shall be cleaned off, and the forms and steel washed off before proceeding. Remove all foreign matter from forms and excavations.
3. Water shall be removed from place of deposit before concrete is placed unless otherwise permitted by the Engineer. Any flow of water into an excavation shall be diverted through proper side drains into a sump or shall be removed by other approved methods which will avoid washing away the freshly deposited concrete.
4. Soil on which concrete will be poured shall be thoroughly wetted (except in freezing weather).
5. Anchors and Embedded Items: Anchors, bolts, sleeves, inserts, wood blocking, and any other items to be embedded in concrete shall be accurately secured in position before the concrete is placed. Aluminum shall not be embedded in concrete.

E. Handling and Depositing

1. Before any concrete is placed, notify all whose work is in any way connected with or influenced by the concrete work, and give them reasonable time to complete all portions of their work that must be completed before concrete is deposited.
2. Immediately before concrete is placed, inspect all forms to ensure that they are in proper position, sufficiently rigid, thoroughly clean, properly oiled and free from foreign materials, and that all reinforcement is in proper position.
3. Concreting, once started, shall be carried on as a continuous operation until the section of approved size and shape is completed.
4. Concrete shall be conveyed as rapidly as practicable from the mixer to the place of final deposit by methods that prevent the separation or loss of ingredients. It shall be deposited, as nearly as practicable, in its final position to avoid rehandling or flowing.
5. Concrete shall not be dropped freely where reinforcement will cause segregation, nor shall it be dropped freely more than six (6) feet. Concrete shall be deposited to maintain a plastic surface approximately horizontal.
6. Concrete that has partially hardened shall not be deposited in the work.

F. Pumping

1. Concrete may be placed by pumping if first approved in writing by the Engineer for the location proposed.
2. Equipment for pumping shall be of such size and design as to ensure a practically continuous flow of concrete at the delivery end without separation of materials.
3. The concrete mix shall be designed to the same requirements as herein before specified and may be richer in lubricating components in order to allow proper pumping.
4. Concrete shall not be pumped through aluminum pipes.

G. Vibrating and Compacting

1. All concrete shall be thoroughly consolidated and compacted by suitable means during the operation of placing, and shall be thoroughly worked around reinforcement, embedded items, and into the corners of the forms. All concrete against forms shall be thoroughly spaded. Internal vibrators shall be used under experienced supervision and shall be kept out of contact with reinforcement and wood forms. Vibrators shall not be used in a manner that forces mortar between individual form members.
2. Vibrators shall be flexible electric type or approved compressed air type, adequately powered and capable of transmitting to the concrete not less than seven thousand (7,000) impulses per minute. Vibration shall be sufficiently intense to cause the concrete to flow or settle readily into place without separation of the ingredients. A sufficient number of vibrators shall be employed so that complete compaction is secured throughout the entire volume of each layer of concrete. At least one (1) vibrator shall be kept in readiness as a spare for emergency use. Vibrators shall be such that the concrete becomes uniformly plastic with their use.
3. Vibration shall be close to the forms but shall not be continued at one spot to the extent that large areas of grout are formed or the heavier aggregates are caused to settle. Care shall be taken to not disturb concrete that has its initial set.

4. Where conditions make compacting difficult, or where the reinforcement is congested, batches of mortar containing the same proportions of cement to sand as used in the concrete shall first be deposited in the forms, to a depth of at least one inch.
5. The responsibility for providing fully filled out, smooth, clean, and properly aligned surfaces free from objectionable pockets shall rest entirely with the Contractor.

3.4 CONSTRUCTION JOINTS

A. Construction joints shall be located a maximum of 40 feet apart. If, for any reason, the contractor feels a change is necessary, he shall prepare a placing plan and submit it to the Engineer for approval.

B. Where a joint is to be made, the surface of the concrete shall be sandblasted or thoroughly picked, thoroughly cleaned, and all laitance removed. In addition to the foregoing, joints shall be thoroughly wetted, but not saturated, and slushed with a coat of grout immediately before the placing of new concrete.

C. Approved keys shall be used at all joints, unless detailed otherwise. Forms shall be retightened before placing of concrete is continued. There shall be an interval of at least 48 hours between adjacent pours.

D. Bonding Concrete at Construction Joints

1. To new concrete construction joints:
    a. Thoroughly clean and saturate joint with water.
    b. Cover horizontal wall surfaces as specified in this Section and immediately place concrete.
    c. Limit concrete lift placed immediately on top of bonding compound to 12 inches thick.
    d. Thoroughly vibrate to mix and consolidate bonding compound and concrete together.

3.5 BONDING NEW CONCRETE TO OLD CONCRETE:

A. Mechanically roughen existing concrete surfaces to a clean, rough surface using appropriate mechanical means to remove the existing concrete surface and provide a minimum roughness profile of ¼-inch.

B. Saturate surface with water for 24 hours, cover with epoxy bonding compound and place concrete as specified for new concrete.

3.6 EXPANSION JOINTS

A. Expansion joints shall be located as shown on contract drawings.

B. The joint shall include a joint filler, a bond breaker and joint sealant and installed as indicated on contract drawings.

3.7 JOINT SEALANTS.

A. Prepare surface in accordance with manufacturer’s directions.

B. Apply primer as recommended by sealant manufacturer.

C. Install sealant with the proper tools and methods as directed by the sealant manufacturer.

3.8 PATCHING

A. Immediately after stripping forms, patch minor defects, form-tie holes, honeycombed areas, etc., before concrete is thoroughly dry.

B. Repair gravel pockets by cutting out to solid surface, form key, and thoroughly wet before placing patching mortar consisting of 1 part cement to 2 parts fine sand; compact into place and neatly finish. Honeycombed areas or gravel pockets which, in the Engineer's opinion are too large and unsatisfactory for mortar patching as described above, shall be cut out to solid surface, keyed, and packed solids with matching concrete to produce firm bond and surface.

C. The Contractor shall do all the cutting as required by himself or other trades. All such work shall be of the minimum size required. No excessive cutting will be permitted, or shall any structural members or reinforcement be cut.

D. The Contractor shall do all patching after work by other trades has been installed, where required, using Portland Cement Mortar 1:2 mix.

3.9 PROTECTION AND CURING

A. Protect concrete from injurious action of the elements and defacement of any nature during construction operations.

B. Keep concrete in a thoroughly moist condition from the time it is placed until it has cured, for at least (7) days.

C. Carefully protect exposed concrete corners from damage.

D. Allow no slabs to become dry at any time until curing operations are complete. In general, slabs shall be cured with non-staining curing paper, hosing or fog spray; vertical surfaces shall be curing with Burlene or fog spray or an approved curing compound.

E. Protect fresh concrete from drying winds, rain, damage, or spoiling. Curing paper shall be lapped 4 inches minimum at joints and sealed with waterproof tape.

3.10 CONCRETE FINISHES

A. Unexposed Surfaces: All unexposed surfaces shall have any form finish, at the Contractor's option.

B. Wearing Surface Finish: Float the surface by hand using a wooden or magnesium float. Finish with a flexible bristle broom. Permit surface to harden sufficiently to retain the scoring or ridges. Broom transverse to traffic or at right angles to the slope of the slab.

C. Addition of Material: The addition of cement, sand, water, or mortar to slab surfaces while finishing concrete is strictly prohibited.

3.11 DEFECTIVE WORK

A. The following concrete work shall be considered defective and may be ordered by the Engineer to be removed and replaced at Contractor's expense:

1. Incorrectly formed.
2. Not plumb or level.
3. Not specified strength.
4. Containing rock pockets, voids, honeycomb, or cold joints.
5. Containing wood or foreign matter.
6. Otherwise not in accordance with the intent of the Drawings and Specifications.

END OF SECTION

SECTION 03346

CONCRETE FINISHING, CURING AND REPAIRS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Concrete Curing

B. Concrete Finishing

C. Concrete Repairs

1.2 RELATED SECTION

A. Section 01300 - Submittals

B. Section 02535 – Concrete Sidewalk Finishes

C. Section 03300 - Cast-in-Place Concrete

D. Section 03604 - Non-Shrink Grout

1.3 REFERENCES

A. ACI 301-96 Standard Specifications for Structural Concrete

B. ACI 302.1R-89 Guide for Concrete Floor and Slab Construction

C. ACI 305R-91 Hot Weather Concreting

D. ACI 306R-88 Cold Weather Concreting

E. ACI 308-92 Standard Practice for Curing Concrete

F. ACI 350R-89 Environmental Engineering Concrete Structures

G. ASTM C309-93 -Specification for Liquid Membrane - Forming Compounds for Curing Concrete

1.4 SUBMITTALS

A. None.

1.5 ENVIRONMENTAL CONDITIONS

A. Cold Weather and Hot Weather are defined when temperatures will fall below 40°F during the week following placement or will be above 90oF, respectively.

PART 2 - PRODUCTS

2.1 FINISHING MATERIALS

A. Patching Mortar: 1 part of a mixture of white and grey Portland cement to 2.5 parts of damp loose sand. Cement type to match substrate.

2.2 REPAIR MATERIALS

A. Epoxy Adhesive: Armatec 110 by Sika Corporation or equivalent.

B. Repair Mortar: polymer improved, cementitious, 2 component, trowel grade mortar equal to Concrete Coat by Euclid Chemical; Sikatop 122 by Sika Corp. or equivalent.

PART 3 - EXECUTION

3.1 FINISHES

A. Repair all holes and defects and allow to set prior to finishing concrete.

B. Clean all exposed concrete surfaces and adjoining work stained by leakage of concrete.

C. Finish concrete surfaces as scheduled.

3.2 FINISHING SLABS AND FLATWORK

A. Screed to bring concrete surface to proper contour and elevation.

B. Highway straightedge, bull float or Darby float the concrete surface immediately after screeding.

C. Allow bleed water to evaporate or remove.

D. (STF) Steel Troweled Finish: Float the surface with magnesium or cast aluminum float or with a power-finishing machine. Steel trowel surface immediately after floating to produce smooth surface. Steel trowel again after concrete has hardened enough so that mortar does not adhere to trowel edge. Ringing sound should be apparent when performing second troweling due to tilted, compacting motion.

E. (LBF) Light Broom Finish for equipment pads): while plastic draw a soft-bristled broom, over the concrete in long even strokes with downward pressure.

F. Tolerances for trowel finished floors: ACI 302 class BX. 5/16 inch maximum deviation from 10 foot-long straightedge placed anywhere on the surface.

3.3 FINISHING VERTICAL SURFACES

A. (RFF) Rough Form Finish: Repair structural defects only and patch tie holes as specified in paragraph 3.5 - STRUCTURAL DEFECTS. Fins exceeding 1/4 in. in height to be removed by grinding and/or rubbing.

3.4 CURING

A. Curing: Curing shall begin immediately following the initial set of concrete or after slab surface finishing has been completed and shall continue after form removal. All concrete shall be cured to attain strength and durability by one of the following methods for a minimum of seven days after placement regardless of the ambient air temperature:

   1. Ponding or continuous sprinkling. Intermittent wetting and drying is not an acceptable method.
   2. Application of absorptive mats of fabric kept continuously wet.
   3. Continuous application of steam or fog spray.
   4. Application of waterproof sheet materials.

B. Moisture loss from surfaces placed against wooden or metal forms exposed to heating by the sun shall be minimized by keeping the forms wet until they can be safely removed. After form removal, the concrete shall be cured by one of the methods described above, for the balance of time remaining as specified above.

C. Cold Weather:

   1. Maintain concrete temperature between 50oF and 70oF for a minimum of seven days after placement, enclose and heat, insulate as required.
   2. Protect concrete from damage due to concentrated heat sources.
   3. Reapply curing compounds every two days during heating period.
   4. The maximum allowable temperature drop of the concrete surfaces during the first 24 hours after the end of the curing period shall not exceed 5°F in any 1 hour.

D. Hot Weather: Concrete temperature shall not be greater than 90oF. Protect from loss of slump, flash set, plastic cracking and rapid evaporation of water.

E. Place concrete quickly, shade from direct sun and protect from wind. Concrete shall be cured by one of the methods described in paragraph 3.4.A for seven days after placement.

3.5 SURFACE DEFECTS

A. As soon as the forms have been stripped and the concrete surfaces exposed, repair all surface defects. Surface defects include all form tie holes, honeycombed areas and surface blemishes including air voids and bug holes with a nominal diameter or depth greater than ¼ inch, visible construction joints, fins, burs and other defects. All concrete repair work shall result in a concrete surface of uniform color and texture and shall be free of all irregularities. Honeycombed and/or rat holes larger than 50 cubic inches are considered a structural defect.

B. Cut out and remove honeycombed areas and rock pockets down to solid concrete, but in no case to a depth less than 1 inch, by means of hand chisels or pneumatic chipping hammers. Saw cut the edges perpendicular to the surface. No featheredges shall be allowed.

C. Remove all loose aggregate paste and debris and scrub clean; thoroughly wet area to be repaired; brush and scrub grout paint into the substrate of the area to be repaired.

D. Apply a stiff consistency of patching mortar to the area with a trowel; apply prior to the set of grout paint (but after it has cast its water sheen): leave patched surface slightly higher than surrounding surface; do not finish for 1 hour minimum. Cure in same manner as adjacent concrete.

E. Mix patching mortar using as little water as possible; allow to stand with frequent manipulation of trowel to achieve stiffest consistency; blend white and gray Portland cement to achieve color match with surrounding concrete.

F. Form Tie Holes: After cleaned and thoroughly dampened, apply grout paint and fill tie holes solid with patching mortar.

G. Finished Flatwork exceeding specified tolerances:

1. High areas shall be repaired by grinding after the concrete has cured 14 days.

2. Low areas shall be repaired by cutting out low areas and replaced with concrete. Finish repair area to match adjacent concrete.

3.6 STRUCTURAL DEFECTS

A. Remove and replace or repair all structural defects. Structural defects include honeycombed areas and/or rat holes greater than 50 cubic inches, areas which cracking, spalling or other signs of deterioration are present or develop during the initial curing or thereafter until accepted by the Owner. The Contractor shall propose a specific repair method, suitable for the situation, and the Engineer will review the method prior to the repair.

B. Cut out and remove defective concrete, honeycombed areas and rock pockets to sound concrete by means of hand chisels or pneumatic chipping hammers. Saw cut 1-inch minimum the edges perpendicular to the surfaces. If honeycomb exists around reinforcement, chip to provide a clear space at least 1 inch wide all around the reinforcement. Moisten surfaces and allow to dry until damp. Apply bonding agent. Apply a polymer-modified cement with 3/8-inch coarse aggregate. Cure as required by manufacturer.

C. Random Cracks:

1. Random shrinkage or structural cracks shall be repaired utilizing a low viscosity, 100% solids, two (2) component epoxy resin system. Remove all dust, debris or disintegrated material from crack or void by use of oil-free compressed air or vacuuming.

2. Crack or void must be dry at time of application. Cracks saturated with oil or grease must be chipped out to unsaturated concrete. "V" out cracks in horizontal surfaces slightly.

3. Where cracks extend through members and are accessible, seal bottom of crack, which is to receive the epoxy. Apply epoxy in strict accordance with manufacturer's recommendations.

4. Epoxy resin system shall be Sika chemical Corporation "Sikadur Hi-Mod LV", or equal.

5. Patching of vertical wall or overhead cracks shall be accomplished in the same manner using a similar epoxy material of higher viscosity as recommended by the manufacturer.

D. Excessive Cracking:

1. Floor slabs containing an excessive number of cracks as defined herein, and which will remain exposed, shall receive an epoxy mortar topping after sealing of cracks in accordance with the above paragraph.
2. Excessive cracking shall be defined as areas containing racks averaging 1/64th-inch wide or greater, and in excess of 15 linear feet of cracks per 100 square feet of slab. In the event that excessive cracking occurs in isolated areas of a given floor, topping will only be required in the area of the cracks bounded by construction, expansion, or control joints.
3. Topping shall be Sika Chemical Corporation "Sikadur Lo-Mod LV Mortar" or equal.

E. Spalls:

1. All weakened, damaged or disintegrated concrete shall be removed to sound concrete. For defective areas involving only the surface and/or the finish of the concrete, reference Section 03350, Concrete Finishes, for surface defects.
2. For spalled areas involving depths generally less than three (3) inches, utilize epoxy mortar for repair, Sika Chemical Corporation "Sikadur Lo-Mod LV Mortar" or equal.
3. For spalled areas involving depths generally in excess of three (3) inches, utilize an epoxy bonding compound and concrete grout. Bonding compound shall be Sika Chemical Corporation "Sikadur Hi Mod" bonding agent or equal.

3.7 PROTECTION

A. Protect concrete from high and low temperatures for seven days.

B. Protect against vibration until concrete has attained 33% of its 28-day strength.

C. Protect against premature loads until the 28-day strength has been attained.

END OF SECTION

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SECTION 03415

STRUCTURAL PRECAST CONCRETE - PLANT CAST

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for structural precast concrete units, plant cast, including but not limited to the following:

    a. Precast Concrete Stairs

B. Related Section:

1. Section 03300 - Cast-in-Place Concrete.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. A36, Standard Specification for Carbon Structural Steel.
2. A47, Standard Specification for Ferritic Malleable Iron Castings.
3. A82, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
4. A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
5. A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
6. A185, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
7. A307, Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
8. A325, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
9. A497, Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
10. A615, Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
11. A666, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
12. A706, Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
13. C33, Standard Specification for Concrete Aggregates.
14. C42, Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.

15. C94, Standard Specification for Ready-Mixed Concrete.
16. C150, Standard Specification for Ready-Mixed Concrete.
17. C260, Standard Specification for Air-Entraining Admixtures for Concrete.
18. C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
19. C330, Standard Specification for Lightweight Aggregates for Structural Concrete.
20. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
21. C404, Standard Specification for Aggregates for Masonry Grout.
22. C494, Standard Specification for Chemical Admixtures for Concrete.
23. C567, Standard Test Method for Determining Density of Structural Lightweight Concrete.
24. C881, Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
25. C1077, Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
26. C1107, Standard Specification for Packaged Dry, Hydraulic-Cement Grout.
27. E119, Standard Test Methods for Fire Tests of Building Construction and Materials.
28. E329, Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.

B. American Association of State Highway and Transportation Officials (AASHTO)
   1. Standard Specification for Roads and Bridges, 17th Edition, Section 5.

C. American Concrete Institute (ACI)
   1. 211-1, Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
   2. 211-2, Standard Practice for Selecting Proportions for Structural Lightweight Concrete.
   3. 301, Specification for Structural Concrete for Buildings.
   4. 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
   5. 305R, Hot Weather Concreting.
   6. 306R, Cold Weather Concreting.
   7. 309R, Guide for Consolidation of Concrete.
   8. 318, Building Code Requirements for Reinforced Concrete.

D. American Welding Society (AWS)
   1. D1.1, Structural Welding Code-Steel.
   2. D1.4, Structural Welding Code-Reinforcing Steel.

E. Concrete Reinforcing Steel Institute (CRSI)

1. Manual of Standard Practice.

F. Precast Prestressed Concrete Institute (PCI)

1. MNL-116, Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.
2. MNL-120, Design Handbook.
3. MNL-124, Design for Fire Resistance of Precast Prestressed Concrete.
4. MNL-127, Recommended Practice for Erection of Precast Concrete.

G. Society for Protective Coatings (formally Steel Structures Painting Council) (SSPC)

1. SP-3, Power Tool Cleaning.
2. PA-1, Shop, Field, and Maintenance Painting of Steel.
3. Paint 20, Zinc-Rich Coating, Type I-Organic and Type II-Inorganic.

H. Military Specification

1. DOD-P-21035A, Paint High Zinc Dust Content, Galvanizing Repair.

I. Federal Specification

1. FS-TT-P-664, Primer Coating, Alkyd, Corrosion Inhibiting, Lead and Chromate Free, VOC-Compliant.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Engineer, fabricate, and install structural precast concrete to withstand design loadings indicated within limits and under conditions required.

1. Stairs shall be designed for a 90 PSF pedestrian live load.
2. The walls slab shall be designed to resist the lateral loads established by the AASHTO LRFD Bridge Design Specifications, 10th Edition. The lateral earth pressure shall be as a minimum at rest (Ko).

B. Engineering Responsibility: Engage a fabricator who assumes undivided responsibility for engineering structural precast concrete structures by employing a qualified professional engineer to prepare design calculations, fire-resistance calculations, shop drawings, and other structural data.

1.4 SUBMITTALS

A. Submit in accordance with Section 01300

1. Product data and instructions for manufactured materials and products.
   a. Certification by paint and curing compound manufacturers that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
2. Shop drawings prepared by or under the supervision of a qualified professional engineer detailing fabrication and installation of precast concrete units. Indicate member dimensions

and cross-sections; locations, sizes, and types of reinforcement, including special reinforcement; and lifting devices necessary for handling and erection.

a. Indicate layout and dimensions and identify each precast concrete unit corresponding to sequence and procedure of installation. Indicate welded connections by AWS standard symbols. Detail loose, cast-in, and field hardware, inserts, connections, and joints, including accessories and construction at openings in precast units.

b. Indicate locations and details of anchorage devices that are to be embedded in other construction. Furnish templates, if required, for accurate placement.

c. For precast concrete indicated to comply with design loadings or calculated fire-resistance requirements, include structural analysis data sealed and signed by the qualified professional engineer responsible for their preparation.

d. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

e. Design mixes for each concrete mix. Submit revised mix proportions when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

f. Material test reports from a qualified independent testing agency evidencing compliance with requirements of the following based on comprehensive testing of current materials:

1) Concrete materials.

2) Reinforcing materials.

3) Admixtures.

g. Material certificates in lieu of agency test reports, when permitted by Engineer, signed by fabricator certifying that each material item complies with requirements.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed structural precast concrete work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Fabricator Qualifications: Firm experienced in producing structural precast concrete units similar to those indicated for this Project and with a record of successful in-service performance as well as sufficient production capacity to produce required units without delaying the Work.

1. Fabricator must participate in the PCI Plant Certification Program and be designated a PCI Certified Plant for the following product group and category:

2. Product Group and Category: Group C, Category C1.

C. Professional Engineer Qualifications: A professional engineer legally authorized to practice in the jurisdiction where Project is located and experienced in providing engineering services of the kind indicated that have resulted in the installation and successful in-service performance of precast concrete units similar to this Project in material, design, and extent.

D. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to Engineer's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM C1077 and ASTM E329, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

E. PCI Design Standard: Comply with recommendations of PCI MNL-120 applicable to types of structural precast concrete units indicated.

F. PCI Quality-Control Standard: Comply with requirements of PCI MNL-116 including manufacturing and testing procedures, quality-control recommendations, and camber and dimensional tolerances for types of units required.

G. ACI Publications: Comply with the following ACI publications applicable to types of structural precast concrete units indicated:

1. ACI 301 "Specifications for Structural Concrete for Buildings."
2. ACI 318 (ACI 318M) "Building Code Requirements for Reinforced Concrete."

H. Welding Standards: Comply with applicable provisions of AWS D1.1 and AWS D1.4.

1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

I. Calculated Fire-Test-Response Characteristics: When fire-resistance-rated assemblies are indicated, provide structural precast concrete units whose calculated fire resistance has been determined according to ASTM E119 and PCI MNL-124 and is acceptable to authorities having jurisdiction.

J. Fire-Test-Response Characteristics: Where applicable provide structural precast concrete units that comply with the following requirements:

1. Fire-response tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency includes UL or another agency that is acceptable to authorities having jurisdiction and performs testing and follow-up services.
2. Fire-resistance-rated assemblies indicated are identical in materials and construction to those tested for fire resistance per ASTM E119.
3. Fire-resistance-rated assemblies are indicated by design designations listed in the UL "Fire Resistance Directory" or in the listings of another qualified testing and inspecting agency.
4. Products are identified with appropriate markings of applicable testing and inspecting agency.

K. Product Options: The drawings indicate size, profiles, and dimensional requirements of precast concrete.

L. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings".

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver precast concrete to the Project site in such a manner and time to ensure continuity of installation. Store structures at the Precaster yard to prevent cracking, distorting, warping, staining, or other physical damage, and so that markings are visible.

B. Lift and support unit only at designated lifting or supporting points as shown on final shop drawings.

C. Deliver anchorage items that are to be embedded in other construction before starting such work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

PART 2 - PRODUCTS

2.1 PRECAST CONCRETE FABRICATORS

A. Fabricators: Subject to compliance with requirements, suggested fabricators offering products that may be incorporated in the Work include, but are not limited to, the following:

1. CSI Concrete Systems, Hudson, N.H.
2. Chase Precast, N. Brookfileld, MA.
3. Oldcastle Precast, Avon, CT.

2.2 FORMWORK

A. Forms: Provide forms and, where required, form facing materials of metal, plastic, wood, or another acceptable material that is nonreactive with concrete and will produce required finish surfaces.

2.3 MATERIALS AND COMPONENTS

A. Reinforcing

1. Reinforcing Bars: ASTM A615, Grade 60 (ASTM A615M, Grade 400), deformed.
2. Low-Alloy-Steel Reinforcing Bars: ASTM A706, Grade 60 (ASTM A706M, Grade 400).
3. Steel Wire: ASTM A82, plain, cold drawn.
4. Steel-Welded Wire Fabric: ASTM A185, plain, cold drawn.
5. Deformed-Steel-Welded Wire Fabric: ASTM A497, cold drawn.
6. Supports for Reinforcement: Provide supports for reinforcement, including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing, complying with CRSI recommendations.
    a. For exposed-to-view concrete surfaces, legs of supports shall not be in contact with forms. Exposure of support, legs, or reinforming on exposed-to-view surface is prohibited.

B. Concrete

1. Portland cement: ASTM C150, Type I or Type III.
    a. Use only one brand and type of cement throughout Project, unless otherwise acceptable to Architect.
2. Fly Ash: ASTM C618, Class C or F.
3. Normal-Weight Aggregates: ASTM C33, Class 5S. Provide aggregates from a single source.
4. Lightweight Aggregates: ASTM C330.
5. Water: Potable.
6. Admixtures, General: Provide admixtures for concrete that contain not more than 0.1 percent chloride ions by mass of Portland cement or cementitious material.
7. Air-Entraining Admixture: ASTM C260, certified by manufacturer to be compatible with other required admixtures.
8. Water-Reducing Admixture: ASTM C494, Type A.
9. Water-Reducing and Accelerating Admixture: ASTM C494, Type E.
10. Water-Reducing and Retarding Admixture: ASTM C494, Type D.

C. Connections and Finishes

1. Steel Shapes and Plates: ASTM A36 (ASTM A 36M).
2. Malleable Iron Castings: ASTM A47 (ASTM A 47M).
3. Plate Stainless Steel: ASTM A666, Type 304, of grade suitable for application.
4. Bolts and Studs: ASTM A307, Grade A (ASTM F 568, Property Class 4.6); carbon-steel, hex-head bolts and studs; carbon-steel nuts; and flat, unhardened steel washers.
5. High-Strength Bolts and Nuts: ASTM A325 (ASTM A325M), Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers.
6. Welded Headed Studs: AWS D1.1, Type B headed studs, cold-finished carbon-steel bars.
7. Deformed-Steel Wire Bar Anchors: ASTM A497.
8. Welding Electrodes: Comply with AWS standards.
9. Accessories: Provide clips, hangers, shims, and other accessories required to install precast concrete units.
10. Hot-Dip Galvanized Finish: For exterior steel items and items indicated for galvanizing, apply zinc coating by the hot-dip process, complying with the following requirements:
11. ASTM A123 for galvanizing rolled, pressed, and forged shapes, plates, bars, and strips.
12. ASTM A153 for galvanizing iron and steel hardware.
13. Galvanizing Repair Paint: High-zinc-dust-content paint with dry film containing not less than 94 percent zinc dust by weight and complying with DOD-P-21035A or SSPC-Paint 20.

14. Shop-Primed Finish: Prepare surfaces of interior steel items, except those with galvanized finish or those surfaces to be embedded in concrete, according to requirements of SSPC-SP 3 and shop-apply primer according to SSPC-PA 1.
    a. Primer: Fast-curing, lead- and chromate-free, VOC-conforming, universal modified-alkyd primer with good resistance to normal atmospheric corrosion, complying with performance requirements of FS TT-P-664.

D. Grout
1. Cement Grout: Portland cement, ASTM C150, Type I, and clean, natural sand, ASTM C404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.
2. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C1107, with fluid consistency and an extended working time.
3. Epoxy Grout: ASTM C881, 2-component epoxy resin, of type, grade, and class to suit requirements.

E. Curing Materials
1. Clear, Solvent-Borne, Liquid, Membrane-Forming Curing Compound: ASTM C309, Type I, Class A or B, wax free.
2. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type I, Class B.
    a. Provide material that has a maximum volatile organic compound (VOC) rating of 350 g/L.

2.4 CONCRETE MIXES

A. Prepare design mixes for each type of concrete required.
1. Limit use of fly ash to not exceed, in aggregate, 25 percent of the Portland cement by weight.

B. Design mixes may be prepared by a qualified independent testing agency or by qualified precast manufacturing plant personnel at precast fabricator's option.

C. Normal-Weight Concrete: Proportion mixes by either laboratory trial batch or field test data methods according to ACI 211.1 and ACI 301, using materials to be used on the Project, to provide normal-weight concrete with the following properties:
1. Compressive Strength (28-Day): 5000 psi (34.5 MPa).
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.40.

D. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows, with a tolerance of plus or minus 1-1/2 percent:
1. Severe exposure conditions where the concrete will be exposed to freezing.

a. Air Content: 6 percent for 1-inch (25-mm) maximum aggregate.

b. Air Content: 6 percent for 3/4-inch (19-mm) maximum aggregate.

c. Air Content: 7 percent for 1/2-inch (13-mm) maximum aggregate.

2. Mild exposure conditions where the concrete will NOT be exposed to freezing.

a. Air Content: 2.5 to 4.5 percent.

E. Lightweight Concrete: Proportion mixes by either laboratory trial batch or field test data methods according to ACI 211.2 and ACI 301, using materials to be used on the Project, to provide lightweight concrete with the following properties:

1. Compressive Strength (28-Day): 5000 psi (34.5 MPa).

2. Unit Weight: Calculated equilibrium unit weight of 115 lb/cu. ft. (1842 kg/cu. m), plus or minus 3 lb/cu. ft. (48 kg/cu. m), according to ASTM C567.

F. Add air-entraining admixture at manufacturer's prescribed rate to result in lightweight concrete at point of placement having an air content as follows:

1. Severe exposure conditions where the concrete will be exposed to freezing.

a. Air Content: 4 to 6 percent for 3/4-inch (19-mm) maximum aggregate.

b. Air Content: 4.5 to 7.5 percent for 3/8-inch (10-mm) maximum aggregate.

2. Mild exposure conditions where the concrete will NOT be exposed to freezing.

a. Air Content: 4 percent, minimum.

G. Other Admixtures: Use water-reducing, water-reducing and accelerating, or water-reducing and retarding admixtures according to manufacturer's directions.

H. Concrete-Mix Adjustments: Concrete-mix design adjustments may be proposed when characteristics of materials, project conditions, weather, test results, or other circumstances warrant.

2.5 FABRICATION

A. Formwork: Accurately construct forms, mortar tight, of sufficient strength to withstand pressures due to concrete placing operations, temperature changes, and for pretensioning and detensioning operations. Maintain formwork to provide completed precast concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances specified in PCI MNL-116.

1. Coat surfaces of forms with bond-breaking compound before reinforcement is placed. Provide commercial-formula, form-coating compounds that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces requiring bond or adhesion. Apply in compliance with manufacturer's instructions.

2. Unless forms for precast, prestressed concrete units are stripped prior to detensioning, design forms so that stresses are not induced in precast units due to deformation of concrete under prestress or movement during detensioning.

B. Built-In Anchorages: Accurately position built-in anchorage devices and secure to formwork. Locate anchorages where they do not affect the position of the main reinforcement or placing of concrete. Do not relocate bearing plates in units, unless acceptable to Architect.

C. Cast-in openings larger than 8 inches (200 mm) in diameter or 8 inches (200 mm) square according to final shop drawings. Other smaller holes may be field cut by trades requiring them, as acceptable to Engineer.

D. Reinforcement: Comply with the recommendations of CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete.

2. Accurately position, support, and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcement by metal chairs, runners, bolsters, spacers and hangers, as required.

3. Place reinforcement to obtain at least the minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

4. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Concrete Mixing: Comply with requirements and with ASTM C94. Following concrete batching, no additional water may be added.

F. Concrete Placement: Place concrete in a continuous operation to prevent seams or planes of weakness from forming in precast units. Comply with requirements of ACI 304R for measuring, mixing, transporting, and placing concrete.

1. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items. Use equipment and procedures complying with ACI 309R.

2. Comply with ACI 306R procedures for cold-weather concrete placement.

3. Comply with ACI 305R procedures for hot-weather concrete placement.

G. Identify pickup points of precast concrete units and orientation in structure with permanent markings, complying with markings indicated on final shop drawings. Imprint casting date on each precast unit on a surface that will not show in the finished structure.

H. Cure concrete according to the requirements of PCI MNL-116 by moisture retention without heat or by accelerated heat curing, using low-pressure live steam or radiant heat and moisture.

I. Finish formed surfaces of precast concrete as indicated for each type of unit, and as follows:

1. Standard Finish: Normal plant-run finish produced in forms that impart a smooth finish to concrete. Small surface holes caused by air bubbles, normal color variations, form joint marks, and minor chips and spalls will be tolerated. Major or unsightly imperfections, honeycombs, or structural defects are not permitted.

J. Finish unformed surfaces by trowel, unless otherwise indicated. Consolidate concrete, bring to proper level with straightedge, float, and trowel to a smooth, uniform finish.

K. Stairway walking surface shall receive a Wearing Surface Finish in accordance with Section 03346.

2.6 EXTERIOR COATING

A. The material shall be:

1. TREMproof 260 Spray-Applied Waterproofing Membrane made by Tremco Incorporated, 3735 Green Road, Beachwood, Ohio 44122; or
2. TREMproof 201/60 Fluid-Applied Waterproofing Membrane made by Tremco Incorporated, 3735 Green Road, Beachwood, Ohio 44122; or
3. Or product deemed acceptable by the Engineer.

2.7 SOURCE QUALITY CONTROL

A. The Owner may employ an independent testing agency to evaluate precast fabricator's quality control and testing methods.

1. Allow Owner's testing agency access to material storage areas, concrete production equipment, concrete placement, and curing facilities. Cooperate with Owner's testing agency and provide samples of materials and concrete mixes as may be requested for additional testing and evaluation.

B. Quality-Control Testing: Test and inspect precast concrete according to PCI MNL-116 requirements.

C. Strength of precast concrete units will be considered potentially deficient when precast concrete units fail to comply with requirements, including the following:

1. Fail to meet compressive-strength test requirements.
2. Reinforcement does not conform to fabrication requirements.
3. Concrete curing and protection of precast units against extremes in temperature fail to meet requirements.
4. Precast units are damaged during handling and erecting.

D. Testing: When there is evidence that the strength of precast concrete units may be deficient or may not meet requirements, the Owner will employ an independent testing agency to obtain, prepare, and test cores drilled from hardened concrete to determine compressive strength according to ASTM C42.

1. A minimum of 3 representative cores will be taken from precast concrete units of suspect strength, from locations directed by Engineer.
2. Cores will be tested, following immersion in water, in a wet condition per ACI 301 when precast concrete units will be wet under service conditions.
3. Cores will be tested in an air-dry condition per ACI 301 when precast concrete units will be dry under service conditions.

4. Strength of concrete for each series of 3 cores will be considered satisfactory if the average compressive strength is at least 85 percent of the 28-day design compressive strength and no core compressive strength is less than 75 percent of the 28-day design compressive strength.
5. Test results will be made in writing on the same day that tests are made, with copies to Engineer, Contractor, and precast fabricator. Test reports will include the Project identification name and number, date, name of precast concrete fabricator, name of concrete testing agency; identification letter, name, and type of precast concrete unit or units represented by core tests; design compressive strength, compressive strength at break and type of break, corrected for length-diameter ratio, and direction of applied load to core with respect to horizontal plane of concrete as placed.

E. Patching: Where core test results are satisfactory and precast concrete units meet requirements, solidly fill core holes with patching mortar and finish to match adjacent concrete surfaces.

F. Dimensional Tolerances: Units having dimensions smaller or greater than required and not meeting tolerance limits may be subject to additional testing.

1. Precast units having dimensions greater than required will be rejected if the appearance or function of the structure is adversely affected or if larger dimensions interfere with other construction. Repair or remove and replace rejected units, as required, to meet construction conditions.

G. Defective Work: Precast concrete units that do not conform to requirements, including strength, manufacturing tolerances, and finishes, are unacceptable. Replace with precast concrete units that meet requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements, including installation tolerances, true and level bearing surfaces, and other conditions affecting performance of precast concrete units. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Welding: Perform welding in compliance with AWS D1.1 and AWS D1.4, with qualified welders.

1. Protect precast concrete units from damage by field welding or cutting operations and provide noncombustible shields as required.
2. Repair damaged metal surfaces by cleaning and applying a coat of galvanizing repair paint to galvanized surfaces.
3. Repair damaged metal surfaces by cleaning and repriming damaged painted surfaces.

B. Erection Tolerances: Install precast units level, plumb, square, and true, without exceeding the recommended erection tolerances of PCI MNL-127.

C. Shore and brace precast concrete units to maintain location, stability, and alignment until permanent connections are installed.

D. Grouting Connections and Joints: After precast concrete units have been placed and secured, grout open spaces at keyways, connections, and joints using suitable grout approved by the Engineer.

1. Provide forms or other acceptable method to retain grout in place until hard enough to support itself. Pack spaces with stiff grout material, tamping until voids are completely filled. Place grout to finish smooth, plumb, and level with adjacent concrete surfaces. Keep grouted joints damp for not less than 24 hours after initial set. Promptly remove grout material from exposed surfaces before it hardens.

3.3 CLEANING

A. Clean exposed surfaces of precast concrete units after erection to remove weld marks, other markings, dirt, and stains.

1. Wash and rinse according to precast concrete fabricator's recommendations. Protect other work from staining or damage due to cleaning operations.

2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes.

3.4 ASSEMBLY

A. Assembly of this precast concrete will include all the mechanical equipment installed and tested. The equipment will be installed at the yard of the precaster and shipped as a completed unit. The precaster will be required to cooperate with the equipment installer by supplying a safe work area, sufficient electrical power, and water. Sanitary facilities will be the responsibility of the equipment installer.

END OF SECTION

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SECTION 03600

EPOXY BONDING COMPOUND/GROUT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Requirements for a two-component, solvent-free moisture insensitive epoxy resin bonding adhesive used to bond fresh, plastic concrete to clean sound hardened concrete and for grouting bolts and the bonding of mating materials.

B. Alternatives

1. Should the Contractor wish to use any brand or type of material other than as specified herein, he shall so state in writing to the Engineer naming the proposed substitution and manufacturer. This letter shall be accompanied by:

   a. A current test report and notarized certificate of compliance from an approved independent testing laboratory that the proposed substitute meets or exceeds the specified requirements and has been tested within the past 12 months in accordance with the specified test standards.

   b. Documented proof, to the Engineer's satisfaction, that the proposed brand or type of material has proven record of performance when used in the intended application.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. C-882, Test Method for Bond Strength of Epoxy Resin Systems used with Concrete by Slant Shear.
2. D-570, Test Method for Water Absorption of Plastics.
3. D-638, Test Method for Tensile Properties of Plastics.
4. D-695, Test Method for Compressive Properties of Rigid Plastics.
5. D-732, Test Method for Shear Strength of Plastics by Punch Tool.
6. D-790, Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

1.3 SUBMITTALS

A. Shop Drawings.

1. In accordance with SECTION 01300.

B. Certificates of Conformance.

1. Prior to delivery, submit manufacturer's notarized certification attesting to compliance with the requirements of this specification.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS AND PRODUCTS

A. Sikadur 32 Hi-Mod, as manufactured by Sika Corp., Lyndhurst, NJ, or acceptable equivalent product manufactured by H.B. Fuller Co., Palatine, IL, or Protex Industries, Inc., Denver, CO.

B. Sure-Klean Degreaser and Etch, as manufactured by ProSoCo, Inc., Kansas City, KS, or acceptable equivalent product manufactured by Drew Chemical Co., Tampa, FL or Goldblatt Tool Co., Kansas City, KS.

2.2 MATERIAL

A. The epoxy material shall conform to the following requirements:

1. Component A shall be a modified epoxy resin of the Epichlorohydrin Pisphenol A type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
2. Component B shall be primarily a reaction product of a selected amine blended with an epoxy resin of the Epichlorohydrin Bisphenol A type containing suitable viscosity control agents, pigments and accelerators.
3. The ratio of Component A:B shall be 1:1 by volume.
4. The materials hall not contain asbestos.

B. Properties of the mixed material:

1. Pot Life: 25 to 35 minutes.
2. Tack-Free Time to Touch (20 mil thickness): 3 to 5 hours.
3. Initial Viscosity (Brokfield Viscometer Spindle No. 3, Speed 100): 1,900 to 3,700 cps.
4. Color: Gray

C. Properties of the cured material. Note: All test data is based upon material and curing conditions of 73± degrees F, 50± 5% relative humidity.

1. Compressive Properties (ASTM D-695) at 28 days:
   a. Compressive Strength: 8,500 psi minimum.
   b. Modulus of Elasticity: 3.75 x 105 psi minimum.
2. Tensile Properties (ASTM D-638) at 14 days:
   a. Tensile Strength: 4,000 psi minimum.
   b. Elongation at Break: 1.5 - 2.25%.
   c. Modulus of Elasticity: 2.75 x 105 psi minimum.
3. Flexural Properties (ASTM D-790) at 14 days:
   a. Flexural Strength (Modulus of Rupture): 6,300 psi minimum.

b. Tangent Modulus of Elasticity in Bending: 4.0 x 105 psi minimum.

4. Shear Strength (ASTM D-732) at 14 days:
   a. Shear Strength: 5,000 psi minimum.
5. Water Absorption (ASTM D-570: Section 6.5) at 14 days:
   a. Water Absorption: 1% maximum.
6. Bond Strength (ASTM C-882) Hardened to Plastic:
   a. Bond Strength (14 days moisture cure): 1,500 psi minimum.

D. Aggregate: As recommended by the manufacturer.

E. Degreasing and etching chemical:
1. Composition and materials: A blend of organic and inorganic acids with a special solvent system incorporating wetting agents for emulsification.
2. Color: Water White.
3. Flash Point: Above 150 degrees F.
4. Weight/Gallon: 9.0 lbs.

PART 3 - EXECUTION

3.1 GENERAL

A. Mix and apply the epoxy compound in accordance with the manufacturer's instructions.

3.2 PREPARATION OF CONCRETE SURFACES

A. All work involving epoxy, cement base coating and protective coating to adhere strictly to the manufacturer's current printed recommendations as to temperatures at time of application. No use of epoxy materials allowed when either the temperature of the concrete to be repaired or the ambient temperature is below 50 degrees F, 24 hours before, during, or for a period of 48 hours after the completion of the repair. Temporary heat may be used to meet the specified requirements.

B. All epoxy, cement base coating, and protective coating materials to be new and used within the shelf life limitations set forth by the manufacturer. The shelf life limitations to be clearly marked on each container.

C. All existing reinforcement and concrete to be sound and clean before receiving new materials.

D. Surfaces shall be clean and sound. Surfaces may be dry, damp or wet, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles and disintegrated materials by mechanical abrasion methods such as sandblasting. Sandblast steel to appropriate finish.

E. If the concrete surfaces are sound and it is only necessary to remove laitance, grease or dust, the Contractor may, with the prior written approval of the Engineer, forego sandblasting and wash the concrete with a degreasing and etching chemical applied in accordance with the manufacturer's written instructions and as specified herein.

F. Application of degreaser and etching compound: Pre-wet concrete surfaces with clean water. Brush concentrated cleaner onto concrete surface. Let stand three to four minutes and reapply, brushing stained areas vigorously. Rinse off with fresh water applied at a minimum pressure of 800 psi and a minimum volume of 5 to 10 gallons per minute.

3.3 PROPORTIONING, MIXING AND APPLYING EPOXY COMPOUND

A. Volumetric ratio of bonding compound shall be 1:1 (B:A) to mix, proportion one part B and one part A into clean pail. Mix thoroughly for three minutes with a steel mixing paddle on a low speed (400 to 600 rpm) drill until blend is a uniform gray color. Mix only that amount of epoxy that can be used in 30 minutes at 73 degrees F.

B. Application for Bonding: Cover the area to be overlaid with one coat of the epoxy compound applied with long-nap paint rollers, brushes, brooms or by spray. Apply at the rate of 80 square feet/gallon maximum on smooth concrete.

C. As the concrete increases in roughness, decrease the rate of coverage proportionately. While the epoxy compound is still tacky (three to five hours at 73 degrees F), place the concrete. If the bonding compound should harden before the concrete is placed, reprepare surface. Then recoat with additional epoxy bonding compound and proceed.

D. Application for Grouting: To prepare a grout for anchor bolts, mix the epoxy compound with aggregate recommended by the epoxy manufacturer. The amount of aggregate used shall be the maximum amount possible while still maintaining a pourable consistency. The ratio shall be approximately 1:1, 1/2 by loose volume of aggregate. Apply grout in accordance with the manufacturer's instructions.

E. Limitations:

F. Do not thin the epoxy bonding compound, as solvents will prevent proper cure.

1. Use only oven-dry aggregate to avoid encapsulation of moisture.

END OF SECTION

Appendix H

Plan Issued for Bid

CITY OF PAWTUCKET, RI

TIDEWATER LANDING PHASE 1B

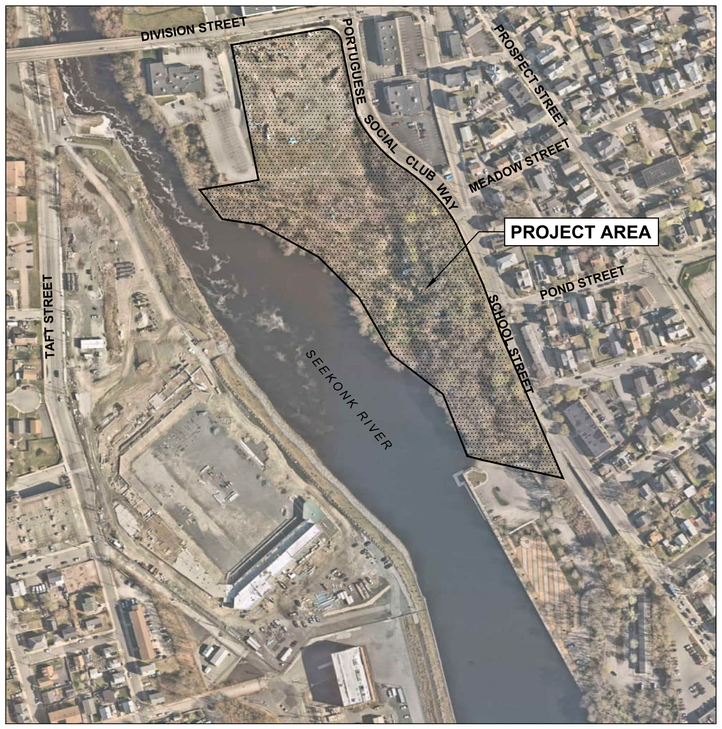
RIVERWALK EAST CONTRACT 2

BID NO. 27-008

BID DOCUMENTS

OCTOBER 2026

OWNER:
CITY OF PAWTUCKET
137 ROOSEVELT AVENUE,
PAWTUCKET, RI 02860



PROJECT LOCATION

LOCATION MAP
1"=200'

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2	LEGEND AND ABBREVIATIONS
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PREPARED BY:

BETA
www.BETA-Inc.com

ISSUE DATE: 10/15/2026

KEVIN M. AGUIAR
No. 6913
REGISTERED
PROFESSIONAL ENGINEER
CIVIL

10/15/2026

REGISTERED PROFESSIONAL — DATE

LEGEND

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
CB	CB	CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
EHH	EHH	ELECTRIC HANDHOLE (NUMBER AS NOTED)
E	EMH	ELECTRIC MANHOLE
T	TMH	TELEPHONE MANHOLE
W	WMH	WATER MANHOLE
S	SMH	SEWER MANHOLE
D	DMH	DRAINAGE MANHOLE
GG	GG	GAS GATE
WG	WG	WATER GATE
CS	CS	CURB STOP
HYD.	HYD	HYDRANT
FA	FAB	FIRE ALARM BOX
PM	PM	PARKING METER
LP		STREET LIGHT POLE
UP	UP	UTILITY POLE
UPL	UPL	UTILITY POLE w/ LIGHT
		SIGN
GUY	GUY	GUY POLE
12" RCP	10'-12" RCP	DRAIN PIPE (SIZE AS NOTED)
8" VCP	10'-8" PVC	SEWER MAIN (SIZE AS NOTED)
	10'-8" PVC	
E		ELECTRIC DUCT
4" HP	10'-4" HP	GAS MAIN (SIZE AS NOTED)
8" CI	10'-8" DI	WATER MAIN (SIZE AS NOTED)
W	10'-8" PVC	
T		TELEPHONE DUCT (SIZE AS NOTED)
	OHW	OVERHEAD WIRE
MB	MB	MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
BND	BND	HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
SHLO (Date of Layout)		STATE HIGHWAY LAYOUT LINE (SHLO)
		CITY, TOWN OR COUNTY LAYOUT LINE (R.O.W.)
Boundary Name		CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
℄		PROPERTY LINE
		EASEMENT LINE (TYPE NOTED)
2+00		CONSTRUCTION BASELINE
N00°00'00"E 000.00'		SURVEY LINE
		RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
		WHEELCHAIR RAMP
24" PINE		TREE (SIZE AND TYPE AS NOTED)
		HEDGE/SHRUBS
WF-1	x x x	FENCE (SIZE AND TYPE AS NOTED)
		EDGE OF WETLAND W/ FLAGGED NUMBER
		EDGE OF RIVER/STREAM LINE
		100-FT. WETLAND BUFFER LIMIT
		100-FT. RIVER FRONT LIMIT
		200-FT. RIVER FRONT LIMIT
		WOODED AREA / LIMIT OF CLEARING
x 00.0	x 00.00	SPOT GRADE
		SAW CUT LINE
	TP-1	TEST PIT
	B-1	BORING
		UCG
		25' UCG CONSTRUCTION SETBACK
		75' BUFFER
		150' BUFFER
		200' BUFFER
		RIVERBANK
		BASE FLOOD ELEVATION (BFE)

ABBREVIATIONS

GENERAL

ABAN.	ABANDON
ADJ.	ADJUST
ALT.	ALTERATION
APPROX.	APPROXIMATE
℄	BASELINE
B.B.	BITUMINOUS BERM
B.C.	BITUMINOUS CURB
BD OR BND	BOUND
BLDG.	BUILDING
B.O.	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
C.C.	CONCRETE CURB
CEM.	CEMENT
CLF	CHAIN LINK FENCE
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
DWY	DRIVEWAY
E.P., EOP	EDGE OF PAVEMENT
EL.	ELEVATION
ESMT.	EASEMENT
EXIST.	EXISTING
FDN.	FOUNDATION
GRAN.	GRANITE
GC	GRANITE CURB
HOR.	HORIZONTAL
IP	IRON PIPE
JCT	JUNCTION
LP	LOW POINT
MB	MAIL BOX
MHB	MASSACHUSETTS HIGHWAY BOUND
O.C.	ON CENTER
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PERM.	PERMANENT
PGL	PROFILE GRADE LINE
PROP.	PROPOSED
PVC	POINT OF VERTICAL CURVATURE
PVMT.	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
REM.	REMOVE
REMOD.	REMODEL
RET.	RETAIN
RR	RAILROAD
RT.	RIGHT
SB	SOUTH BOUND OR STONE BOUND
SDWK.	SIDEWALK
SHT.	SHEET
SHLD.	SHOULDER
STA.	STATION
TEMP.	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TYP.	TYPICAL
VAR.	VARIABLE
VERT.	VERTICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

TRAFFIC SIGNAL SYSTEMS

R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
←FY	FLASHING YELLOW LEFT ARROW
R→	STEADY RED RIGHT ARROW
Y→	STEADY AMBER RIGHT ARROW
G→	STEADY GREEN RIGHT ARROW
←R	STEADY RED LEFT ARROW
←Y	STEADY AMBER LEFT ARROW
←G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

UTILITIES

ACCMP	ASPHALT COATED CORRUGATED METAL PIPE
CAP	CORRUGATED ALUMINUM PIPE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DROP INLET
DIP	DUCTILE IRON PIPE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FM	FORCE MAIN
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
HDW	HEADWALL
HYD.	HYDRANT
INV.	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
TSV&B	TAPPING SLEEVE, VALVE AND BOX
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WIP	WROUGHT IRON PIPE
WG	WATER GATE
WM	WATER METER/WATER MAIN

TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
	Ø2	CONTROLLER PHASE
	MA-1	MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		VEHICULAR SIGNAL HEAD (REMOVED & RESET)
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
HH		PULL BOX 12"x12" OR HANDHOLE
		LOOP DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		PRE-EMPTION DETECTOR
		PRE-EMPTION CONFIRMATION STROBE
		SIGNAL CONDUIT (SINGLE RUN)
		SIGNAL CONDUIT (DOUBLE RUN)
		SIGNAL POST & BASE
M	M	MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

PAVEMENT MARKINGS AND SIGNING SYMBOLS

PROPOSED

CW	CROSSWALK, 2 - 12" WHITE LINES (8" WIDTH)
SL	STOP LINE - 12" WHITE LINE 4' BEHIND CW (TYP.)
SWEL	SOLID WHITE EDGE LINE - 4"
SWCHL	SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
SWGL	SOLID WHITE GORE LINE 12" @ 33°, (SPACING NOTED)
SWLL	SOLID WHITE LANE LINE - 4"
SWPL	SOLID WHITE PARKING LINE - 4"
BWLL	BROKEN WHITE LANE LINE - 4"
DWLEx	DOTTED WHITE LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
DYLEx	DOTTED YELLOW LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
BYCL	BROKEN YELLOW CENTERLINE - 4"
DYCL	DOUBLE YELLOW CENTERLINE - 2 - 4" LINES
SYEL	SOLID YELLOW EDGE LINE - 4"
SYGL	SOLID YELLOW GORE LINE 12" @ 33°, (SPACING NOTED)
SYLL	SOLID YELLOW LANE LINE - 4"
SYCTEL	SOLID YELLOW CYCLE TRACK EDGE LINE - 4"
DYCTCL	DOTTED YELLOW CYCLE TRACK CENTERLINE - 4" (3' LINE & 9' GAP)
SCHOOL	SCHOOL ZONE - WHITE
	HANDICAP SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
ONLY	LEGEND "ONLY" - WHITE

PREPARED BY

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REGISTERED PROFESSIONAL

KEVIN M. AGUIAR
No. 6913
REGISTERED
PROFESSIONAL ENGINEER
CIVIL

SUBCONSULTANT

PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

LEGEND AND ABBREVIATIONS

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

2

\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 LEGEND.DWG

GENERAL NOTES:

1. ANY DAMAGE TO EXISTING PAVEMENT, BRIDGES, CONDUIT, SIDEWALK, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.

2. THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM STREETS AND SIDEWALKS SO AS NOT TO CAUSE A SAFETY HAZARD.

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE EXISTING CONDITIONS ARE NOT OBLITERATED BEFORE CONTROL POINTS ARE LOCATED AND CONSTRUCTION LAYOUT IS ESTABLISHED. THE CONSTRUCTION LAYOUT SHALL BE PROVIDED IN SUFFICIENT DETAIL, THEREBY ENABLING HIM TO CONSTRUCT THE PROJECT IN CONFORMITY WITH THE PLANS AND SPECIFICATIONS. SURVEY WILL BE PROVIDED BY THE CONTRACTOR. THE OWNER'S REPRESENTATIVE WILL NOT AUTHORIZE CONSTRUCTION ACTIVITIES TO BEGIN UNTIL HE IS SATISFIED THAT ALL GROUND CONTROL HAS BEEN ESTABLISHED, TIED DOWN, AND DULY RECORDED IN STANDARD FIELD BOOKS.

4. ALL CONSTRUCTION ACCESS ROADS SHALL BE CONSTRUCTED PRIOR TO START OF SITE WORK.

5. THE FREQUENCY AND APPLICATION RATES FOR THE DUST CONTROL ITEMS WILL BE AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

6. ALL SIDEWALK AND DRIVEWAYS DESIGNATED FOR REPLACEMENT SHALL BE CUT AND MATCHED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

7. ASPHALT EMULSION TACK COAT SHALL BE PLACED PRIOR TO PAVEMENT PLACEMENT ON THE CONCRETE BASE OR COLD PLANED PAVEMENT, AND ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS BEEN EXPOSED FOR MORE THAN 3 DAYS, AND/OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. IT SHALL ALSO BE APPLIED TO VERTICAL PAVEMENT FACES BETWEEN ADJOINING PAVEMENT SECTIONS. ALL APPLICATIONS ON BOTH HORIZONTAL AND VERTICAL SURFACES.

8. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND PLACING, AT HIS OWN EXPENSE, PLANTABLE SOIL AND SEED IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED WITH THE PERMISSION OF THE OWNER'S REPRESENTATIVE.

9. NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.

10. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT AT THE END OF FINAL PAVING OPERATIONS, STORM WATER FLOW TO EXISTING DRAINAGE STRUCTURES HAS BEEN REESTABLISHED AND THAT NO ISOLATED DEPRESSIONS REMAIN.

11. ALL EMBANKMENTS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 12" (AFTER COMPACTION) AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED.

12. THIS PROJECT IS ON A HURRICANE EVACUATION AND DIVERSIONARY ROUTE, THE CONTRACTOR IS ADVISED THAT UPON 12 (TWELVE) HOURS NOTICE THE ROADWAY SHALL BE OPEN TO EVACUEES AND EMERGENCY PERSONNEL.

13. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS STATED IN THE ENVIRONMENTAL APPROVALS ISSUED FOR THE PROJECT FROM THE COASTAL RESOURCES MANAGEMENT COUNCIL (CRMC) AND THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM). ALL COSTS ASSOCIATED WITH THESE CONDITIONS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID.

14. FOR ALL PROJECTS INVOLVING KNOWN SITE REMEDIATION ISSUES, THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE CONSTRUCTION RELATED PROVISIONS, CONDITIONS, AND STIPULATIONS OF ANY REMEDIAL PLANS DEVELOPED FOR THE PROJECT. COPIES OF THESE DOCUMENTS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH COMPLIANCE WITH THESE DOCUMENTS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID.

15. NO UNPROTECTED CONSTRUCTED FEATURE MAY PROJECT MORE THAN 4 INCHES ABOVE THE FINISHED GRADE OF A TRAVERSABLE SLOPE IN A CLEAR ZONE, e.g. HEADWALL, DRAINAGE INLET, ETC.

DRAINAGE AND EROSION CONTROL NOTES:

1. PROJECTS WITH AT LEAST ONE(1) ACRE OF SOIL DISTURBANCE ARE REQUIRED TO DEVELOP AND ENFORCE A SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ORDER TO REMAIN IN COMPLIANCE WITH THE RIPDES GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS OF THE GENERAL PERMIT AND THE SITE SPECIFIC SWPPP FOR THIS PROJECT. ALL COSTS ASSOCIATED WITH ADHERENCE TO THE SWPPP SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID.

2. NO UNDISTURBED AREAS SHALL BE CLEARED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR OR DURING ANY PERIOD OF FULL OR LIMITED WINTER SHUTDOWN. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE OWNER'S REPRESENTATIVE, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR HAY MULCH, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RESTABILIZED WITHIN 5 WORKING DAYS. ANY WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION, IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.

3. STOCKPILES OF MATERIAL SHALL NOT BE LOCATED WITHIN REGULATED WETLANDS OR BUFFER ZONE AREAS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES OF ERODABLE MATERIAL SHALL ALSO BE SEEDED AND RINGED EROSION CONTROL.

4. IF THE PLANS INCLUDE SPECIFIC AREAS FOR PLACEMENT OF CONSTRUCTION EQUIPMENT AND MATERIALS STORAGE AND STOCKPILING, AND IF THE CONTRACTOR ELECTS TO UTILIZE ANY OTHER AREAS FOR THESE PURPOSES, THIS SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE ONLY AFTER OBTAINING ANY NECESSARY PERMITS AND/OR PERMIT MODIFICATIONS FROM THE APPROPRIATE REGULATORY AUTHORITY(IES). ANY PERMITTING REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED AT NO COST TO THE OWNER.

5. JUTE MESH SHALL BE USED TO STABILIZE PLANTABLE SOIL AND/OR LOAM IN ALL DITCHES, ON ALL SLOPES ADJACENT TO WETLANDS AND WETLAND PERIMETERS, AND ON ALL SLOPES WITHIN WATER QUALITY BASINS. JUTE MESH IN DITCHES SHALL EXTEND TO AN ELEVATION 2 FEET ABOVE THE BOTTOM OF THE DITCH.

6. SEEDING ON ALL SLOPES 3 TO 1 OR STEEPER SHALL CONSIST OF THE FOLLOWING APPLICATIONS UNLESS SPECIFIED OTHERWISE.

   a. SEEDING TYPE I

   b. ADHESIVE MULCH STABILIZER

7. UNVEGETATED AREAS SHALL NOT BE UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS OR THROUGH THE INACTIVE WINTER SEASON.

8. PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION (HORIZONTAL AND VERTICAL) OF ALL EXISTING PIPES AND/OR STRUCTURES WHICH ARE TO BE CONNECTED. ANY VARIATION FOUND FROM THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION. WORK CAN COMMENCE ONLY UPON THE OWNER'S REPRESENTATIVE AUTHORIZATION.

9. ALL DRAINAGE AND UTILITY STRUCTURES WITHIN THE PAVED ROADWAY SHALL BE ADJUSTED TO GRADE WITH THE SURROUNDING PAVEMENT PRIOR TO THE WINTER SHUTDOWN IF APPLICABLE.

10. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL THROUGHOUT THE WORK AREA.

11. CATCH BASIN RIM GRADES NOTED ON PLANS ARE DEPRESSED 0.1' LOWER THAN THE GUTTER GRADE. RIM ELEVATIONS SHOWN ARE FINAL GRADES. THE CONTRACTOR SHALL PLACE FRAMES AND GRATES 0.1' BELOW THE GRADE CONSTRUCTED IN THIS CONTRACT OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

12. SILT SACK INLET PROTECTION SHALL BE INSTALLED AT ALL CATCH BASINS AND INLETS WHENEVER SUBBASE IS EXPOSED, AND SHALL REMAIN IN PLACE UNTIL THE ABUTTING GROUND SURFACES ARE STABILIZED.

13. ALL INLET PROTECTION USED AT CATCH BASINS, THEY SHALL BE REMOVED AT THE END OF THE PROJECT OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE IN ORDER TO PREVENT CLOGGING OF THE INLET.

14. THE TOE OF ANY FILL SLOPE IS TO REMAIN AT LEAST 1' INSIDE OF ALL EROSION CONTROLS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COVER ANY PORTION OF THE EROSION CONTROL MEASURES WITH MATERIAL. ANY MATERIAL THAT IS PLACED ON ANY EROSION CONTROLS BY THE CONTRACTOR, OR ANY AGENT OF THE CONTRACTOR, SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR, AND ANY NECESSARY REPAIRS TO THE EROSION CONTROLS ACCOMPLISHED.

15. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THOSE AREAS INDICATED ON THE PLANS. CLEARING MAY OCCUR PRIOR TO INSTALLATION OF SUCH CONTROLS, HOWEVER NO GRUBBING, GRADING, FILLING, OR OTHER SOIL DISTURBANCE SHALL OCCUR PRIOR TO INSTALLATION. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS.

16. ALL EROSION CONTROL MEASURES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING SHALL BE USED TO MINIMIZE EROSION.

17. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE TO THE OWNER.

18. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE CONTAINED IN THE SPECIFICATIONS.

19. UNDER SEVERE WEATHER EVENTS ADDITIONAL EROSION CONTROLS MAYBE REQUIRED AND SHALL BE INSTALLED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

UTILITY NOTES:

1. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE. REFER TO VOLUME 1 DRAWINGS FOR INFORMATION REGARDING THE EXISTING UTILITIES AS WELL AS PROPOSED UTILITY LOCATIONS AND RELATED WORK WITHIN THE PROJECT AREA.

2. BUILDING SERVICE CONNECTIONS (ELECTRIC, GAS, TELEPHONE, WATER AND SANITARY) ARE NOT SHOWN. CONTRACTOR IS TO ASSUME SERVICES ARE PRESENT AND ACTIVE IN ALL ADJACENT BUILDINGS.

3. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES BOTH UNDERGROUND AND OVERHEAD BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH CHAPTER 39-1.2 OF THE R.I. GENERAL LAWS ENTITLED "EXCAVATION NEAR UNDERGROUND UTILITY FACILITIES", WITH AMENDMENTS EFFECTIVE AS OF NOVEMBER 1, 2009 AND, WHEN NECESSARY, BY CONTACTING THE INDIVIDUAL UTILITY COMPANIES. EXCAVATION SHALL BE IN ACCORDANCE WITH ALL STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY APPLICABLE CITY, TOWN, STATE OR FEDERAL AGENCY. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE DIG SAFE PROGRAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND ENSURE THAT ALL UTILITIES HAVE BEEN MARKED PRIOR TO COMMENCING THEIR WORK. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY, SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.

4. ALL EXISTING UTILITIES TO BE ABANDONED SHALL BE CAPPED.

5. UTILITY SERVICE CONNECTIONS SHALL BE MAINTAINED TO ALL EXISTING FACILITIES TO REMAIN.

SURVEY NOTES:

1. THE INFORMATION SHOWN HEREON IS BASED ON FIELD SURVEY PERFORMED BETWEEN JANUARY 3, 2024 AND FEBRUARY 23, 2024, BY DIPRETE ENGINEERING.
2. THE HORIZONTAL DATUM FOR THIS PROJECT IS THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM.
3. THE VERTICAL DATUM FOR THIS PROJECT IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1929 (NGVD29).

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PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

GENERAL NOTES

NO.	REVISIONS	DATE

DRAWN BY: ATD
DESIGNED BY: BB
CHECKED BY: KA
ISSUE DATE: 10/15/2026
BETA JOB NO.: 11433

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

3

\\BETA-INC-COM\RITRANS\11400\11433_TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 GENERAL NOTES.DWG

PORTUGUESE SOCIAL CLUB WAY

NBC TUNNEL EASEMENT

EXIST. SEWER EASEMENT

MEADOW STREET

POND STREET

SCHOOL STREET

WOODLAND STREET

TIM HEALEY WAY

RIVER STREET

RIVER STREET

DIVISION STREET

TAFT STREET

RIVERWALK CONTRACT 2
DRAINAGE BASELINE

RIVERWALK
ACCESS PATH
BASELINE

RIVERWALK
NATURE TRAIL
BASELINE

RIVERWALK BASELINE

DEVELOPMENT ZONE
AREA OF PARTICULAR
CONCERN ZONE

PENNROSE DEVELOPMENT

WOOD DEVELOPMENT

STORMWATER PARK

TIDEWATER WEST DEVELOPMENT

SEEKONK RIVER

1

2

3

\\BETA-INC.COM\RITRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1 STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 KEY PLAN.DWG

10/15/2026 9:06 AM

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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

KEY PLAN

NO.	REVISIONS	DATE

DRAWN BY: ATD

DESIGNED BY: BB

CHECKED BY: KA

ISSUE DATE: 10/15/2026

BETA JOB NO.: 11433

SCALE

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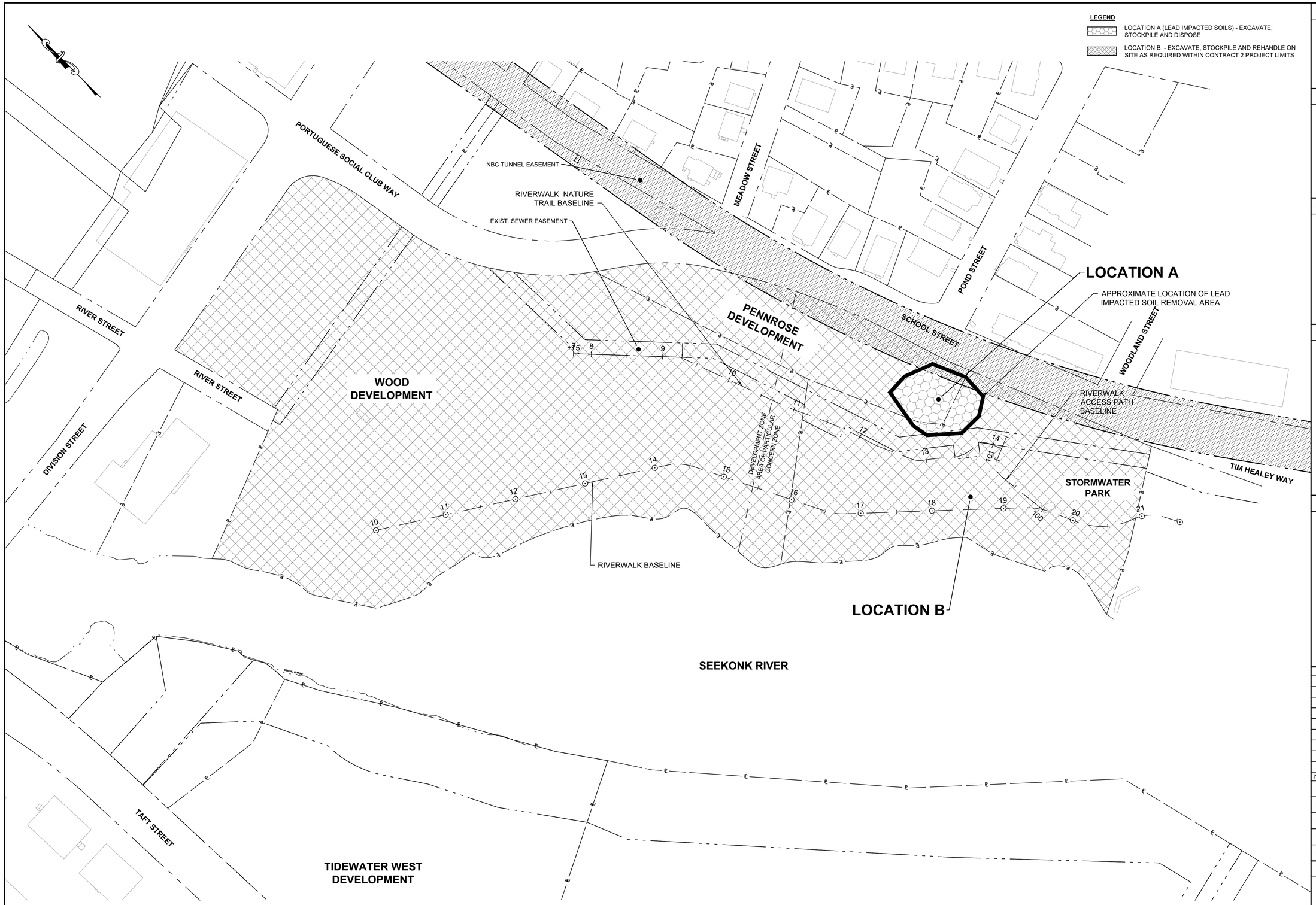
SCALE IN FEET: 1"=60'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

4



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Tidewater Landing Phase 1B Riverwalk East Contract 2

Pawtucket, RI

TITLE

CONTROLLED MATERIALS LOCATION PLAN

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

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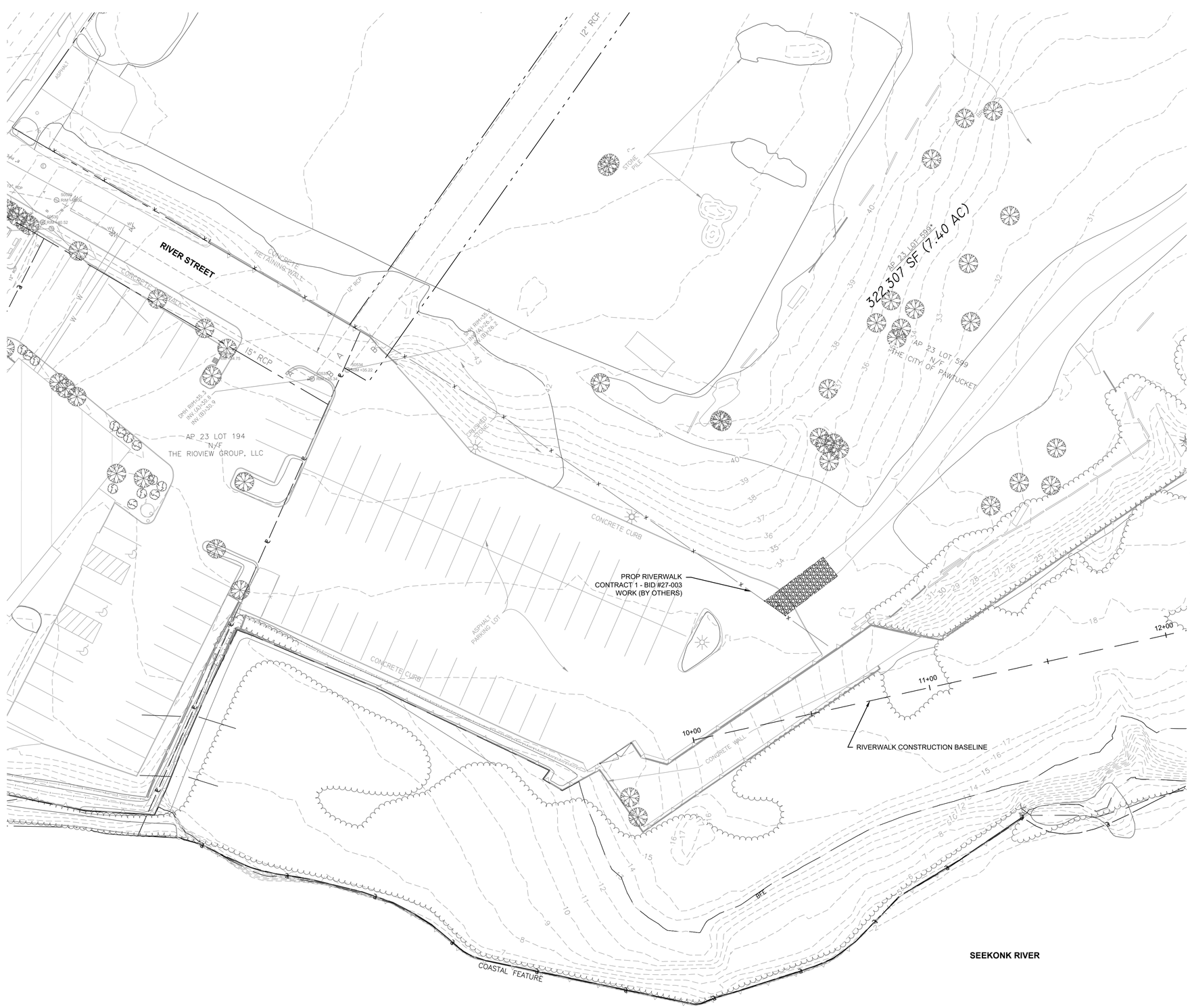
SCALE IN FEET: 1"=60'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

5

10/15/2026 9:07 AM \\BETA-INC.COM\RITRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 CONTROLLED MATERIALS PLAN.DWG



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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

EXISTING CONDITIONS PLAN NO.1

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

20 0 20 40
SCALE IN FEET: 1"=20'

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SHEET NO.

6

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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

EXISTING CONDITIONS
PLAN NO.2

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

20 0 20 40
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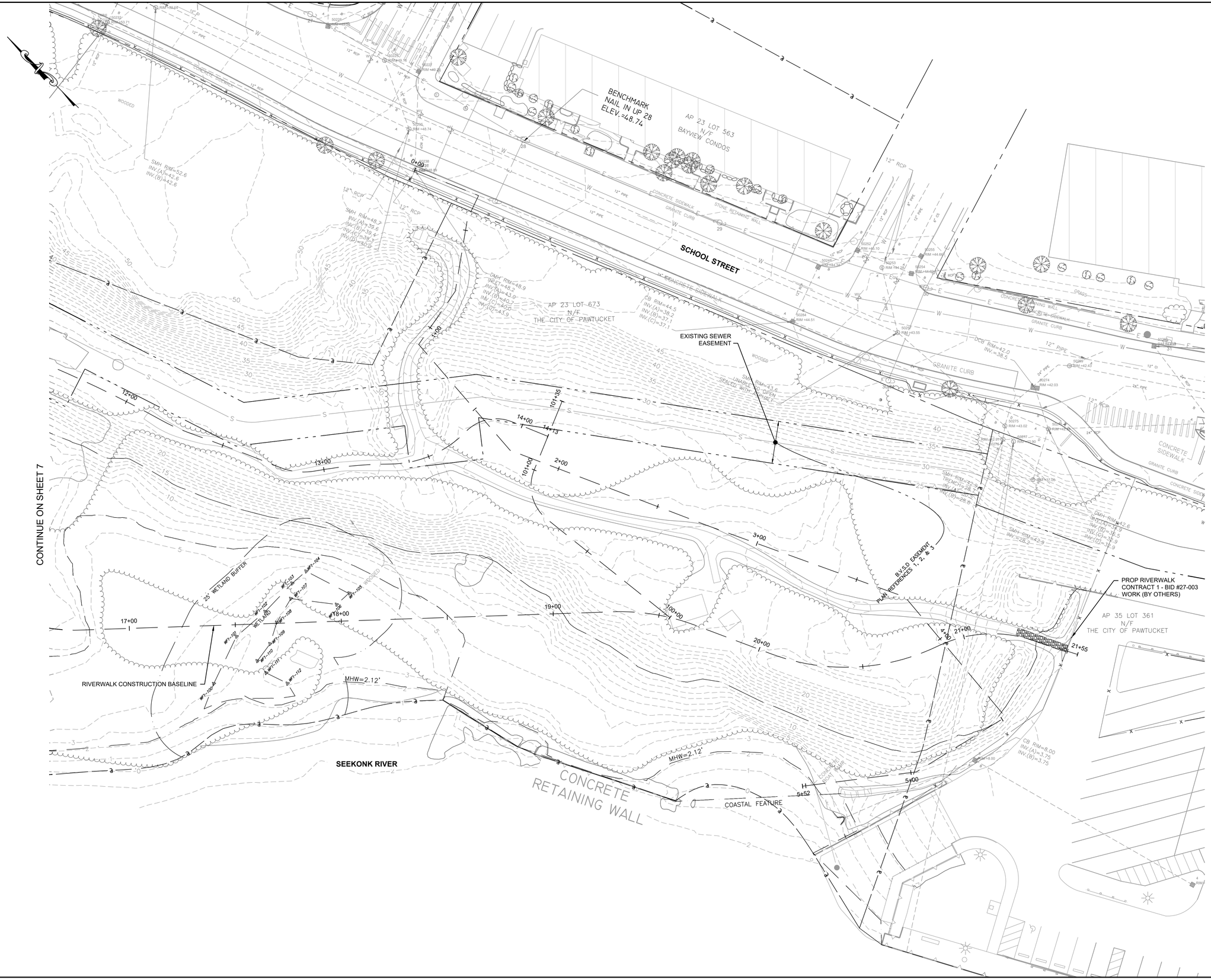
SHEET NO.

7

\\BETA-INC.COM\R\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 EXISTING CONDITIONS PLANS.DWG



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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

EXISTING CONDITIONS PLAN NO.3

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

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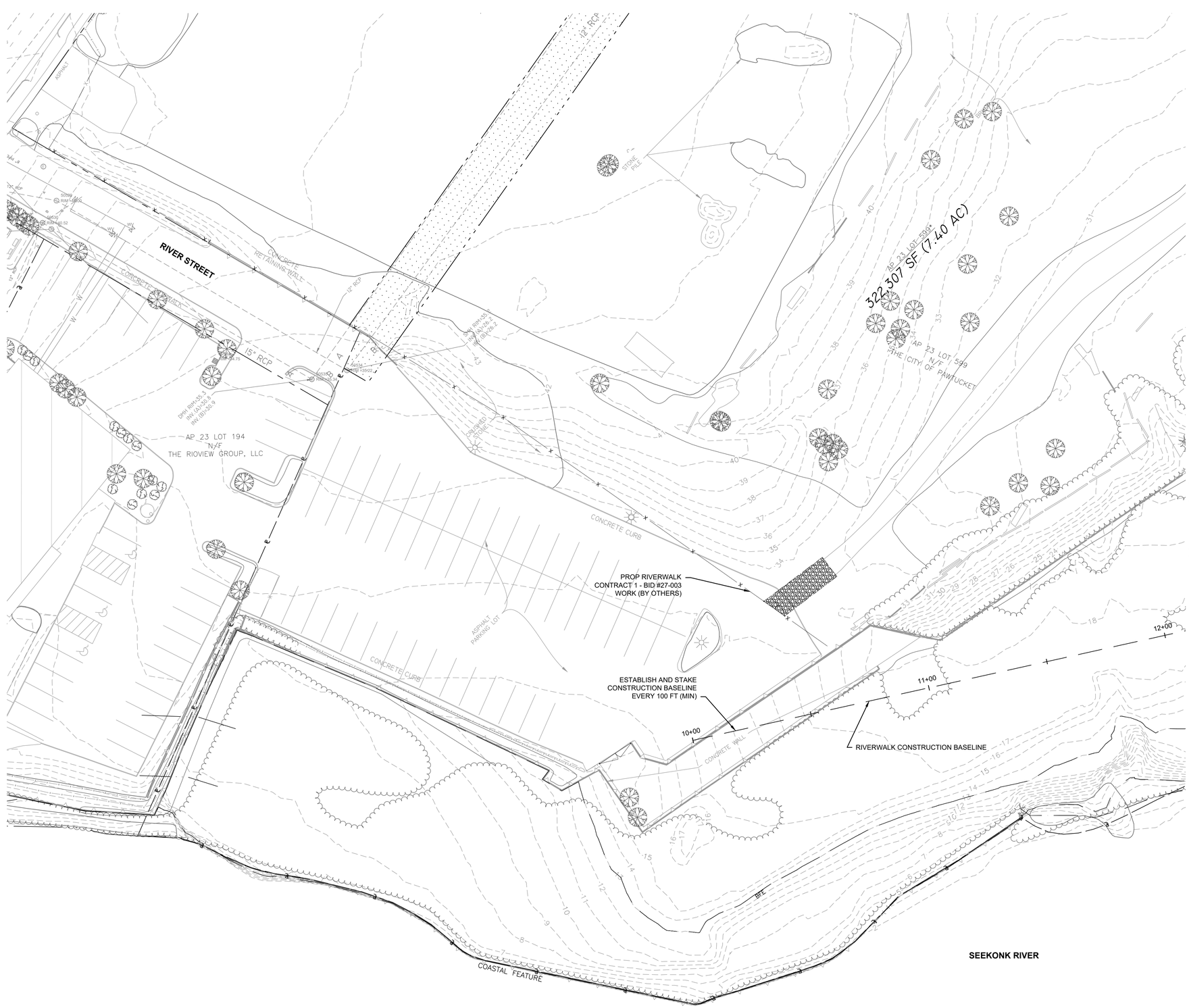
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

8

\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 EXISTING CONDITIONS PLANS.DWG



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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

SITE PREPARATION
PLAN NO.1

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

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SCALE IN FEET: 1"=20'

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SHEET NO.

9

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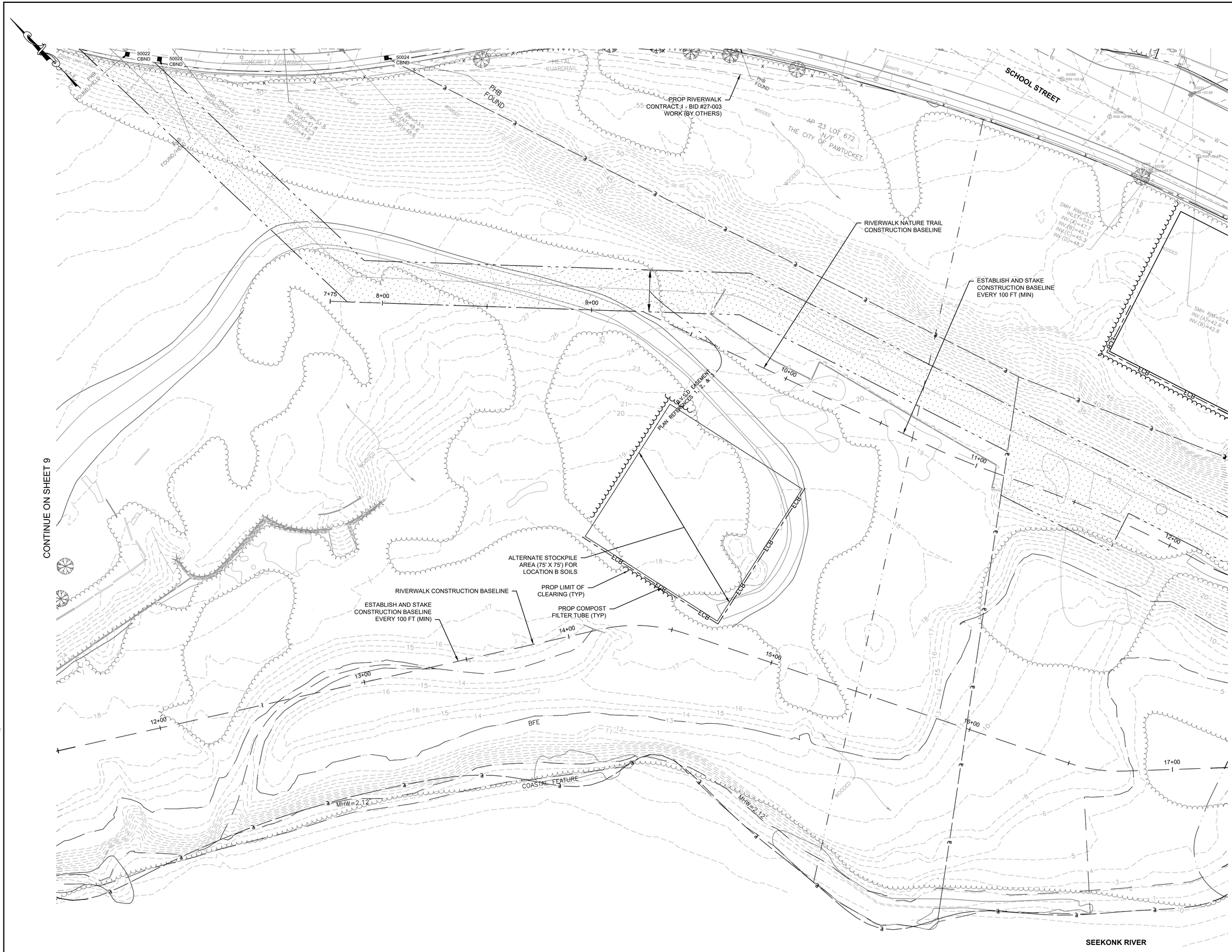

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PROJECT

Tidewater Landing Phase 1B Riverwalk East Contract 2

Pawtucket, RI

TITLE

SITE PREPARATION PLAN NO.2

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

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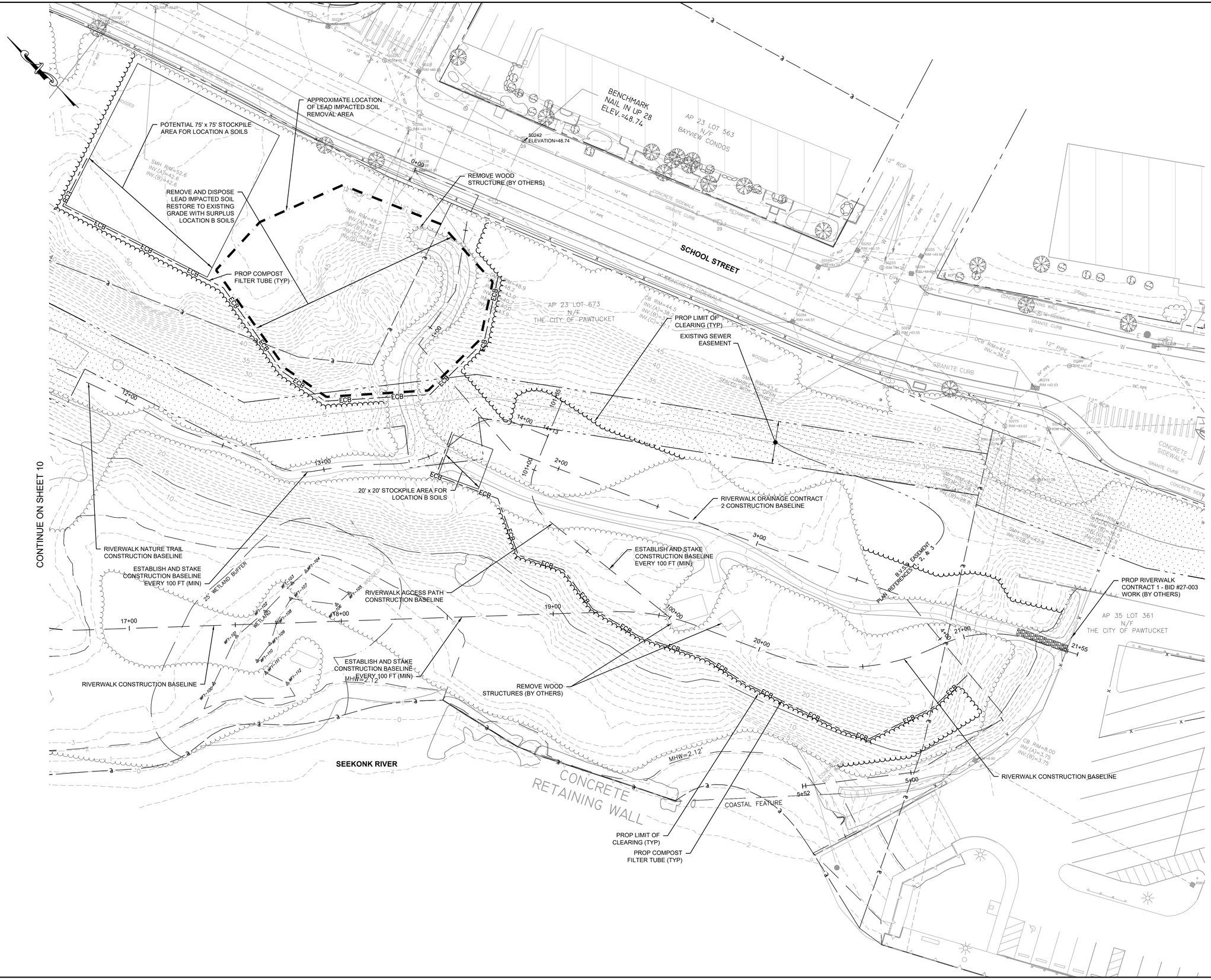
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

10

\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 SITE PREP PLANS.DWG



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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

SITE PREPARATION PLAN NO.3

NO.	REVISIONS	DATE

DRAWN BY:	ATD
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ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

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SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

11

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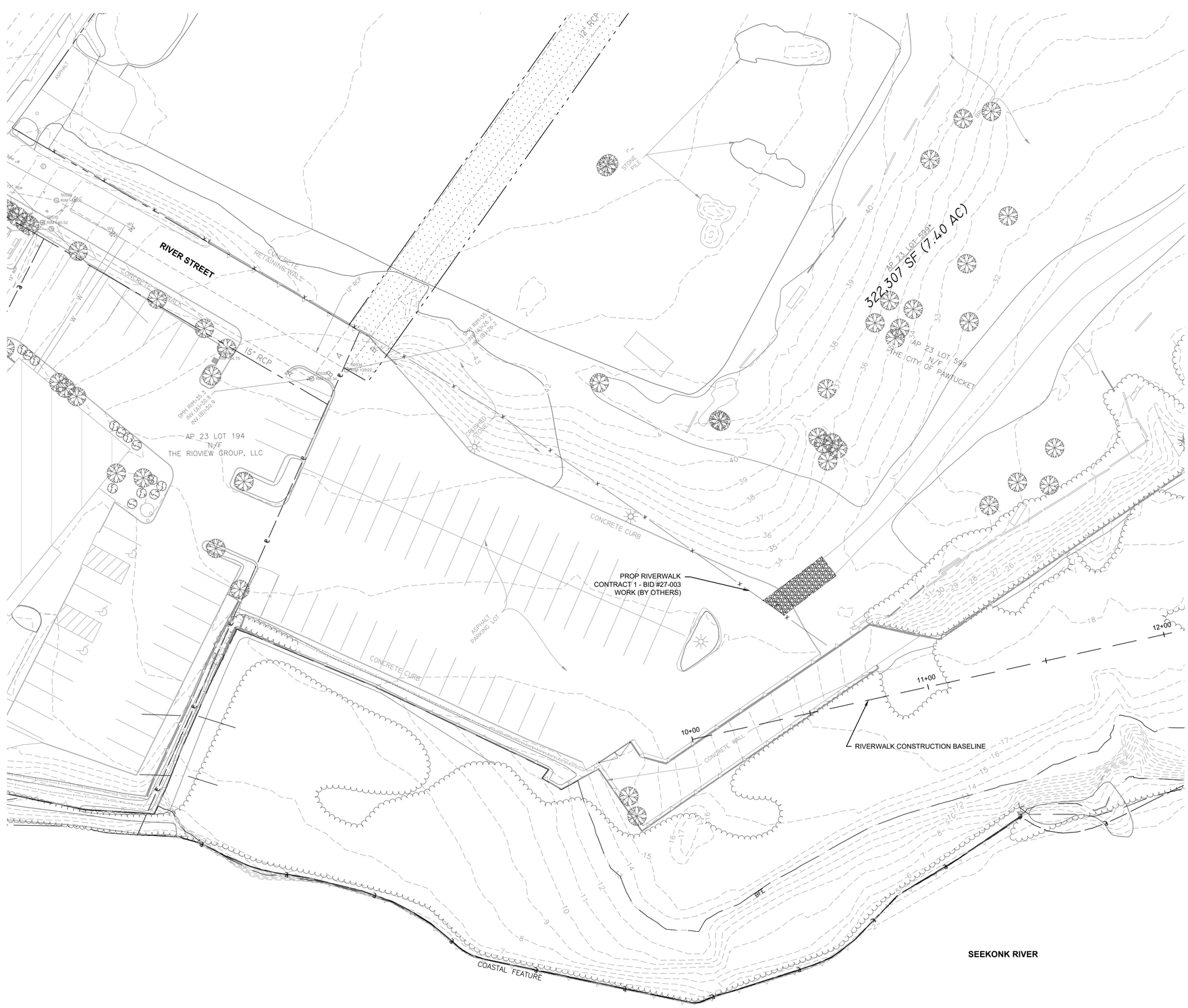

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PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

SITE PLAN NO.1

NO.	REVISIONS	DATE

DRAWN BY:	ATD
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CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

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SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

12

\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 SITE PLANS.DWG

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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

SITE PLAN NO.2

NO.	REVISIONS	DATE

DRAWN BY:	ATD
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BETA JOB NO.:	11433

SCALE

20 0 20 40
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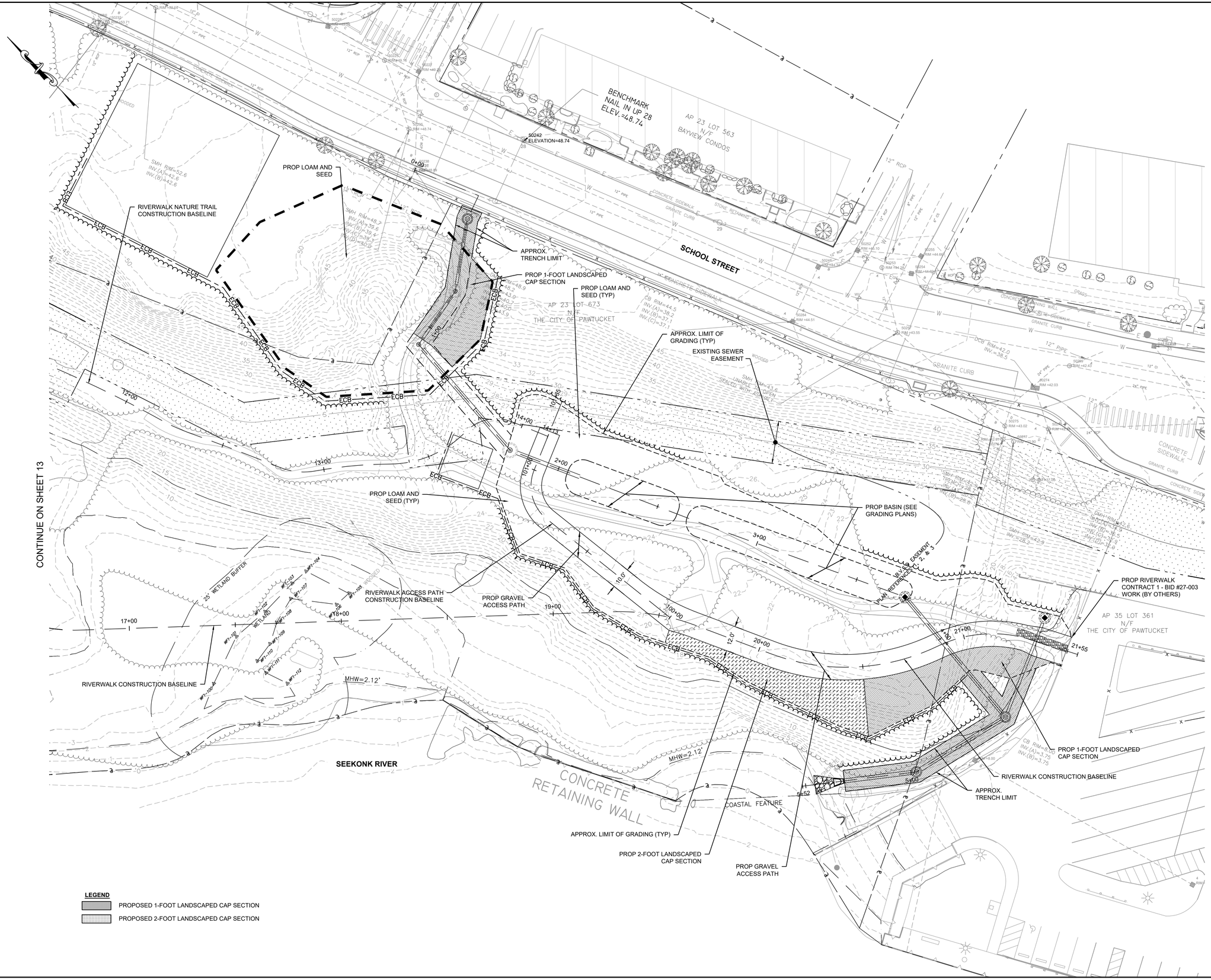
SHEET NO.

13

\\BETA-INC.COM\R\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 SITE PLANS.DWG



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SUBCONSULTANT

PROJECT

Tidewater Landing Phase 1B Riverwalk East Contract 2

Pawtucket, RI

TITLE

SITE PLAN NO.3

NO.	REVISIONS	DATE

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ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

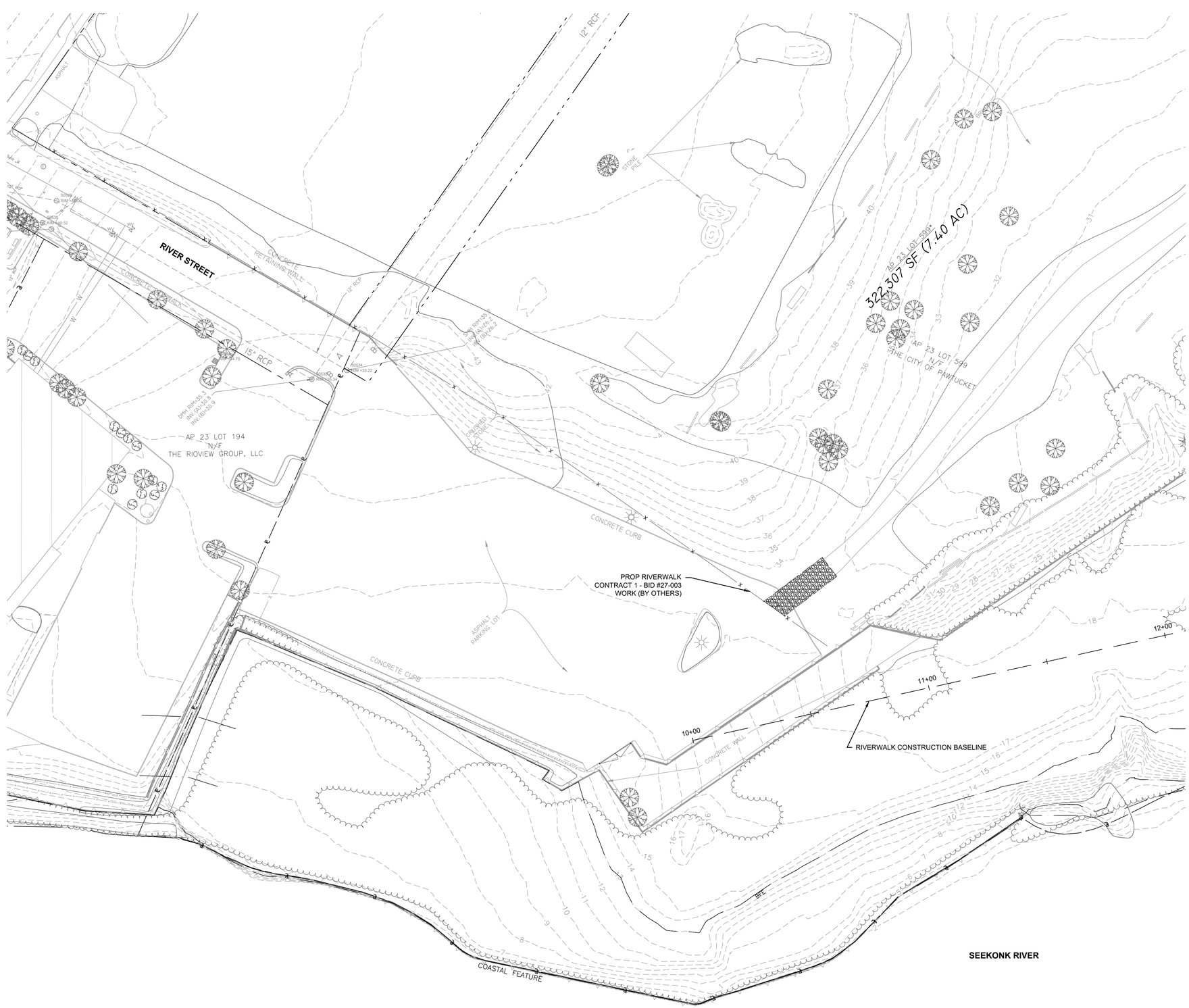
20 0 20 40
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

14

\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 SITE PLANS.DWG



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PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

DRAINAGE AND UTILITY PLAN NO.1

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

20 0 20 40
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

15

\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 DRAINAGE AND UTILITY PLANS.DWG

PREPARED BY

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PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

DRAINAGE AND UTILITY
PLAN NO.2

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

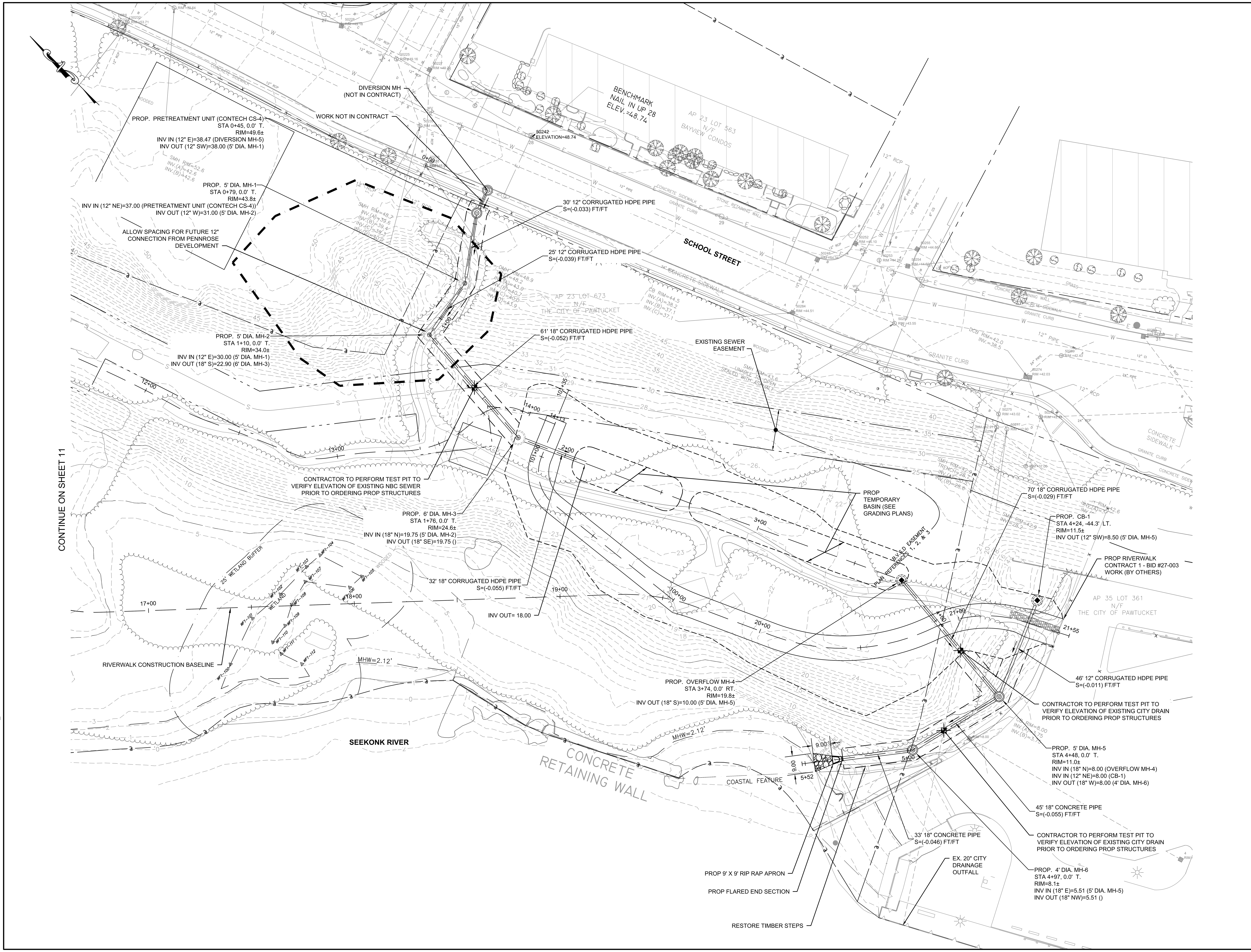
20 0 20 40
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

16

\\BETA-INC.COM\R\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 DRAINAGE AND UTILITY PLANS.DWG



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SUBCONSULTANT

PROJECT

Tidewater Landing Phase 1B Riverwalk East Contract 2

Pawtucket, RI

TITLE

DRAINAGE AND UTILITY PLAN NO.3

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

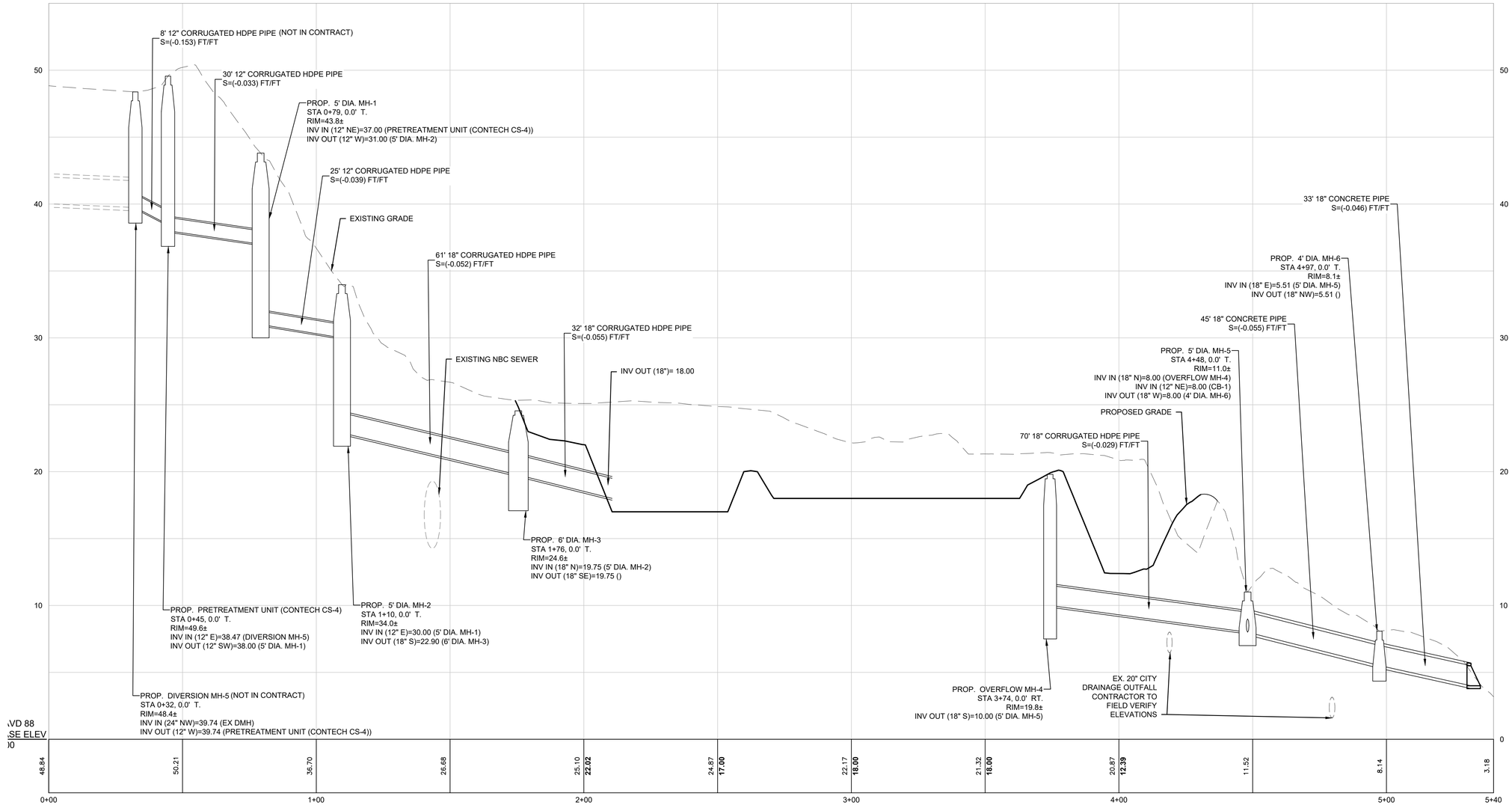
20 0 20 40
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.
17

\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 DRAINAGE AND UTILITY PLANS.DWG

RIVERWALK DRAINAGE CONTRACT 2
STA 0+00 TO STA 5+40.00



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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

DRAINAGE PROFILE
NO. 1

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
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ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

20 0 20 40
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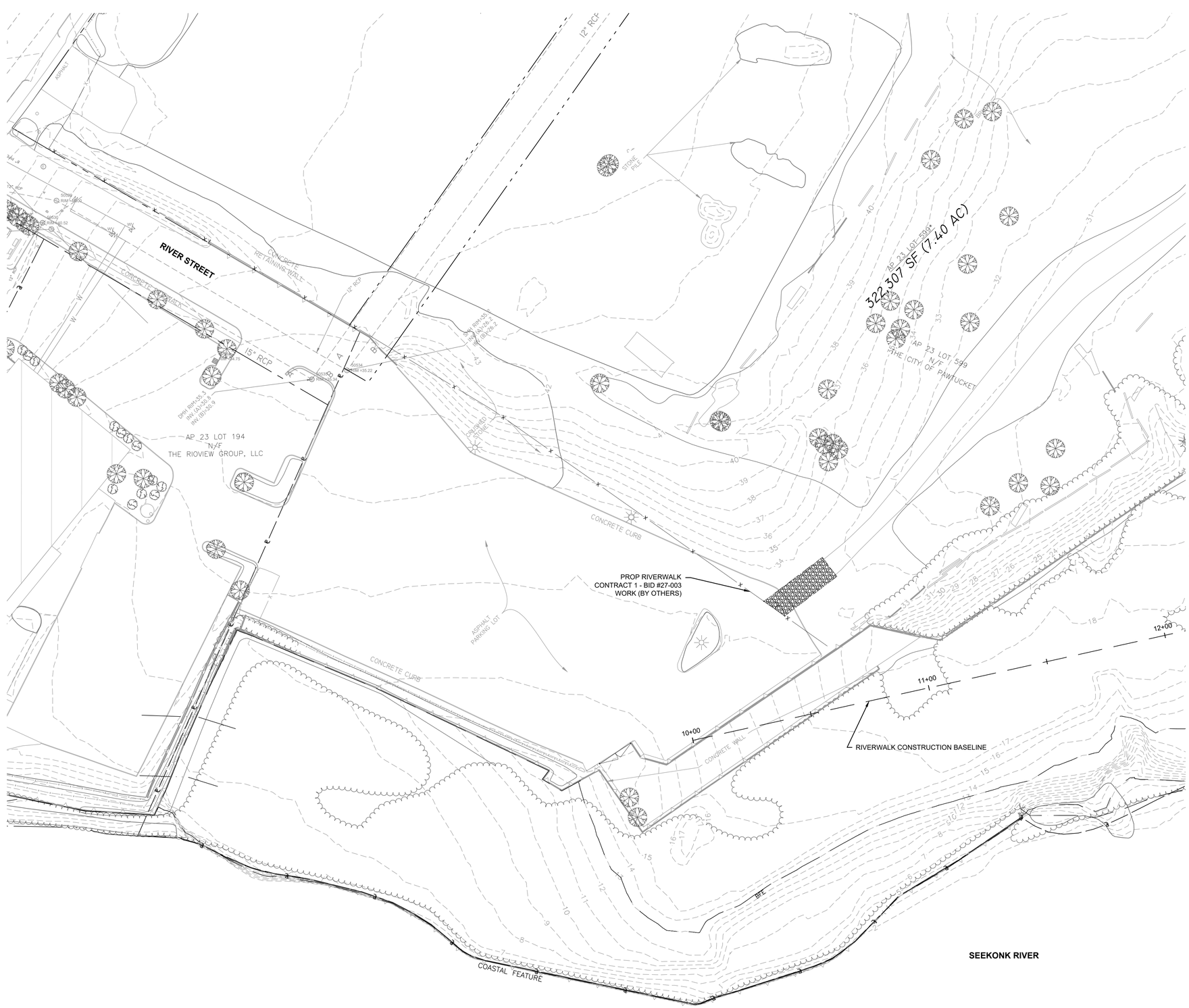
SHEET NO.
18

\\BETA-INC.COM\RITRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 DRAINAGE PROFILES.DWG



\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1_STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 GRADING PLANS.DWG

PREPARED BY

BETA
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REGISTERED PROFESSIONAL

KEVIN M. AGUIAR
No. 6913
REGISTERED
PROFESSIONAL ENGINEER
CIVIL

SUBCONSULTANT

PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

GRADING PLAN NO.1

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

20 0 20 40
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

19

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PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

GRADING PLAN NO.2

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

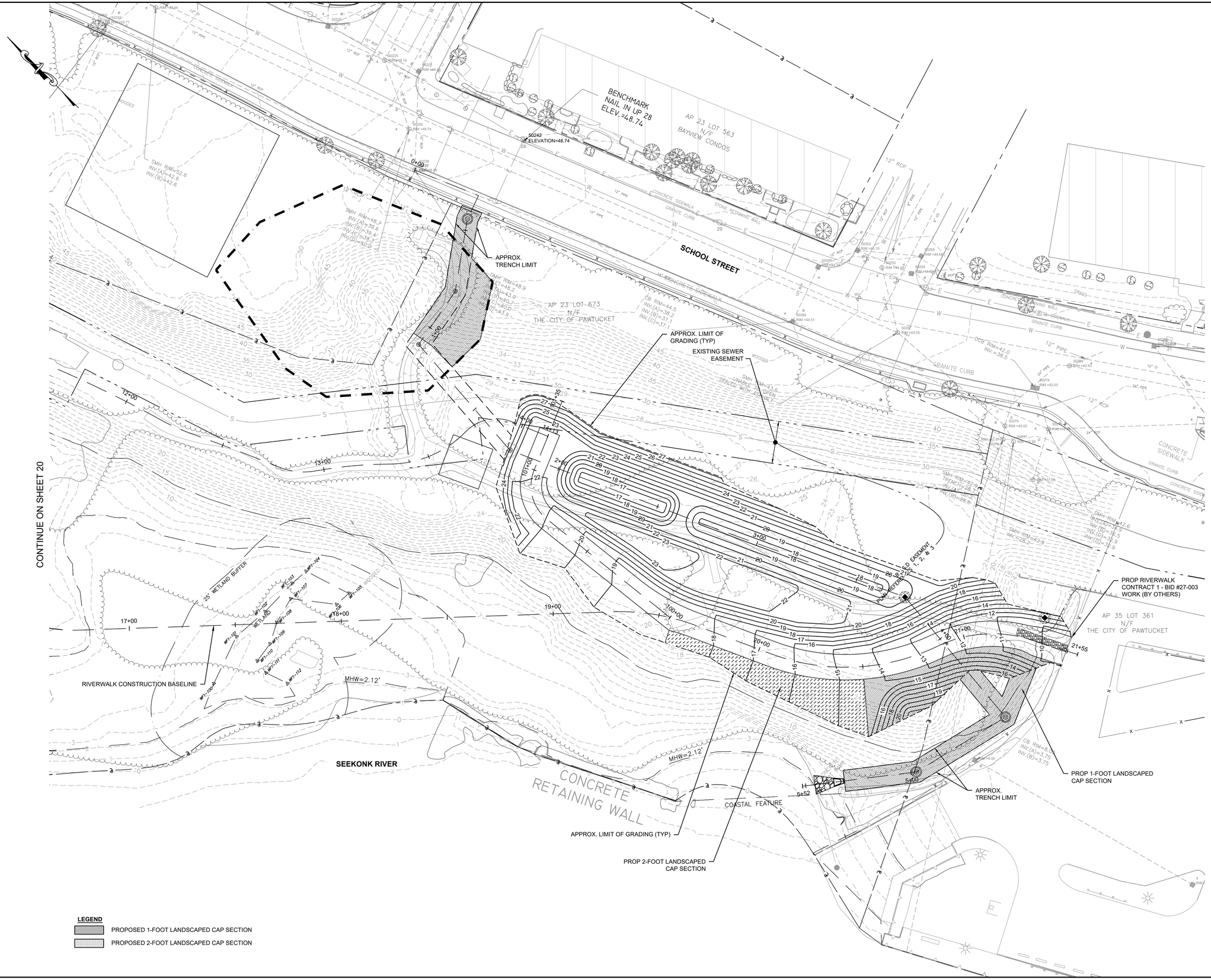
SCALE

20 0 20 40
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

20



LEGEND

- PROPOSED 1-FOOT LANDSCAPED CAP SECTION
- PROPOSED 2-FOOT LANDSCAPED CAP SECTION

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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

GRADING PLAN NO.3

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

20 0 20 40
SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

21

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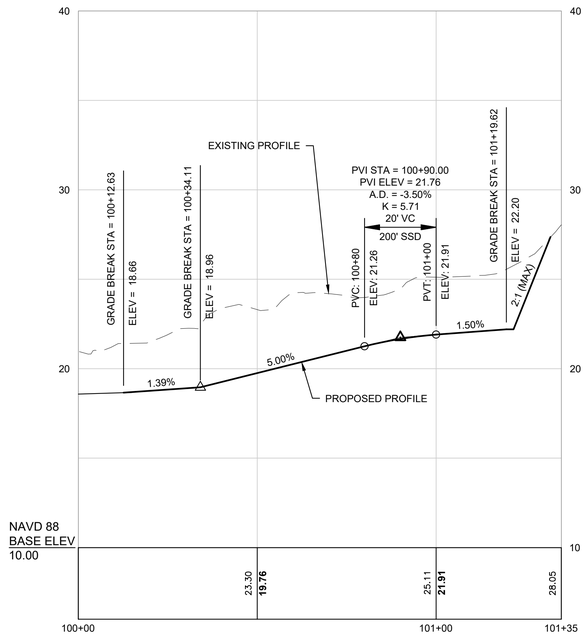
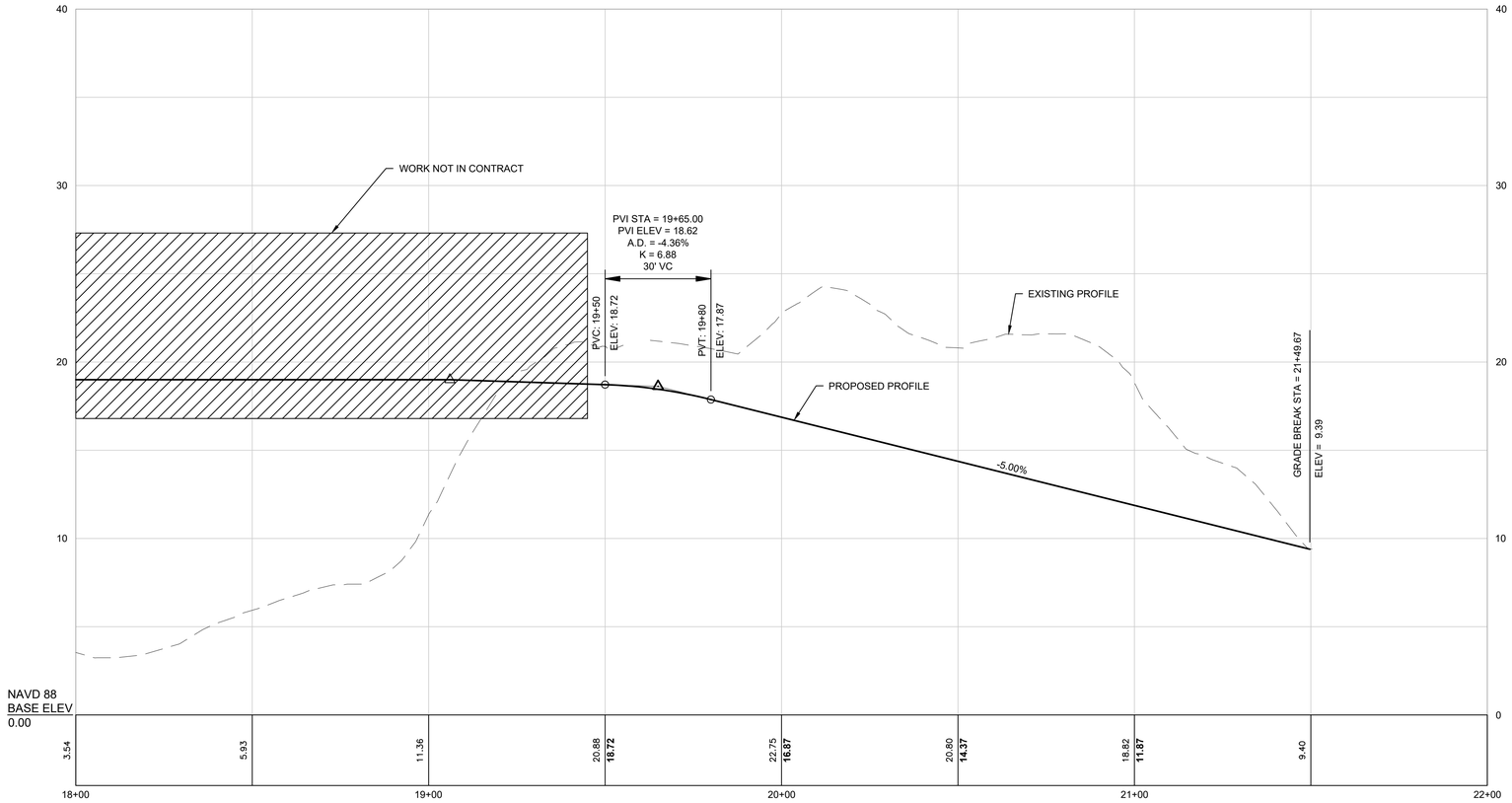


RIVERWALK ACCESS PATH PROFILE



RIVERWALK PROFILE

PREPARED BY

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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

PROFILES

NO.	REVISIONS	DATE

DRAWN BY: ATD
DESIGNED BY: BB
CHECKED BY: KA
ISSUE DATE: 10/15/2026
BETA JOB NO.: 11433

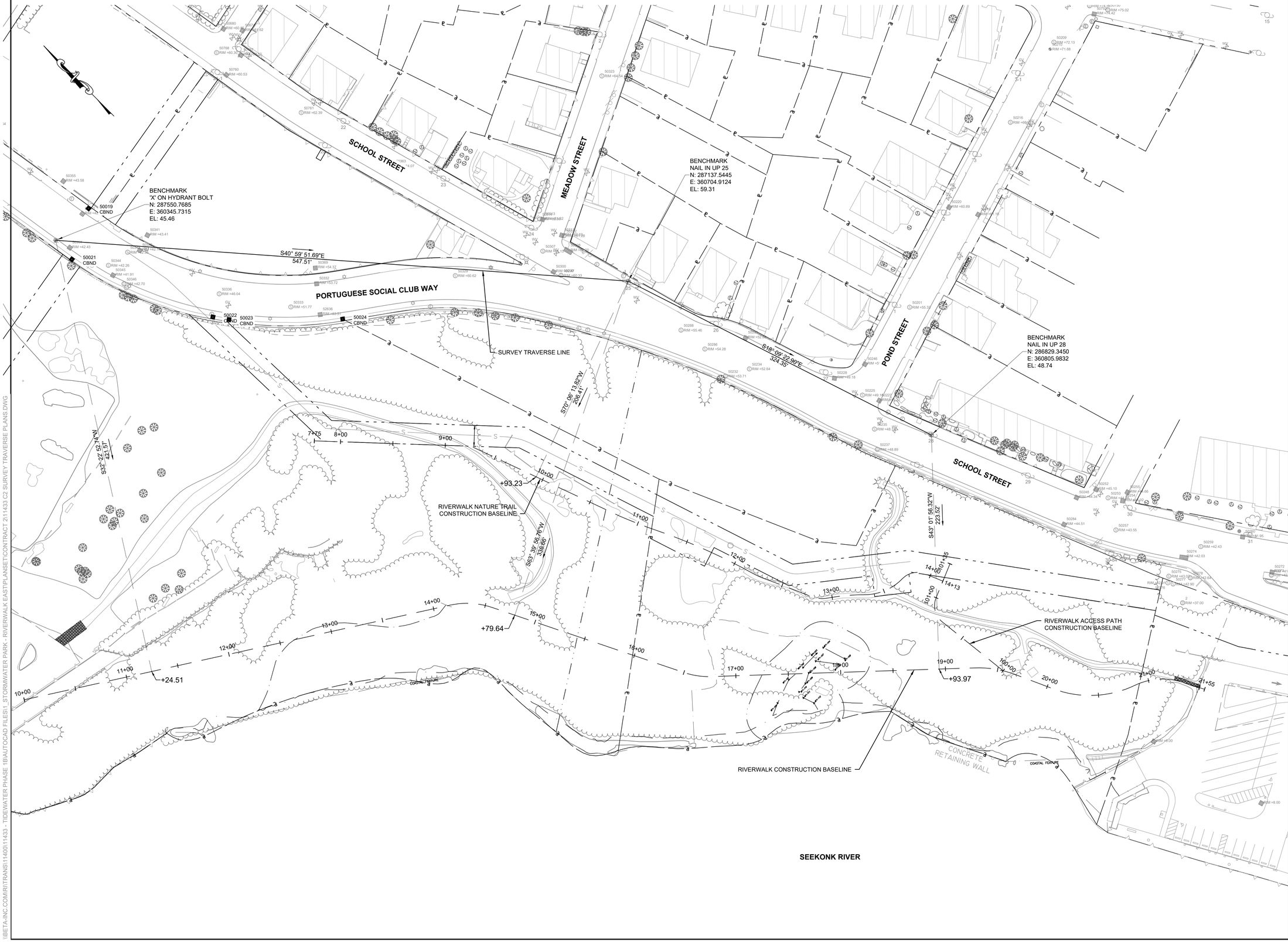
SCALE

HOR. SCALE IN FEET: 1"=20'
20 0 20 40
VER. SCALE IN FEET: 1"=4'
4 0 4 8

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

22



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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

SURVEY TRAVERSE PLAN

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

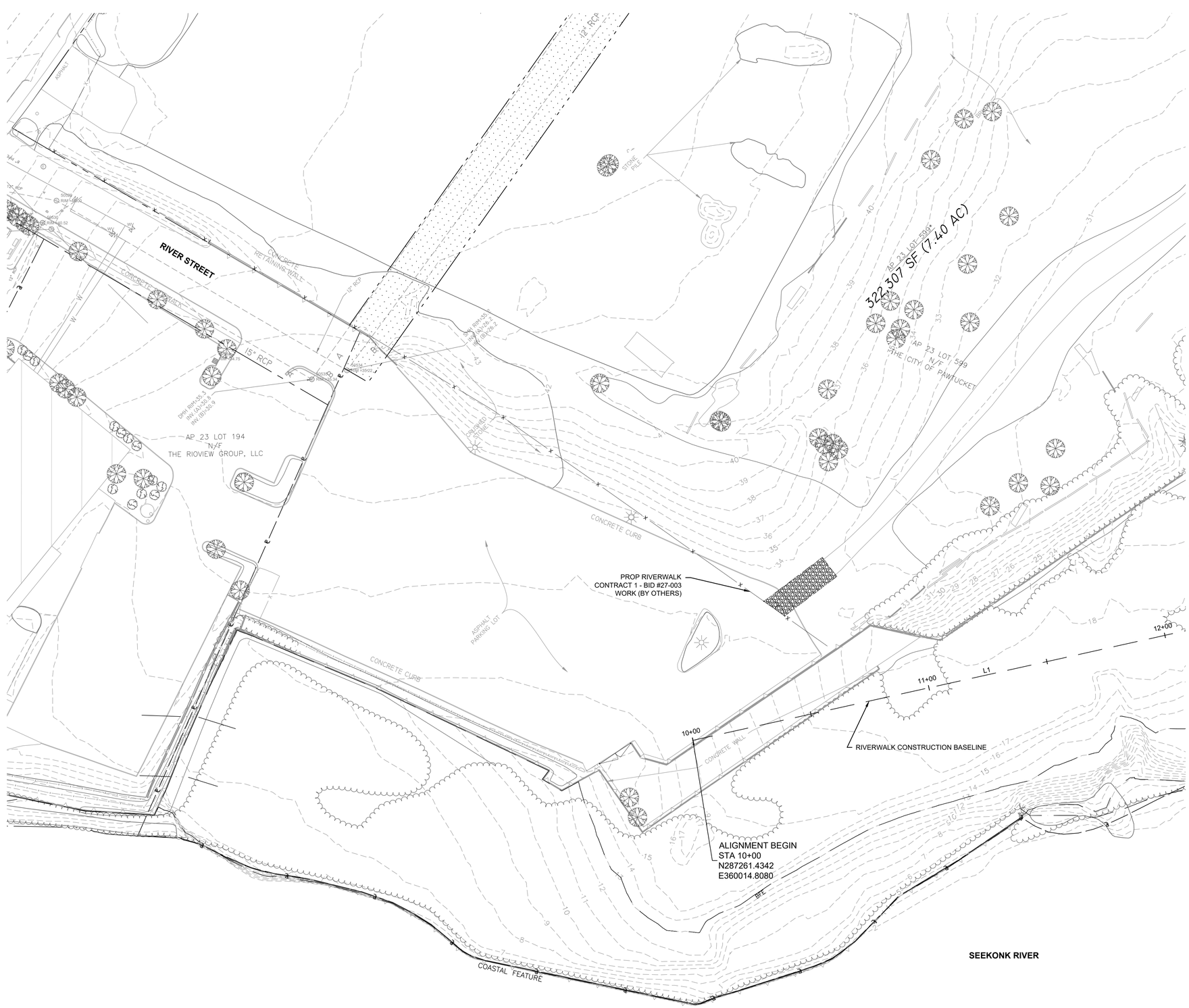
40 0 40 80
SCALE IN FEET: 1"=40'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

23

\\BETA-INC.COM\RI\TRANS\11400\11433 - TIDEWATER PHASE 1B\AUTOCAD FILES\1 - STORMWATER PARK - RIVERWALK EAST\PLANSET\CONTRACT 2\11433 C2 SURVEY TRAVERSE PLANS.DWG



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Phase 1B
Riverwalk East
Contract 2

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TITLE

LAYOUT PLAN NO.1

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

20 0 20 40
SCALE IN FEET: 1"=20'

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SHEET NO.

24

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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

LAYOUT PLAN NO.2

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

20 0 20 40
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SHEET NO.

25

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BENCHMARK
NAIL IN UP 28
N: 286829.3450
E: 360805.9832
EL: 48.74

ALIGNMENT BEGIN
STA 0+00
N286856.0293
E360759.7757

RIVERWALK DRAINAGE
CONTRACT 2
CONSTRUCTION BASELINE

RIVERWALK NATURE TRAIL
CONSTRUCTION BASELINE

ALIGNMENT END
STA 101+35
N286729.7992
E360731.7646

SCHOOL STREET

AP 23 LOT 563
N/F
BAYVIEW CONDOS

AP 23 LOT 673
N/F
THE CITY OF PAWTUCKET

13+81.57 RIVERWALK NATURE TRAIL=
1+56.96 RIVERWALK DRAINAGE CONTRACT 2

101+04.63 RIVERWALK ACCESS PATH=
1+89.58 RIVERWALK DRAINAGE CONTRACT 2

EXISTING SEWER
EASEMENT

ALIGNMENT END
STA 14+13.12
N286722.8469
E360715.2873

14+13.12 RIVERWALK NATURE TRAIL=
101+17.12 RIVERWALK ACCESS PATH

CONTINUE ON SHEET 25

20+89.98 RIVERWALK=
4+02.77 RIVERWALK DRAINAGE CONTRACT 2

PROP RIVERWALK
CONTRACT 1 - BID #27-003
WORK (BY OTHERS)

AP 35 LOT 361
N/F
THE CITY OF PAWTUCKET

ALIGNMENT END
STA 21+55
N286473.4619
E360819.1359

RIVERWALK ACCESS PATH
CONSTRUCTION BASELINE

PROP GRAVEL
ACCESS PATH

ALIGNMENT BEGIN
STA 100+00
N286621.6918
E360695.5577

RIVERWALK CONSTRUCTION BASELINE

100+00 RIVERWALK ACCESS PATH=
19+55.28 RIVERWALK

RIVERWALK CONSTRUCTION BASELINE

SEEKONK RIVER

CONCRETE
RETAINING WALL

COASTAL FEATURE

ALIGNMENT END
STA 5+41.61
N286515.1430
E360691.3297

25' WETLAND BUFFER

WETLAND

MHW=2.12'

MHW=2.12'

PI 4+97.4

PI 2+75.6

PI 1+75.5

PI 1+09.6

PI 0+70.2

PI 0+32.4

PI 0+14.8

PRC 20+86.6

PRC 13+71.2

PRC 13+31.3

PRC 12+95.9

PRC 12+78.0

PRC 12+18.7

PRC 12+03.0

PT 13+95.0

PT 19+67.7

PT 21+32.0

PT 100+99.9

PC 19+28.3

PC 20+05.7

PC 100+74.3

PI 3+74.3

PI 4+48.1

PI 5+52

PI 100+19

PI 101+35

PI 100+49

PI 14+13

PI 14+00

PI 13+00

PI 12+00

PI 19+00

PI 16+00

PI 17+00

PT 16+76.8

PI 2+00

PI 3+00

PI 5+00

PI 21+00

21+55

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11 L12 L13 L14 L15 L16 L17 L18 L19 L20 L21 L22 L23 L24 L25

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15

SMH RIM=52.6
INV.(A)=42.6
INV.(B)=42.6

SMH RIM=48.9
INV.(A)=39.4
INV.(B)=39.3
INV.(D)=39.0

SMH RIM=48.9
INV.(A)=43.9
INV.(C)=40.0
INV.(D)=43.9

DMH RIM=48.9
INV.(A)=43.9
INV.(B)=40.3
INV.(C)=40.0
INV.(D)=43.9

DB RIM=44.5
INV.(A)=38.2
INV.(B)=37.7
INV.(C)=37.1

DCB RIM=42.0
INV.=38.5

CB RIM=8.00
INV.(A)=3.75
INV.(B)=3.75

SMH RIM=42.9
INV.(A)=38.2
INV.(B)=38.1
INV.(C)=37.9

SMH RIM=42.9
INV.(A)=38.2
INV.(B)=38.1
INV.(C)=37.9

SMH RIM=42.9
INV.(A)=38.2
INV.(B)=38.1
INV.(C)=37.9

DMH RIM=42.6
INV.(A)=38.5
INV.(B)=38.4
INV.(C)=38.2

DMH RIM=42.6
INV.(A)=38.5
INV.(B)=38.4
INV.(C)=38.2

IRON PIN FOUND
REFERENCE 1, 2, & 3

WETLAND FLAG #WF1-101 THROUGH #WF1-112

WOODED

GRANITE CURB

CONCRETE SIDEWALK

STONE RETAINING WALL

GRASS

12" RCP

12" PIPE

24" PIPE

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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

LAYOUT PLAN NO.3

NO.	REVISIONS	DATE

DRAWN BY: ATD
DESIGNED BY: BB
CHECKED BY: KA
ISSUE DATE: 10/15/2026
BETA JOB NO.: 11433

SCALE

20 0 20 40
SCALE IN FEET: 1"=20'

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SHEET NO.

26

RIVERWALK CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	287261.4342	360014.8080		S57°37'07"E 415.88'	14+15.88	287038.7111	360366.0165
C1	14+15.88	287038.7111	360366.0165	R=75.00' Δ=31°17'04" L=40.95' T=21.00'		14+56.83	287008.6439	360393.0668
L2	14+56.83	287008.6439	360393.0668		S26°20'03"E 192.96'	16+49.78	286835.7130	360478.6631
C2	16+49.78	286835.7130	360478.6631	R=75.00' Δ=20°38'00" L=27.01' T=13.65'		16+76.79	286814.1609	360494.6989
L3	16+76.79	286814.1609	360494.6989		S46°58'04"E 251.50'	19+28.29	286642.5350	360678.5372
C3	19+28.29	286642.5350	360678.5372	R=100.00' Δ=22°36'26" L=39.46' T=19.99'		19+67.75	286610.6856	360701.3930
L4	19+67.75	286610.6856	360701.3930		S24°21'37"E 38.00'	20+05.75	286576.0702	360717.0664
C4	20+05.75	286576.0702	360717.0664	R=100.00' Δ=46°20'12" L=80.87' T=42.79'		20+86.62	286522.9392	360775.1072
C5	20+86.62	286522.9392	360775.1072	R=60.00' Δ=43°19'34" L=45.37' T=23.83'		21+31.99	286493.8971	360808.5565
L5	21+31.99	286493.8971	360808.5565		S27°22'15"E 23.01'	21+55.00	286473.4619	360819.1359

RIVERWALK ACCESS PATH CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L10	100+00.00	286621.6918	360695.5577		N6°20'07"W 74.30'	100+74.30	286695.5358	360687.3591
C14	100+74.30	286695.5358	360687.3591	R=20.00' Δ=73°27'32" L=25.64' T=14.92'		100+99.94	286716.1697	360699.4621
L11	100+99.94	286716.1697	360699.4621		N67°07'25"E 35.06'	101+35.00	286729.7992	360731.7646

RIVERWALK NATURE TRAIL CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L8	7+75.00	287241.0471	360385.2385		S43°06'47"E 149.57'	9+24.57	287131.8607	360487.4601
L9	9+24.57	287131.8607	360487.4601		S19°53'46"E 157.55'	10+82.12	286983.7177	360541.0759
C6	10+82.12	286983.7177	360541.0759	R=500.00' Δ=4°17'01" L=37.38' T=18.70'		11+19.50	286949.5533	360556.2273
C7	11+19.50	286949.5533	360556.2273	R=567.00' Δ=10°01'41" L=99.24' T=49.75'		12+18.74	286857.0521	360591.8174
C8	12+18.74	286857.0521	360591.8174	R=90.00' Δ=9°03'35" L=14.23' T=7.13'		12+32.97	286843.7414	360596.8100
C9	12+32.97	286843.7414	360596.8100	R=1404.00' Δ=1°52'49" L=46.07' T=23.04'		12+79.04	286801.7014	360615.6594
C10	12+79.04	286801.7014	360615.6594	R=30.00' Δ=32°10'01" L=16.84' T=8.65'		12+95.88	286788.8372	360626.1861
C11	12+95.88	286788.8372	360626.1861	R=200.00' Δ=10°08'11" L=35.38' T=17.74'		13+31.27	286766.2696	360653.3773
C12	13+31.27	286766.2696	360653.3773	R=50.00' Δ=45°45'45" L=39.94' T=21.10'		13+71.20	286751.7807	360689.4591
C13	13+71.20	286751.7807	360689.4591	R=20.00' Δ=68°07'35" L=23.78' T=13.52'		13+94.98	286739.5587	360708.2360
L7	13+94.98	286739.5587	360708.2360		S22°52'35"E 18.14'	14+13.12	286722.8469	360715.2873

RIVERWALK DRAINAGE CONTRACT 2 CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L16	0+00.00	286856.0293	360759.7757		S23°08'36"E 32.37'	0+32.37	286826.2672	360772.4970
L17	0+32.37	286826.2672	360772.4970		S70°26'00"W 12.20'	0+44.56	286822.1823	360761.0042
L18	0+44.56	286822.1823	360761.0042		S54°33'54"W 34.64'	0+79.21	286802.0974	360732.7787
L19	0+79.21	286802.0974	360732.7787		S79°30'33"W 30.40'	1+09.60	286796.5630	360702.8910
L20	1+09.60	286796.5630	360702.8910		S4°12'57"W 65.92'	1+75.52	286730.8229	360698.0450
L21	1+75.52	286730.8229	360698.0450		S24°06'11"E 100.11'	2+75.63	286639.4381	360738.9292
L22	2+75.63	286639.4381	360738.9292		S25°06'46"E 98.63'	3+74.27	286550.1277	360780.7894
L23	3+74.27	286550.1277	360780.7894		S5°06'47"W 73.83'	4+48.10	286476.5935	360774.2096
L24	4+48.10	286476.5935	360774.2096		N76°36'08"W 49.27'	4+97.36	286488.0094	360726.2821
L25	4+97.36	286488.0094	360726.2821		N52°10'40"W 54.16'	5+51.53	286521.2223	360683.4984

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Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

BASELINE DATA SHEET

NO.	REVISIONS	DATE

DRAWN BY: ATD
DESIGNED BY: BB
CHECKED BY: KA
ISSUE DATE: 10/15/2026
BETA JOB NO.: 11433

SCALE

20 0 20 40
SCALE IN FEET: 1"=20'

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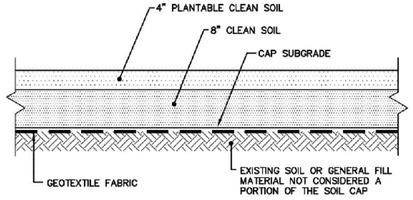
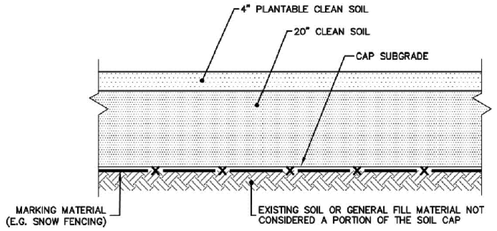
SHEET NO.

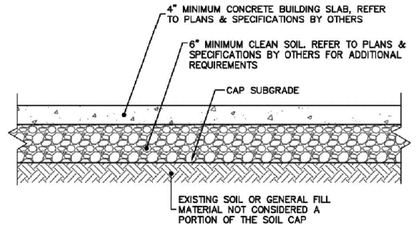
27



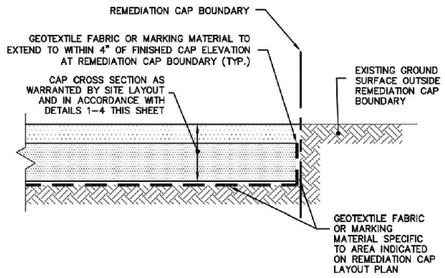
TYPICAL 1-FOOT LANDSCAPED CAP SECTION AT AREAS WITH GRASS SURFACE COVER
NOT TO SCALE



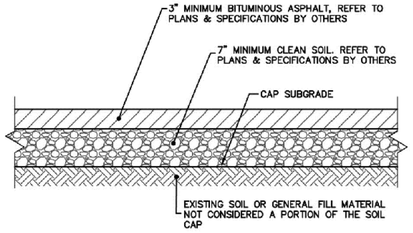
TYPICAL 2-FOOT LANDSCAPED CAP SECTION AT AREAS WITH GRASS SURFACE COVER
NOT TO SCALE



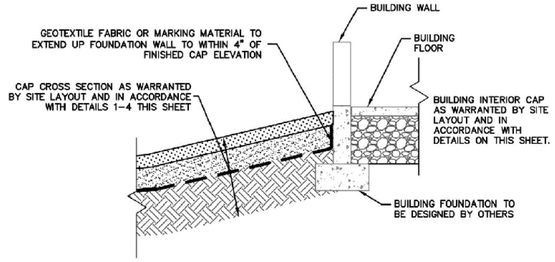
TYPICAL CONCRETE SLAB CAP SECTION
NOT TO SCALE



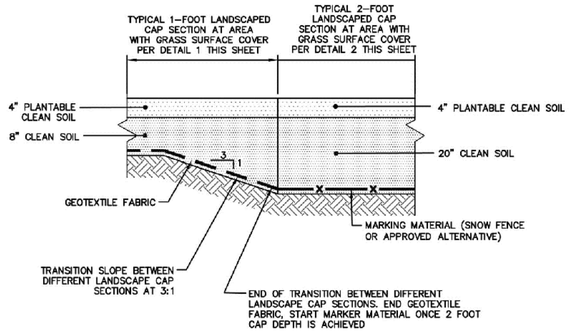
TYPICAL BOUNDARY AND CAP TERMINATION
NOT TO SCALE



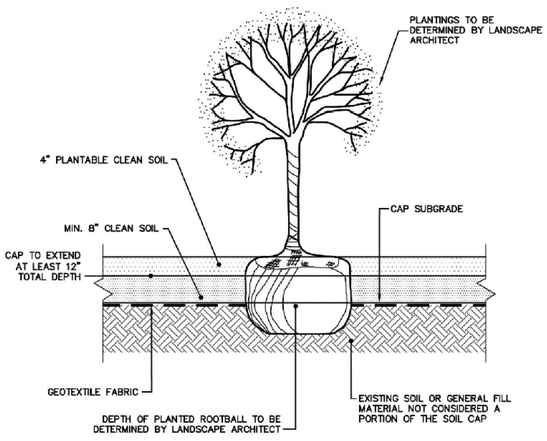
TYPICAL CAP SECTION AT PAVED ACCESS AND PARKING AREAS
NOT TO SCALE



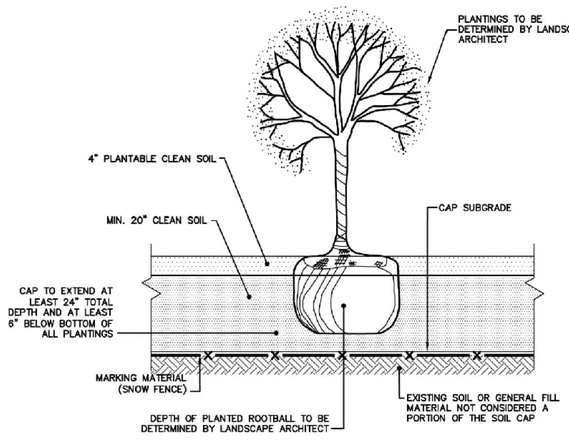
TYPICAL CAP END DETAIL AT BUILDINGS
NOT TO SCALE



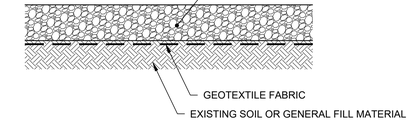
TYPICAL TRANSITION BETWEEN 1-FOOT & 2-FOOT LANDSCAPED CAP SECTIONS AT AREAS WITH GRASS SURFACE COVER
NOT TO SCALE



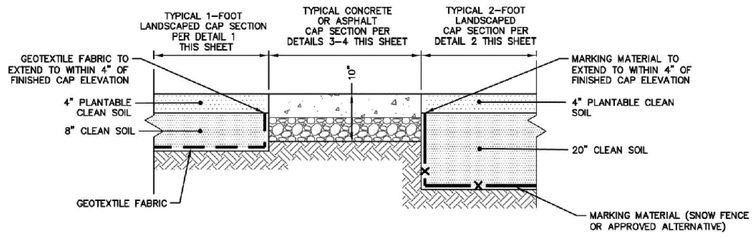
TYPICAL CAP SECTION AT PROPOSED PLANTING (1-FOOT CAP)
NOT TO SCALE



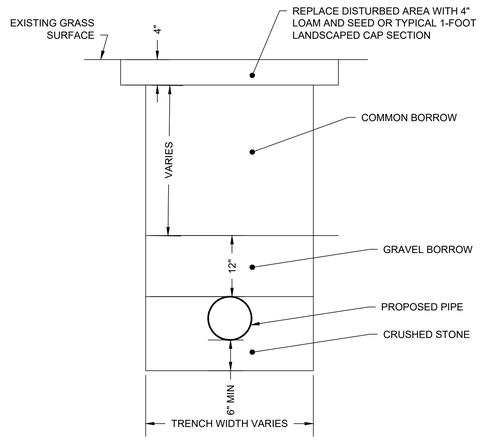
TYPICAL CAP SECTION AT PROPOSED PLANTING (2-FOOT CAP)
NOT TO SCALE



TYPICAL GRAVEL ACCESS PATH SECTION
NOT TO SCALE



TYPICAL TRANSITIONS FROM ASPHALT OR CONCRETE TO LANDSCAPED (1-FOOT & 2-FOOT) CAPS
NOT TO SCALE



TYPICAL TRENCH UNDER GRASS AREAS
NOT TO SCALE

GENERAL CAP CONSTRUCTION NOTES:

1. DETAILS ARE NOT TO SCALE AND ARE FOR INFORMATION ONLY. DIMENSIONS NOT SPECIFIED HEREIN WILL VARY BY APPLICATION. ALL CAP DETAILS WERE OBTAINED FROM THE I-195 REDEVELOPMENT DISTRICT COMMISSION.
2. CROSS-SECTION THICKNESS AS DEPICTED IS THE MINIMUM ALLOWABLE THICKNESS FOR EACH RELEVANT SECTION. THE ACTUAL INSTALLED THICKNESS MAY BE GREATER DEPENDING ON SITE CIVIL ENGINEERING REQUIREMENTS. REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. VAPOR BARRIER DETAILS, WHERE REQUIRED, ARE BASED ON TYPICAL PRACTICE. VAPOR BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURE'S INSTRUCTION, AND TO THE SPECIFICATIONS DEPICTED HEREON WHERE THESE INSTRUCTIONS ARE MORE CONSERVATIVE. IN THE EVENT OF A DISCREPANCY IN PRACTICE BETWEEN THESE SPECIFICATIONS AND THE MANUFACTURE'S INSTRUCTIONS SHALL SUPERSEDE THESE DETAILS.
4. ALL EARTHEN CAP MATERIALS SHALL COMPLY WITH THE CLEAN SOIL ANALYTICAL TESTING REQUIRED PER RIDEM RULES AND REGULATIONS FOR INVESTIGATION & REMEDIATION OF HAZARDOUS MATERIALS RELEASE (REMEDIATION REGULATIONS).
5. ADDITIONAL QUALITY ASSURANCE TESTING MAY BE REQUIRED BY SITE PLANS & SPECIFICATIONS.
6. ALL FINISH GRADE FOR CAP SYSTEM SHALL BE AS SHOWN ON CONSTRUCTION PLANS & SPECIFICATIONS WITH INDICATED CAP THICKNESS AND GEOTEXTILE FABRIC OR MARKING MATERIAL AS SHOWN ON DETAILS ON THIS SHEET.
7. NOT ALL CAP DETAILS ARE APPLICABLE TO CONTRACT. CAP DETAILS TO BE USED AS DIRECTED BY PLANS.

PREPARED BY

BETA
www.BETA-Inc.com

REGISTERED PROFESSIONAL

KEVIN M. AGUIAR
No. 6913
REGISTERED PROFESSIONAL ENGINEER
CIVIL

SUBCONSULTANT

PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

DETAILS
NO. 1

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

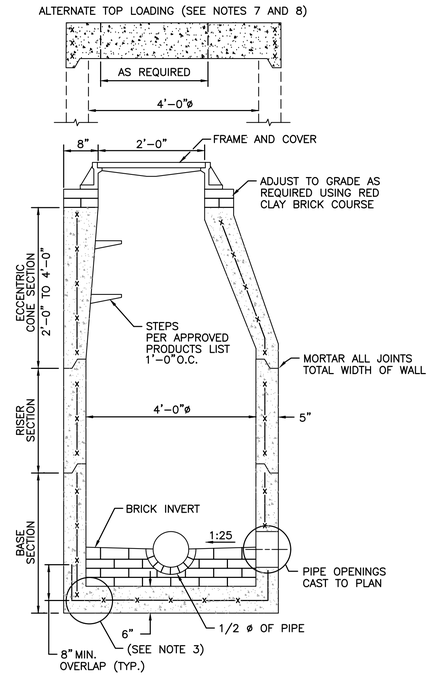
SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

28



1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN/LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.

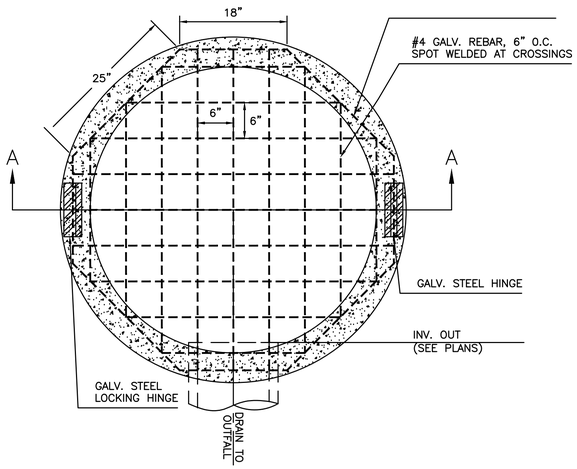
NOTES:

5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW–CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H–25 LOADING (SEE STD. 4.7.2).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

PRECAST 4'–0" ROUND MANHOLE

NOT TO SCALE

R.I. STANDARD 4.2.0



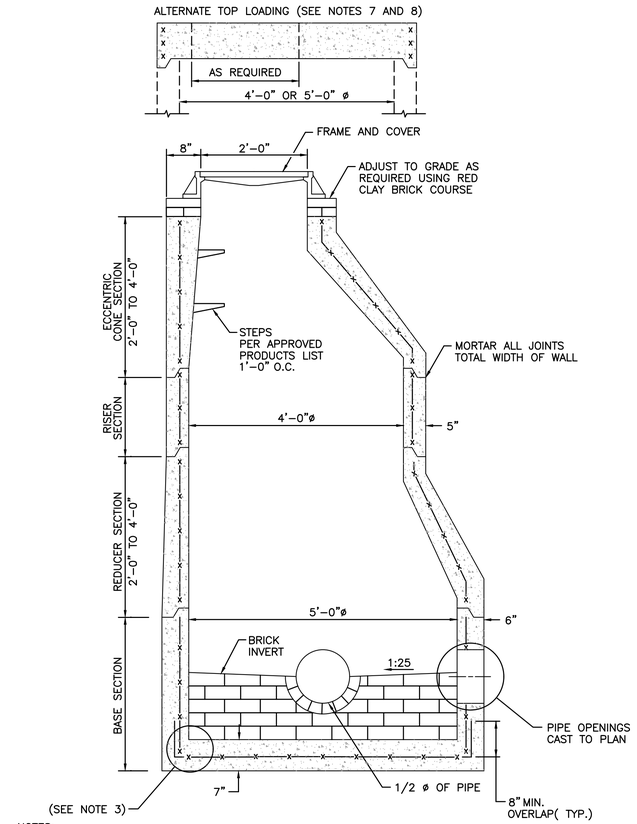
SECTION B–B

NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN/LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW–CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. POND SKIMMER GRATE (AS MANUFACTURED BY HAALA INDUSTRIES, OR APPROVED EQUAL) MAY BE USED IN LIEU OF REBAR TOP GRATE. SKIMMER GRATE SHALL BE HEAVY–DUTY, FABRICATED OF STEEL PLATE, AND FURNISHED WITH LOCKING HINGED ACCESS DOORS.

PRECAST 4'-0" ROUND MANHOLE
INFILTRATION BASIN OVERFLOW STRUCTURE

NOT TO SCALE



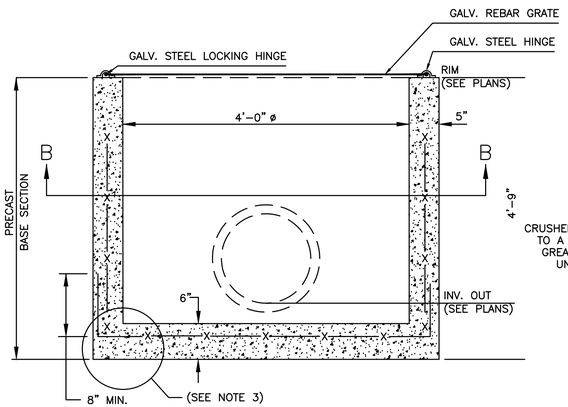
NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.15 SQ. IN./LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW–CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H–25 LOADING (SEE STD. 4.7.0).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

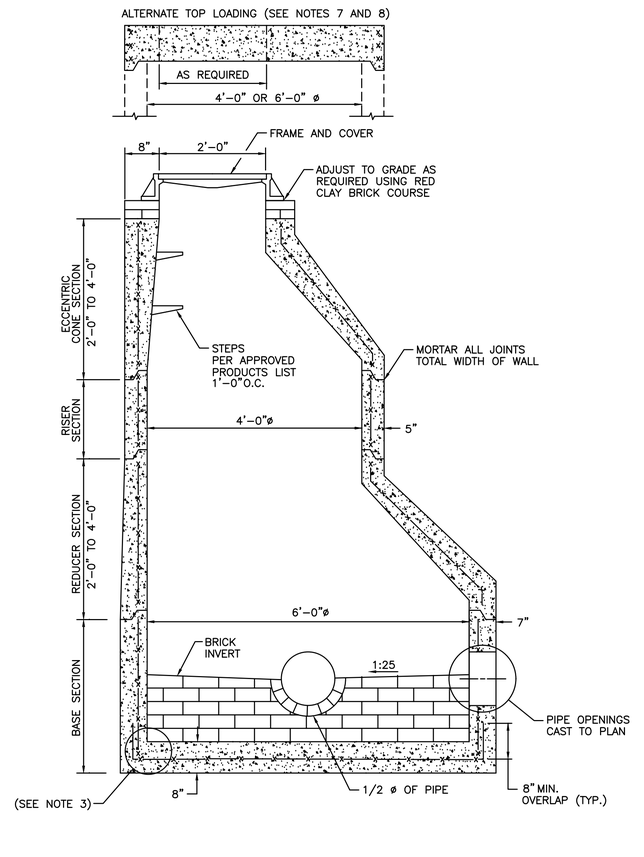
PRECAST 5'–0" ROUND MANHOLE

NOT TO SCALE

R.I. STANDARD 4.2.1



SECTION A–A



NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.15 SQ. IN./LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
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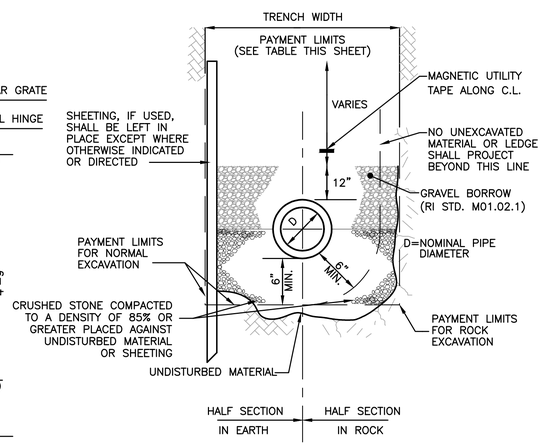
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H–25 LOADING (SEE STD. 4.7.2).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

PRECAST 6'–0" ROUND MANHOLE

NOT TO SCALE

R.I. STANDARD 4.2.2



DRAIN TRENCH SECTION

NOT TO SCALE

MAXIMUM PAYMENT LIMITS

DIAMETER OF PIPE D IN INCHES	TRENCH WIDTH IN FEET	TEMPORARY PAVEMENT IN FEET	
		TRENCH DEPTH	
		< OR = 10'	> 10'
12 AND SMALLER	6.00	7.00	8.00
15	6.25	7.25	8.25
18	6.50	7.50	8.50
21	6.75	7.75	8.75
24	7.00	8.00	9.00
27	7.25	8.25	9.25
30	7.50	8.50	9.50
36	8.00	9.00	10.00
42	8.50	9.50	10.50
48	9.00	10.00	11.00
54	9.50	10.50	11.50

PREPARED BY

BETA
www.BETA-Inc.com

REGISTERED PROFESSIONAL

KEVIN M. AGUIAR
No. 6913
REGISTERED PROFESSIONAL ENGINEER
CIVIL

SUBCONSULTANT

PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

DETAILS
NO. 2

NO.	REVISIONS	DATE

DRAWN BY: ATD
DESIGNED BY: BB
CHECKED BY: KA
ISSUE DATE: 10/15/2026
BETA JOB NO.: 11433

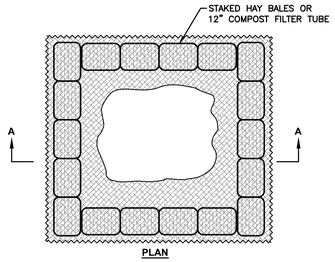
SCALE

NONE

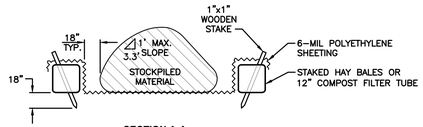
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

29



PLAN

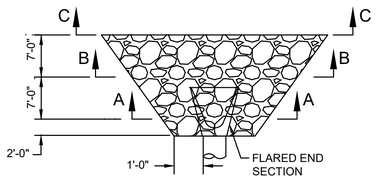


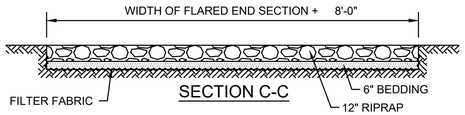
SECTION A-A

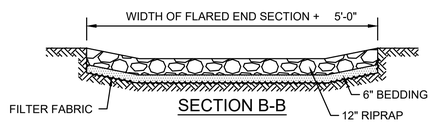
NOTE:
DIMENSIONS OF STOCKPILE AREA MAY VARY DEPENDING ON QUANTITY OF EXCAVATED MATERIAL. AVOID OVERTOPING OR SLOPES IN EXCESS OF 1:3.3.

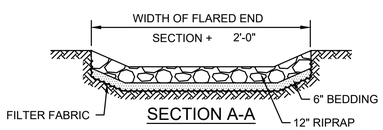
TEMPORARY STOCKPILED AREA

NOT TO SCALE





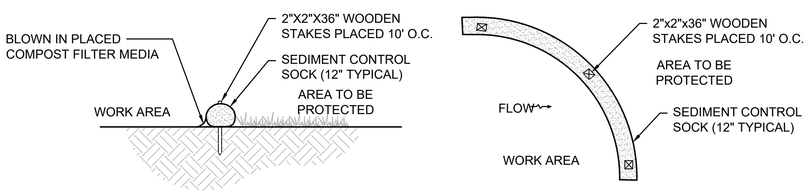




NOTES:
1. BEDDING SHALL BE CLASS FS-2 AND CONFORM TO SECTION 920 AND M.10.03.1 OF THE STANDARD SPECIFICATIONS.
2. DUMPED RIPRAP SHALL BE CLASS R-4 AND CONFORM TO SECTION 920 AND M.10.03.2 OF THE STANDARD SPECIFICATIONS.
3. FILTER FABRIC SHALL BE MIRAFI 140N AS MANUFACTURED BY US FABRICS, OR APPROVED EQUAL, AND CONFORM TO SECTION 920 OF THE STANDARD SPECIFICATIONS.
4. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.

RIPRAP PAD AT
FLARED END SECTIONS

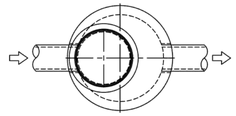
NOT TO SCALE



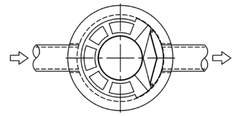
CONSTRUCTION SPECIFICATIONS:
1. SOCKS SHALL BE PLACED IN A ROW WITH ENDS OVERLAPPING THE ADJACENT SOCK.
2. SOCKS SHALL BE SECURELY ANCHORED IN PLACE BY STAKES DRIVEN THOUGH THE SOCKS.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. SOCKS SHALL BE REMOVED WHEN WORK IS COMPLETE AN THE AREA HAS STABILIZED.

COMPOST FILTER TUBE

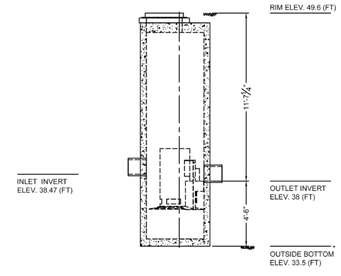
NOT TO SCALE



PLAN VIEW
(INTERNALS NOT SHOWN)
SCALE: 1"=40'



SECTION FOR PIPE ORIENTATION
(TOP SLAB NOT SHOWN)
SCALE: 1"=40'



ELEVATION VIEW

SCALE: 1"=60'

MATERIAL LIST		
COUNT	DESCRIPTION	INSTALLED BY
1	CS-4 CYLINDER INSERT, STD	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
1	30"ID 4" FRAME & COVER, EJ#41600494, OR EQUIV.	CONTRACTOR

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

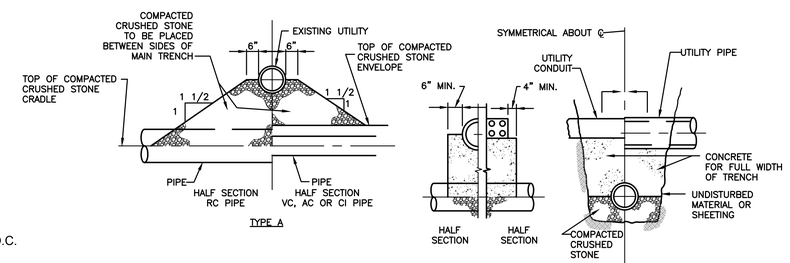
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

* OUTSIDE TOP AND BOTTOM OF SYSTEM MAY DIFFER DEPENDING ON MANUFACTURING LOCATION.

CONTECH
DYOHDS
DRAWING

PROJECT SUMMARY

DESIGN PARAMETERS
- TREATMENT METHOD = Cascade Separator
- MODEL = CS-4



NOTE: TYPE C SUPPORT TO BE PROVIDED WHERE DIRECTED

TYPICAL SUPPORTS FOR UTILITES

NOT TO SCALE

C:\USERS\MARCO\ONEDRIVE\DATOS\ALCALA\PROYECTOS\CONTECH\CASCADE\CONTENT OUTLOOK\EDITABLE\CONTRACT 2 - 653121-HDS-SOS-SLSA.DWG, 10/9/2026 9:48 PM

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NO.	REVISION DESCRIPTION	DATE	BY

Cascade Separator CS-4
TIDEWATER CONTRACT 2
CONTRACT 2
PAWTUCKET,RI

CONTECH ENGINEERED SOLUTIONS LLC
CASCADE separator

DATE	10/09/2026
DESIGNED	DYO
DRAWN	DYO
CHECKED	DYO
APPROVED	DYO
PROJECT No.	112855
DESIGN No.	653121
SHEET	1 OF 1

PREPARED BY

BETA
www.BETA-Inc.com

REGISTERED PROFESSIONAL

KEVIN M. AGUIAR
No. 6913
REGISTERED
PROFESSIONAL ENGINEER
CIVIL

SUBCONSULTANT

PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

DETAILS
NO. 3

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

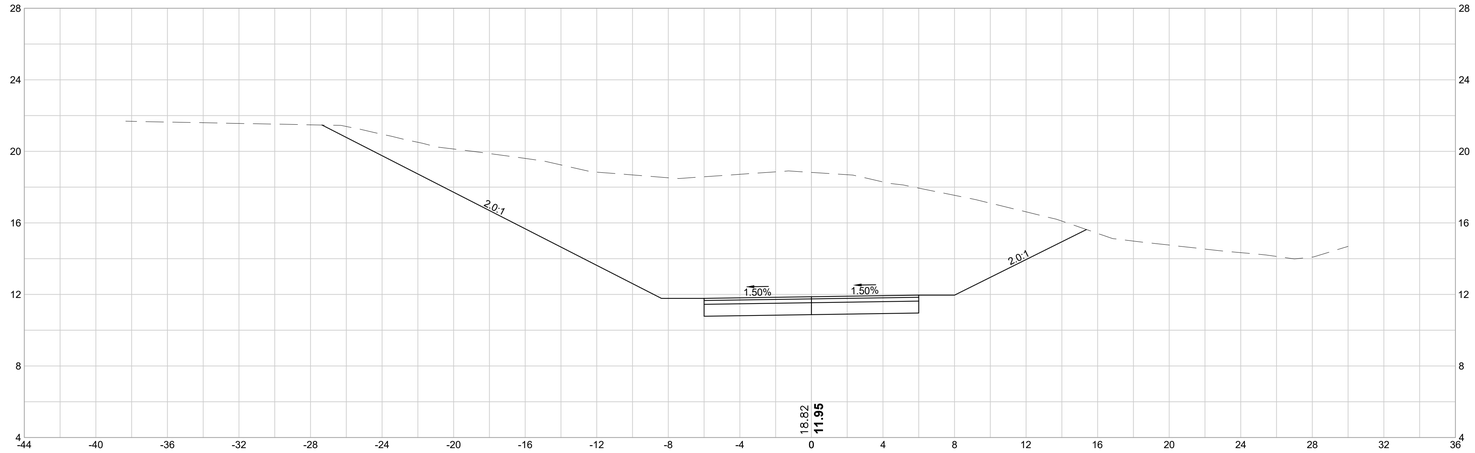
NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

30

21+00



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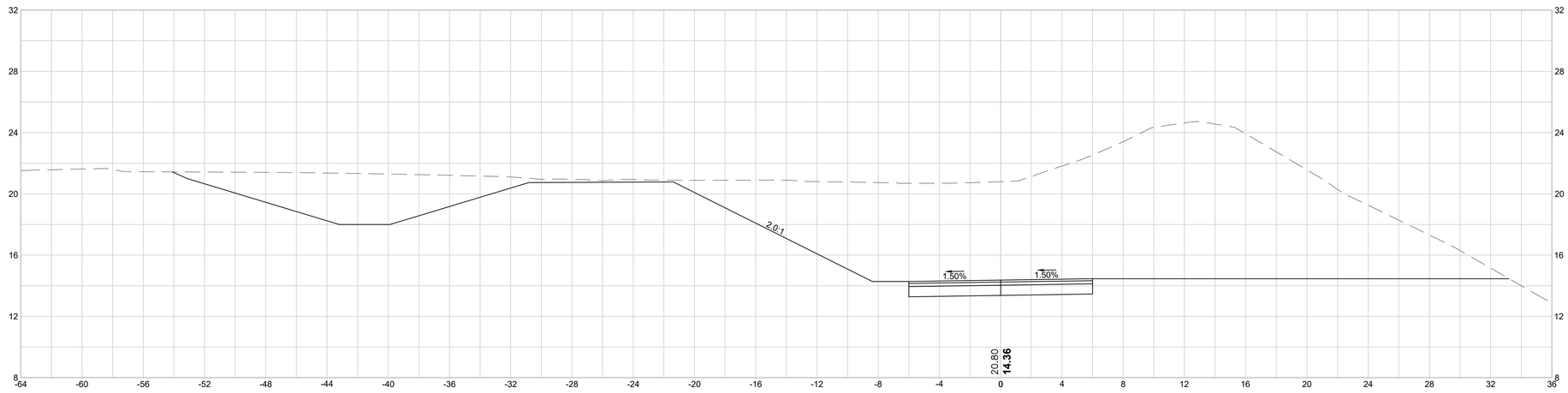

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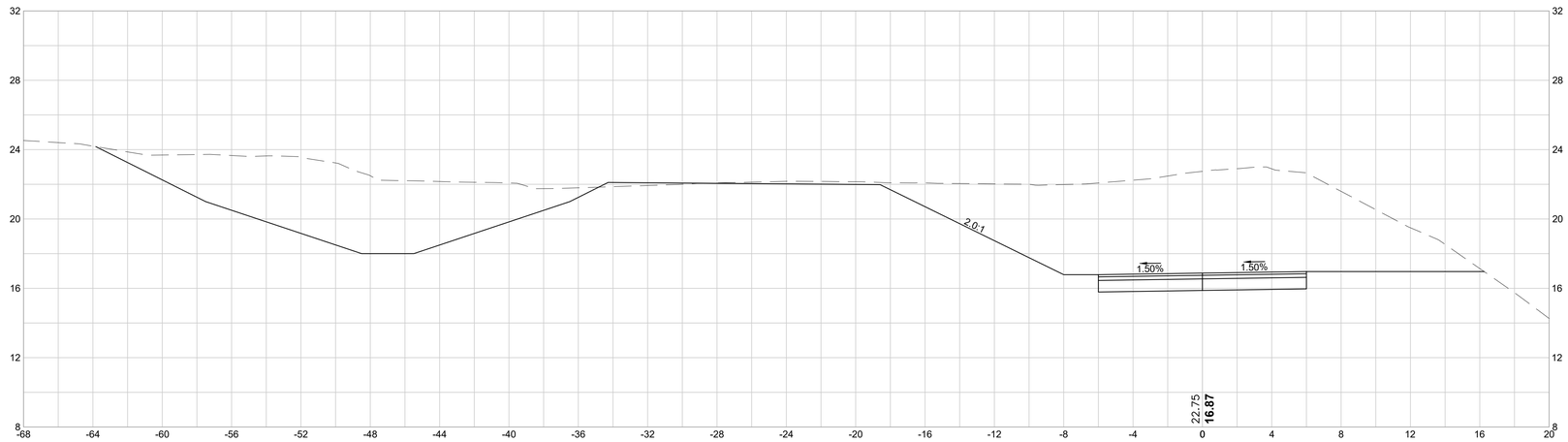

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SUBCONSULTANT

PROJECT

Tidewater Landing
Phase 1B
Riverwalk East
Contract 2

Pawtucket, RI

TITLE

CROSS SECTIONS - RIVERWALK

NO.	REVISIONS	DATE

DRAWN BY:	ATD
DESIGNED BY:	BB
CHECKED BY:	KA
ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

NONE

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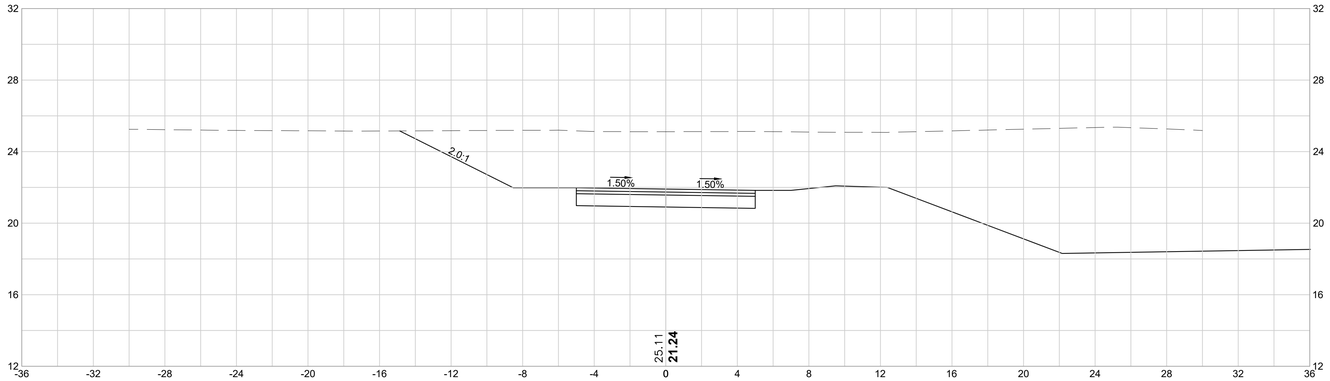
SHEET NO.

31

101+00



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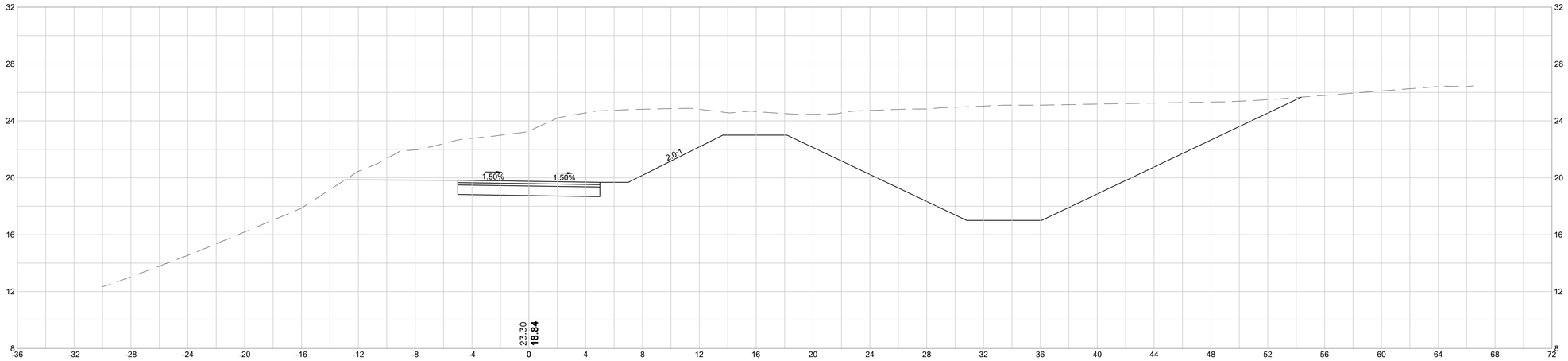

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TITLE

CROSS SECTIONS - RIVERWALK ACCESS PATH

NO.	REVISIONS	DATE

DRAWN BY:	ATD
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ISSUE DATE:	10/15/2026
BETA JOB NO.:	11433

SCALE

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32