Town of Westerly

PUBLIC BID

2016-064

22 & 26 CANAL ST. SITE REMEDIATION

September 2016

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LIST OF DRAWINGS

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Bidding Information

THE TOWN OF WESTERLY
PUBLIC BID
2016-064
22 & 26 CANAL ST SITE REMEDIATION

The Town of Westerly, acting through its Purchasing Agent, is hereby soliciting sealed bids for the **Department of Development Services** for **22 & 26 Canal St., Site Remediation**. Bids will be received at the Purchasing Department, Westerly Town Hall, 45 Broad St., Westerly, RI 02891 until **3:00 pm October 6, 2016** at which time they will be opened and read aloud. Copies of the bid documents may be obtained on or after September 15, 2016 by visiting the website: **www.westerlyri.gov** or by calling 401-348-2625, Monday through Friday between the hours of 8:30 a.m. and 4:30 p.m. **A pre-bid meeting will be held at 22 & 26 Canal St., Westerly, RI on September 22, 2016 at 10:00 a.m.** All questions, regarding the Bid, should be emailed, no later than **September 28, 2016 by 12:00 p.m.** to Eileen Cardillo, Purchasing Agent, ecardillo@westerly.k12.ri.us.

All Bids must be sealed and clearly marked **2016-064 22 & 26 CANAL ST. SITE REMEDIATION** in the lower left hand corner of the envelope. **A Bid Bond in the amount of 5% of the base bid will be required to accompany Bids. Performance, Labor and Material Payment Bonds, in the amount of 100% of the contract price will be required of the successful bidder. In addition to, ALL trades are required to pay prevailing wages. (Davis Bacon Act RI140001 – As amended up to the date of this Bid).**

In addition to two (2) original copies of the Bid Form to be submitted, prospective bidders shall also submit with their hard copy bid, one (1) read-only CD-R media disc as the "Public Copy". The Public Copy disc must be separately enclosed in a protective cover clearly marked "Public Copy" and include the following information: (1) Title of Solicitation; (2) Name of Bidder and Address; and (3) Date of Bid. The Public Copy shall include the following items: (1) Scanned copy of the original executed Bid Form submitted and Contract Bid Documents; and Scanned Copy of original Bid Bond for the Project. **Bid proposals that do not include a copy for public inspection will be deemed nonresponsive and rejected.**

Bids misdirected to any other person or location by virtue of incorrect mailing addresses or otherwise not present at the Finance office prior to the bid deadline for whatever reason will not be accepted. The Purchasing Agent will be the sole and final judge of timely receipt. Documents incorrectly addressed or misdirected to other locations other than the Purchasing Department at Westerly Town Hall, and are not present at the time of bid opening for whatever cause will be deemed to be late and will not be considered. Postmarks will not be considered proof of timely submission.

The Town of Westerly reserves the right to reject or accept any or all bids that it deems to be in its best interest and to waive any informalities in the bidding system. No bidder may withdraw his bid within ninety (90) days after the actual date of the opening thereof. The Town of Westerly does not discriminate on the basis of age, race, religion, national origin, color or disability in accordance with applicable laws and regulations. Individuals requesting interpreter services for the hearing impaired or other individuals requiring special accommodations should call 401-348-2500 or 401-596-2022 (v/tdd) 72 hours in advance of the hearing date.

Qualifications of
Bidder Form

QUALIFICATIONS of BIDDER FORM

Bidder's Name: _____

Each Bidder is required to submit information that exemplifies their qualifications to successfully implement the scope of work required by the Contract Documents. At a minimum, the information submitted shall include information requested on the forms below. Attach additional sheets if necessary.

Previous Experience Similar to this Bid

Provide written descriptions of at least 3 and no more than 10 previous soil remediation projects, including projects involving capping techniques similar in type and dollar value. Project descriptions shall include the following:

1. Project Name: _____
   Project Location: _____
   Brief Scope of Work: _____
   _____
   _____
   Date Completed: _____
   Approximate Dollar Value: _____
   Owner's Representative: _____
   Owner's Telephone: _____

2. Project Name: _____
   Project Location: _____
   Brief Scope of Work: _____
   _____
   _____
   Date Completed: _____
   Approximate Dollar Value: _____
   Owner's Representative: _____
   Owner's Telephone: _____

3. Project Name: _____
   Project Location: _____
   Brief Scope of Work: _____
   _____
   _____
   Date Completed: _____
   Approximate Dollar Value: _____
   Owner's Representative: _____
   Owner's Telephone: _____

4. Project Name: _____
   Project Location: _____
   Brief Scope of Work: _____
   _____
   _____
   Date Completed: _____
   Approximate Dollar Value: _____
   Owner's Representative: _____
   Owner's Telephone: _____

5. Project Name: _____
   Project Location: _____
   Brief Scope of Work: _____
   _____
   _____
   Date Completed: _____
   Approximate Dollar Value: _____
   Owner's Representative: _____
   Owner's Telephone: _____

List of Subcontractors

1. Name: _____
   Address: _____
   Contact Person: _____ Phone: _____
   Work Efforts by Subcontractor for this Bid: _____
   _____
   _____
   _____
   _____

2. Name: _____
   Address: _____
   Contact Person: _____ Phone: _____
   Work Efforts by Subcontractor for this Bid: _____
   _____
   _____
   _____
   _____

3. Name: _____
   Address: _____
   Contact Person: _____ Phone: _____
   Work Efforts by Subcontractor for this Bid: _____
   _____
   _____
   _____
   _____

MBE Subcontractors:

1. Name: _____
   Address: _____
   Contact Person: _____ Phone: _____
   Work Efforts by Subcontractor for this Bid: _____
   _____
   _____
   _____
   _____

2. Name: _____
   Address: _____
   Contact Person: _____ Phone: _____
   Work Efforts by Subcontractor for this Bid: _____
   _____
   _____
   _____
   _____

WBE Subcontractors:

1. Name: _____
   Address: _____
   Contact Person: _____ Phone: _____
   Work Efforts by Subcontractor for this Bid: _____
   _____
   _____
   _____
   _____

2. Name: _____
   Address: _____
   Contact Person: _____ Phone: _____
   Work Efforts by Subcontractor for this Bid: _____
   _____
   _____
   _____
   _____

Bank Reference:

Name: _____
Address: _____
_____
Contact: _____
Phone: _____

Bid Form

SECTION 004110 - BID FORM

CONTRACT IDENTIFICATION:

22 & 26 Canal Street
Plat 56, Lots 29 & 31
Westerly, RI 02891

ARTICLE 1 – BID RECIPIENT

1.1 This Bid shall be submitted to:

Eileen Cardillo, Purchasing Agent
Westerly Town Hall
45 Broad Street
Westerly, RI 02891

1.2 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Town of Westerly in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.1 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 calendar days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of the Town of Westerly.

2.2 Bidder accepts that the Town of Westerly shall have the sole right and discretion to accept any Base Bid, if any. Such decision of acceptance by the Town of Westerly will evaluate the sum of the Base Bids and any accepted extended Unit Bids in determining the successful low bidder.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.1 In submitting this Bid, Bidder represents that:

A. Bidder has examined the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

B. Bidder is familiar with and is satisfied as to all federal, State and local Laws and Regulations that may affect cost, progress and performance of the Work.

C. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

D. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

E. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

F. Bidder has given the Owner's Representative written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by the Owner' Representative is acceptable to Bidder.

G. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

H. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 – FURTHER REPRESENTATIONS

4.1 Bidder further represents that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over the Town of Westerly.

ARTICLE 5 – BASIS OF BID

5.1 Bidder will complete the Work in accordance with the Contract Documents for the following lump sum and unit bid prices:

A. The following lump sum bid prices form the project's base contract price.

LUMP SUM BASE BID ITEMS

LUMP SUM BID ITEM NO.	LUMP SUM BASE BID PRICE IN WORDS	LUMP SUM BASE BID PRICE IN FIGURES
1.	UTILITY CLEARANCE/HEALTH & SAFETY PLAN	
	_____ (Lump Sum)	$ _____
2.	PRE-REMEDIAL ACTIVITIES	
	_____ (Lump Sum)	$ _____
3.	SOIL EXCAVATION	
	_____ (Lump Sum)	$ _____
4.	Contaminated Soil Removal	
	_____ (Lump Sum)	$ _____
5.	CONSTRUCTION OF COVER SYSTEM 1	
	_____ (Lump Sum)	$ _____
6.	CONSTRUCTION OF COVER SYSTEM 2	
	_____ (Lump Sum)	$ _____

7. CONSTRUCTION OF COVER SYSTEM 3

_____ $ _____
(Lump Sum)

8. CONSTRUCTION OF COVER SYSTEM 4

_____ $ _____
(Lump Sum)

9. FENCING

_____ $ _____
(Lump Sum)

TOTAL LUMP SUM BASE BID PRICE FOR
ITEMS 1 THROUGH 9:

$ _____ (Amount in Figures)

_____ (Amount in Words)

B. The total cost of the project as stated by the Bidder above is for comparison purposes. In addition to stating the Base Bid price, the bidder shall state prices for the various unit items of work listed below. The unit prices as quoted are for computing adjustments such as Add/Deduct, to the Base Bid prior to Contract Award, as well as additions or deletions during the course of construction, based upon work ordered by the Owner. Unit prices are to be complete price to be added or deducted on the basis of quantities or work involved.

ADD/DEDUCT UNIT PRICE BID ITEMS

ALT. UNIT BID ITEM NO.	ALT. BASE QUANTITY	ALT. UNIT BID PRICE IN WORDS	ALT. UNIT BID PRICE	TOTAL BID PRICE
ALT- 1	-	STAKED HAY BALES		
		_____ (Linear Foot)	$_____	$_____
ALT-2	-	CONTAMINATED SOIL REMOVAL		
		_____ (Ton)	$_____	$_____
ALT- 3	-	R-3 RIP RAP		
		_____ (Cubic Yard)	$_____	$_____
ALT-4	-	GEOTEXTILE PLACEMENT (FURNISH AND INSTALL)		
		_____ (Square Yard)	$_____	$_____
ALT- 5	-	GEOTEXTILE PLACEMENT (INSTALL ONLY)		
		_____ (Square Yard)	$_____	$_____
ALT-6	-	CLEAN FILL PLACEMENT		
		_____ (Cubic Yard)	$_____	$_____
ALT-7	-	TOPSOIL PLACEMENT		
		_____ (Cubic Yard)	$_____	$_____
ALT-8	-	HYDROSEED		
		_____ (Square Yard)	$_____	$_____

FOR PURPOSES OF BID COMPARISON ONLY, TOTAL OF ALTERNATE UNIT PRICE BID PRICES FOR ITEMS ALT-1-ALT-8:

$ _____ (Amount in Figures)

_____ (Amount in Words)

FOR PURPOSES OF BID COMPARISON ONLY, TOTAL OF BASE BID LUMP SUM PRICES and UNIT PRICE ALTERNATE BID ITEMS:

$ _____ (Amount in Figures)

_____ (Amount in Words)

ARTICLE 6 – TIME OF COMPLETION

6.1 Bidder agrees that the Work will be substantially complete within 45 calendar days after the date when the Contract Times commence to run.

Substantial completion shall include, but not be limited to completion of a utility survey, development of a health and safety plan, completion of a Class I survey, clearing and grubbing, removal of perimeter erosion and sediment controls, excavation, removal, and legal disposal of contaminated soil, installation of Cover Systems; 1, 2, 3, and 4, installation of timber rail fencing.

6.2 Bidder agrees that work will be completed and ready for final payment of the contract price within 60 calendar days after the date when the Contract Times commence to run.

ARTICLE 7 – DEFINED TERMS

7.1 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders.

ARTICLE 8 – BID SUBMITTAL

8.1 This Bid submitted by:

If Bidder is:

AN INDIVIDUAL

Name (typed or printed): _____

By: _____
(SEAL)
(Individual's signature)

Doing business as: _____

Business address: _____

_____

Phone No.: _____ FAX No.: _____

A PARTNERSHIP

Partnership Name: _____
(SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

_____

Phone No.: _____ FAX No.: _____

A CORPORATION

Corporation Name: _____
(SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability):_____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____

_____

Phone No.: _____ FAX No.: _____

Date of Qualification to do business is _____

A JOINT VENTURE

Joint Venturer Name: _____

(SEAL)

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ FAX No.: _____

Joint Venturer Name: _____
(SEAL)

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ FAX No.: _____

Phone and FAX Number, and Address for receipt of official communications:

_____

_____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

SUBMITTED on _____, 20___.
State Contractor License No. _____

Bid Bond

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

SURETY *(Name and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

BID
Bid Due Date:
Description *(Project Name and Include Location)*:

BOND
Bond Number:
Date *(Not earlier than Bid due date)*:
Penal sum _____ $ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

_____ (Seal)
Bidder's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature (Attach Power of Attorney)

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:
   - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
   - 3.2 All Bids are rejected by Owner, or
   - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

Standard Insurance

STANDARD INSURANCE AND INDEMNIFICATION REQUIREMENTS
FOR BIDS AND PERMITS
(6/8/2016 revision)

General Conditions: Within ten (10) business days of the award or notice, or prior to the start of work, whichever comes first, the contractor will provide, pay for, and maintain in full force and affect the insurance outlined here for coverage's at not less than the prescribed minimum limits of liability. Such coverage is to remain in force during the life of the Contract and for such additional time as may be required, and will cover the contractor's activities, those of any and all subcontractors, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

A. Certificates of Insurance: The contractor will give the owner a certificate of insurance completed by a duly authorized representative of their insurer certifying that at least the minimum coverage's required here are in effect and specifying that the liability coverage's are written on an occurrence form and that the coverage's will not be canceled, non-renewed, or materially changed by endorsement or through issuance of other policy(ies) of insurance without thirty (30) days advance written notice to: Town of Westerly, 45 Broad Street, Westerly, Rhode Island, 02891 Attn: Purchasing Agent. Failure of the owner to demand such certificate or other evidence of full compliance with these insurance requirements or failure of the owner to identify a deficiency from evidence provided will not be construed as a waiver of the contractor's obligation to maintain such insurance.

B. Insurer Qualification: All insurance will be provided through companies authorized to do business in the State of Rhode Island and considered acceptable by the owner, with an A.M. Best Rating of A-/VIII.

C. Additional Insured: To the extent commercially available at no additional cost, the policy or policies providing insurance as required, with the exception of professional liability and workers' compensation, will defend and include the owner and owner's architects, directors, officers, representatives, agents, and employees as additional insureds on a primary basis for work performed under or incidental to this Contract.

D. Retroactive Date and Extended Reporting Period: If any insurance required here is to be issued or renewed on a claims-made form as opposed to the occurrence form, the retroactive date for coverage will be no later than the commencement date of the project and will state that in the event of cancellation or nonrenewal, the discovery period for insurance claims (tail coverage) will be at least 36 months.

E. Subcontractors' Insurance: The contractor will cause each subcontractor employed by contractor to purchase and maintain insurance of the types specified below. When requested by the owner, the contractor will furnish copies of certificates of insurance evidencing coverage for each subcontractor.

F. Waiver of Subrogation: The contractor will require all insurance policies in any way related to the work and secured and maintained by the contractor to include clauses stating each underwriter will waive all rights of recovery, under subrogation and otherwise, against owner, architect, and all tiers of contractors or consultants engaged by them. The contractor will require of subcontractors, by appropriate written agreements, similar waivers each in favor of all parties enumerated in this section.

G. Indemnification/Hold Harmless: The contractor shall indemnify, defend, and hold harmless the owner and, if applicable, the Owner's Representative and their agents and employees from and against all claims, damages, losses and expenses, including attorney's fees of counsel selected by the owner, arising out of or resulting from the performance of the work and /or the supplying of materials, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom, and (b) is caused in whole or in part by any negligent act or omission of the contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not they are caused in part by a party indemnified hereunder.

II. Insurance Limits and Coverage:

A. To the extent applicable, the amounts and types of insurance will conform to the minimum terms, conditions and coverages of Insurance Services Office (ISO) policies, forms, and endorsements.

B. If the contractor has self-insured retention's or deductibles under any of the following minimum required coverage's, the contractor must identify on the certificate of insurance the nature and amount of such self-insured retention's or deductibles and provide satisfactory evidence of financial responsibility for such obligations. All self-insured retention's or deductibles will be the contractor's sole responsibility.

C. Commercial General Liability: The contractor will maintain commercial general liability insurance covering all operations by or on behalf of the contractor on an occurrence basis against claims for personal injury (including bodily injury and death) and property damage (including loss of use). Such insurance will have these minimum limits:

Minimum Limits: $1,000,000 each occurrence
$2,000,000 each occurrence if blasting is required
$2,000,000 general aggregate with dedicated limits per project site
$2,000,000 products and completed operations aggregate
$1,000,000 personal and advertising injury

Should blasting be required, all necessary permits for the use of explosives shall be obtained by the contractor or insured from the Fire Marshall.

Special hazards shall be covered if needed by endorsement to the Commercial Liability policy/policies as follows:

1) Property damage liability arising out of the collapse of or structural injury to any building or structure due to excavation (including burrowing, filling or backfilling in connection therewith), tunneling, pile driving, cofferdam work or caisson work; or to moving, shoring, underpinning, razing or demolition of any building or structure, or removal or rebuilding of any structural support thereof.

2) Property damage liability for injury to or destruction of property arising, directly or indirectly, from blasting or explosions however caused, other than explosions of air or steam vessels, piping under pressure, prime movers, machinery or power transmitting equipment.

3) Property damage liability for injury to or destruction of wires, conduits, pipes, mains, sewers or other similar property, or any apparatus in connection therewith, below the surface of the ground, arising from and during the sue of mechanical equipment for the purpose of excavating or drilling within project limits; injury to or destruction of property at any time resulting therefrom.

D. Automobile Liability: The contractor will maintain business auto liability coverage for liability arising out of any auto, including owned, hired, and non-owned autos.

Minimum Limits: $1,000,000 combined single limit each accident

E. Workers' Compensation: The contractor will maintain workers' compensation and employer's liability insurance. Waiver of subrogation in favor of the Town of Westerly shall apply.

Minimum Limits: Workers' Compensation: statutory limit
Employer's Liability: $500,000 bodily injury for each accident
$500,000 bodily injury by disease for each employee
$500,000 bodily injury disease aggregate

F. Umbrella/Excess Liability: The contractor will maintain coverage applying over the underlying Commercial General Liability, Automobile Liability, Pollution Liability (where applicable), and Employer Liability section of the Workers Compensation coverage. **The Town of Westerly shall have the sole discretion in increasing or reducing the Umbrella/Excess Liability coverage requirements depending on the scope and/or size of the work to be performed by Contractor/Bidder.**

Minimum Limits: $5,000,000 per occurrence/$5,000,000 annual aggregate

Coverage applies over the underlying Commercial General Liability, Automobile Liability, pollution liability (where applicable), and Employer Liability section of the Workers Compensation Coverage.

G. Professional Liability (for consultants, engineers, and other individuals/businesses providing professional services)

Each Claim/Wrongful Act:	$1,000,000
Annual Aggregate	$1,000,000

Town of Westerly reserves the right to amend amounts of coverage required and type of coverage's provided based on work or service to be performed.

Performance Bond

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Town of Westerly
Westerly Town Hall
45 Broad Street
Westerly, RI 02891

CONTRACT

Effective Date of Agreement:
Amount:
Description (*Name and Location*): Site Remediation at 22 & 26 Canal Street, Westerly RI

BOND

Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ (Seal)
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature (Attach Power of Attorney)

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.

2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
   - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
   - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
   - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
     1. Surety in accordance with the terms of the Contract; or
     2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.

3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:

   - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
   - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
   - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
   - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
     1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
     2. Deny liability in whole or in part and notify Owner citing reasons therefor.

4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 day after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

   - 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;

5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here-from and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – (*Name, Address and Telephone*) Surety Agency or Broker: Owner's Representative (.):

Payment Bond

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):
Town of Westerly
Westerly Town Hall
45 Broad Street
Westerly, RI 02891

CONTRACT
Effective Date of Agreement:
Amount:
Description *(Name and Location)*: Site Remediation at 22 & 26 Canal Street, Westerly RI

BOND
Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ (Seal)
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature (Attach Power of Attorney)

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:
   2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
   2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:
   4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
   4.2 Claimants who do not have a direct contract with Contractor:
      1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
      2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
      3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
   6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
   6.2 Pay or arrange for payment of any undisputed amounts.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here-from and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions
   - 15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
   - 15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
   - 15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – (*Name, Address, and Telephone*) Surety Agency or Broker: Owner's Representative (.):

General Terms
and Conditions

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

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CONSTRUCTION SPECIFICATIONS INSTITUTE

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

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12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

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27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

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40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

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addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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E. *Furnish, Install, Perform, Provide:*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

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2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

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Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

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3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

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1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

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4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

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contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data;

b. locating all Underground Facilities shown or indicated in the Contract Documents;

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

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consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

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C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

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H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

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meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

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

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

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

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a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

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

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

a. Such insurance shall remain in effect for two years after final payment.

b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

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5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

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members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

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1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

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interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

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B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

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2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

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c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

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required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

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Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

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6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

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by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

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shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

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required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

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2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

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6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

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B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed 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 Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

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B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

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8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

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continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

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9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not

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exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

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10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

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shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

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1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

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said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

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limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

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the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

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

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

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C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

   a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

   b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

   c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

   d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

   e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

   f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

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neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

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13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

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C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

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1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

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13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

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Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

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involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work, or

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

   d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

   e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

   a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

   b. the Contract Price has been reduced by Change Orders;

   c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

   d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

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D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

   a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

   b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

   c. there are other items entitling Owner to a set-off against the amount recommended; or

   d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

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final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

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4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

   d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying

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documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, 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 to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

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ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

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so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

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to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

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1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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Supplementary Terms and Conditions

SECTION 00800 - SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01 *Defined Terms*

A. Add the following new paragraph immediately after paragraph 1.01.A.29:

"A. Owner's Representative – The authorized representative of the Owner who has entered into an agreement with the Owner may be assigned to the Site or any part thereof by the Owner. The term Owner's Representative shall replace the term Engineer in all documents including Supplementary Conditions when referencing activities related to construction.

Article 2 - Preliminary Matters

SC-2.02 *Copies of Documents*

A. Delete Paragraph 2.02.A in its entirety and insert the following in its place:

"A. Owner shall furnish to Contractor up to **two** printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction."

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.03 *Reporting and Resolving Discrepancies*

A. Add the following new paragraph immediately after Paragraph 3.03B.1.b.

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"2. In resolving conflicts, errors, and discrepancies, the documents shall be given precedence in the following order: Agreement, Specifications, and Drawings. Within the specifications the order of precedence shall be as follows: Supplementary Conditions, General Conditions, and Technical Provisions. Figure dimensions on Drawings shall govern over scaled dimensions, and detailed Drawings shall govern over general Drawings."

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

SC-4.02 *Subsurface and Physical Conditions*

A. Add the following new paragraph(s) immediately after paragraph 4.02.B.3:

"C. In the preparation of Drawings and Specifications, Engineer relied upon the following documents of physical conditions in or relating to existing surface and subsurface contamination which are at or contiguous to the Site:

1. Site Investigation Report, Remedial Action Work Plan and other regulatory submissions related to the investigation of 22 and 26 Canal Street as submitted to the Rhode Island Department of Environmental Management.

ARTICLE 5 - BONDS AND INSURANCE

SC-5.03 – SC-5.07 *Certificates of Insurance*

A. Replace sections with Specification 006200 – Standard Insurance and Idemnification Requirements.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

SC-6.05 *Substitutes and "Or-Equals"*

A. Delete last sentence of Paragraph 6.05.A and insert the following in its place:

"Unless the Specification or description contains or is followed by words reading "like", "equivalent", or "or equal" are allowed, Contractor shall provide the proprietary item or the

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item from the list of the named supplier(s). Where the Specification or description contains or is followed by words reading "like", "equivalent" or "or-equal" items are permitted, other items of material or equipment or material or equipment of other suppliers may be submitted to Engineer for review under the circumstances described below."

B. Add the following new paragraph after 6.05.F.

"1. "Or-Equal" Evaluation. Engineer will record time required by Engineer in evaluating "or-equal" proposed or submitted by Contractor pursuant to paragraph 6.05.A.1. Whether or not Engineer approves an "or-equal" item so proposed or submitted by Contractor, Contractor shall reimburse Owner for charges of Engineer and Engineer's Consultants for evaluating each such proposed "or-equal." Submittal of "or-equal" request shall be construed as evidence of Contractor's agreement to pay such charges, with no added cost to Owner."

2. Substitution Evaluation. Engineer will record time required by Engineer and Engineer's Consultants in evaluating substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contact with Owner for work on the Project) occasioned thereby. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for charges of Engineer and Engineer's Consultants for evaluating each such proposed substitute.

3. Charges shall be $175.00 for each staff-hour spent by Engineer and Engineer's Consultants for evaluating each "or equal" or substitute."

SC-6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Delete Paragraph 6.06.C.2 and replace with the following:

"shall create any obligation on the part of Owner or Engineer. Owner or Engineer may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to Contractor on account of work performed for Contractor by a particular Subcontractor, Supplier, or other individual or entity."

SC-6.10 *Taxes*

A. Add the following new paragraph immediately after Paragraph 6.10.A:

"B. The Owner is exempt from State Sales Tax."

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ARTICLE 7 – OTHER WORK AT THE SITE

SC-7.03 *Legal Relationships*

A. Add the following new paragraph immediately after Paragraph 7.03 and renumber following paragraphs:

"A. Claims Between Contractors: Should Contractor cause damage to the Work or property of any separate contractor at the Site, or should any claim arising out of the Contractor's performance of the Work at the Site be made by any separate contractor against Contractor, Owner, Engineer, Engineer's Consultants, or the construction coordinator, Contractor shall promptly attempt to settle with such separate contractor by agreement, or to otherwise resolve the dispute by arbitration or at law.

B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, Engineer's Consultants, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against Owner, Contractor, Engineer, Engineer's Consultants, or the construction coordinator to the extent said claim is based on or arises out of the Contractor's performance of the Work. Should a separate contractor cause damage to the Work or property of Contractor or should the performance of work by any separate contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, Engineer's Consultants, or the construction coordinator or permit any action against any of them to be maintained or continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, Engineer's Consultants or the construction coordinator on account of any such damage or Claim.

C. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Time shall be Contractor's exclusive remedy with respect to Owner, Engineer, Engineer's Consultants, and construction coordinator for any delay, disruption, interference, or hindrance caused by any separate contractor. This paragraph does not prevent recovery from Owner, Engineer, Engineer's Consultant, or construction coordinator for activities that are their respective responsibilities."

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ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Add the following new paragraph immediately after Paragraph 9.09.E:

"F. Resident Project Representative shall be authorized to observe all or any part of the Work, and to observe the preparation or manufacture of materials to be used. In case of any dispute arising between Contractor and Resident Project Representative as to materials furnished or the acceptability of the Work, the Resident Project Representative shall have the authority to disapprove or reject Work which Resident Project Representative believes to be defective, or that Resident Project Representative believes will not produce a completed Project that conforms to the Contract Documents. Resident Project Representative shall not be authorized to stop or suspend Work on the Project. Resident Project Representative shall not be authorized to revoke, alter, enlarge, relax or release any requirements of these Specifications, nor to approve or to accept any portion of the Work, nor issue instructions contrary to the Drawings and Specifications. Resident Project Representative shall in no case act as foreman or perform other duties for Contractor, or interfere with the management of the Work by Contractor. Any advice given by Resident Project Representative given to Contractor shall in no circumstances be construed as binding Owner, Engineer, or Engineer's Consultants in any way or releasing Contractor from fulfillment of the terms of the Agreement."

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

SC-11.01 *Cost of the Work*

A. Add the words "project managers" after the words "general managers," in Paragraph 11.01.B.1.

SC-11.04 *Rental Rates*

C. Add the following new paragraphs immediately after Paragraph 11.03.D.3:

"11.04 *Equipment Rental Rates for Extra and Cost-Plus Work*

A. For any Contractor-owned machinery, trucks or equipment, or equipment authorized by the Engineer the Contractor will be allowed a rate that does not exceed the rental rate set forth in the current edition of the "Rental Rate Blue Book", as published by K III Directory Corporation of San Jose, California (referred to herein as the rental Rate Blue Book). All Rate Adjustment Tables and

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amendments will be applied. If the Contractor submits a lower rate, it will be accepted by the Engineer.

1. Should the proper completion of the Work require equipment of a type not covered by the above-mentioned schedule, the Engineer will allow the Contractor a reasonable rental rate based on that prevailing in the area of the Work and shall be incorporated in the Contract before the Work is begun. However, the Contractor must disclose to the Engineer the specific sources of any rates it proposes in this connection.

2. For machinery, trucks or equipment, which the Contractor must obtain by rental, the Contractor shall inform the Engineer of its need to rent the equipment and of the rental rate for that equipment prior to using it on the Work. If that use and rate are acceptable to the Engineer, the Contractor shall be paid the actual rental for the equipment, provided that rate does not exceed the rental rate set forth in the Rental Rate Blue Book, including all Rate Adjustment Tables and amendments. The Contractor shall provide the Engineer with a copy of the paid receipt for the rental expense incurred.

3. The estimated operating cost per hour will apply only to the actual time the equipment is operating. Operators will be paid as stated hereinbefore for labor except for certain trucks listed in the Rental Rate Blue Book as to which trucks said Rental Rate Blue Book indicates that the cost of the operators is included in the pertinent rates.

4. For equipment which is already on the Project, OWNER will pay the applicable hourly, weekly or monthly rates, as applicable, for the actual time the equipment is assigned to the Cost-Plus Work. The period of assignment for each piece of equipment shall start when the equipment commences to be used for the Work ordered by the Engineer, and shall continue until the time which the Engineer designates for termination of that work.

5. For equipment which has to be brought to the Project exclusively for use on Cost-Plus Work, Owner will pay all loading and unloading costs and all transportation costs to and from the Project Site; provided, however, the cost of return transportation from the Project Site shall not exceed that of moving the equipment to that Site. If such a piece of equipment is self-propelled, and is driven to the Project Site under its own power, then the Owner will pay only operating costs and labor costs for the transportation to and from the Project Site. The Owner will not pay for loading, unloading, and transportation costs, however, if the equipment is used for other than cost-plus work while on the Project Site, with the exceptions stated herein.

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6. The Owner will pay the applicable rental rate for a minimum of 8 hours in each 24 hour day, excluding Saturdays, Sundays, and legal holidays during which the Contractor does no work. The daily usage period shall start at the time the Contractor begins to use the equipment for cost-plus work and when the equipment is released by the Engineer from use for such work. The Owner will make payment to the Contractor at the applicable hourly rate for the actual time the equipment is being used for cost-plus work in excess of the minimum 8 hours per day. If, however, certain pieces of equipment remain idle during any day or portion of a day within such a rental period, the Owner will pay for those periods at 50 percent of the applicable rate (exclusive of operating costs) set forth in the Rental Rate Blue Book.

7. For rented equipment not owned by the Contractor or a subsidiary, affiliate or parent company (no matter how far up the chain of ownership) of the Contractor, the following maximum rates shall apply:

a. The daily rate per hour shall apply when the equipment is specifically assigned to the Work by the Engineer for a period of 7 consecutive calendar days or less.

b. The weekly rate per hour shall apply when the assigned time exceeds 7 consecutive calendar days but does not exceed 21 consecutive calendar days.

c. The monthly rate per hour shall apply when the assigned time exceeds 21 consecutive calendar days.

8. The applicable daily, weekly, or monthly rate will be determined at the expiration of 21 calendar days or upon release of the equipment, whichever occurs first. Interruptions of the rental period, when equipment is used on other than assigned cost-plus work, will not constitute a warrant for a rental rate applicable to shorter periods occasioned by such interruptions.

9. For equipment owned by the Contractor or a subsidiary, affiliate, or parent company (no matter how far up the chain of ownership) of the Contractor, the maximum hourly rate to be used shall be the monthly rate as set forth in the current edition of the Rental Rate Blue Book, including all Rate Adjustment Tables and amendments divided by 176 (176 working hours per month).

10. All equipment used must, in the judgment of the Engineer, be in good working condition and suitable for the purpose intended; and the Engineer reserves the right to determine the size and number of units of equipment to be used. The manufacturer's ratings shall be the basis for all classifications. Trucks

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will be classified by cubic yard capacity to be determined by water level volume of the body as measured from the length, width, and height, without sideboards.

11. No percentage will be added to the amounts charged for equipment rental, whether based on the Rental Rate Blue Book, including all Rate Adjustment Tables and amendments, or on the agreed-upon rental rates for equipment not covered in the aforesaid schedule."

Article 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-13.03 *Tests and Inspections*

A. Delete Paragraph 13.03.B and subparagraphs in their entirety and insert the following in its place:

"B. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except as otherwise provided in the Contract Documents."

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02 *Progress Payments*

A. Add the following new paragraphs immediately after Paragraph 14.02.A.2:

"a. Contractor shall include with Application for Payment proof that all employee, subcontractor, and vendor obligations have been met from the previous Progress Payment. Contractor shall submit subcontractor and vendor release forms; and certified payroll reports which include labor classifications, pay rates, and fringe benefit rates for employees."

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SC-14.07 *Final Payment*

A. Add the following new sentence at the beginning of Paragraph 14.07.A.2:

"All applications for payment, consent of surety and release of liens shall be on the following forms:

AIA Form G702 Application and Certificate for Payment
AIA Form G706A Contractor's Affidavit of Release of Liens
AIA Form G707 Consent of Surety to Final Payment"

END OF SECTION

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Summary

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes a general summary of the Work and is not intended to be all-inclusive.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project includes but is not limited to the restoration of a former saw mill and constructing recreational and educational improvements at the Site.

1. Project Location: 22 & 26 Canal Street, Westerly, RI.
2. Project Sponsor and Property Owner:
   a. 22 Canal Street – Miceli-Tudisco
   b. 26 Canal Street - Town of Westerly, RI

B. Engineer Identification: The Contract Documents, dated September 2016, were prepared for the Project by EA Engineering, Science, and Technology, Inc. PBC.

C. This work includes, but is not limited to, installing earth excavation, installing four types of cover systems over impacted soils on the various portions of two lots, installing a split rail fence, and planting vegetation.

D. The Site consists of 22 & 26 Canal Street.

1.3 CONTRACT

A. Project will be constructed under a General Construction Contract.

1.4 SUBMITTALS

A. Submit the following schedules in accordance with Paragraph 3.2 of this Section:

1. Construction schedule
2. Schedule of submittals/shop drawings

1.5 USE OF PREMISES

A. General: Contractor shall have use of premises within contract limit as shown on Drawings for construction operations, including use of Project Site, during construction period. Contractor’s use of premises is limited only by Owner’s right to perform work or to retain other contractors on portions of Project.

1.6 STANDARD SPECIFICATION FORMATS AND CONVENTIONS

A. Standard Specification Format: The Standard Specifications are organized into Divisions and Sections using the 48-division format and CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Standard Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.

B. Standard Specification Content: The Standard Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Standard Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Standard Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.7 DIG SAFE

A. Contact Dig Safe at 1-888-344-7233 at least 72 hours prior to the start of construction (excluding weekends and holidays), to mark out the utility locations.

1.8 ACCESS TO SITE

A. Minimize damage to access routes, and stockpiles/storage/staging areas and restore damaged areas to their original condition or better.

B. Acquire necessary permits, authorizations and approvals for working in, on or from property, rights-of-way or easements owned by the Town of Westerly. The Contractor shall secure access rights of his own for such work.

C. If the Contractor, by direct negotiation and bargain with any land owner, lessee or tenant, has secured any right to use more space or greater privileges in the space provided by the Owner for purposes incidental to the performance of the Contract, he shall, upon request of the Owner's Representative, furnish to the Owner's Representative proper evidence that such additional rights have been properly secured and assurance that no damage to or claim upon the Owner or Owner's Representative will arise there from. Neither the Owner nor the Owner's Representative shall be liable in any way for any expense incurred by the Contractor in securing any such right to use additional property.

D. The Contractor shall be responsible for and reimburse the Owner and others for any and all losses, damage or expense which the Owner or those others may suffer, either directly or indirectly or through any claims of any person or party, for any trespass outside the spaces and rights of way provided by the Owner to the Contractor or any violation or disregard of the terms

and conditions established for the use or occupancy of those rights or for negligence in the exercise of those rights. The Owner may retain or deduct from any sum or sums due or to become due to the Contractor such amount or amounts as may be proper to insure the Owner against loss or expense by reason of the failure of the Contractor to observe the limits and conditions of the rights-of-way, rights-of-access, easements, etc., provided by the Owner.

1.9 WORK HOURS

A. Schedule activities on Monday through Friday, 7:00 AM to 4:30 PM. Should access to the Site at other times be necessary, make arrangements with Owner.

1.10 SITE CONDITIONS

A. The underground utilities and structures at the Site have been located primarily from information furnished by others and the locations as depicted on the Drawings are considered approximate as to size and location. There may be additional underground utilities and structures that are not shown on the Drawings, and it shall be the responsibility of the Contractor to locate all existing utilities and structures and to protect same from damage or harm. Restore utilities interfered with or damaged, at the expense of the Contractor, and to the satisfaction of its Owner.

B. Ensure construction activities do not impact the activities or properties of the Owner and its Departments without prior coordination and consent of these entities.

C. Immediately notify the Owner's Representative upon encountering archaeological material, including "charcoal," "bone," "shell," "cultural objects" (e.g., fire cracked stones/stone flaking material), "middens," or any other artifacts or related items of historical significance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE AND PHASING

A. Deviation from Contractor's schedule will require the Contractor to submit notification of such change in schedule to the Owner's Representative at least seven (7) days prior to the subject change. Such notification shall be accompanied by a revised project schedule and phasing drawing

3.2 ADMINISTRATIVE SUBMITTALS

A. Do not commence portion of the Work requiring a submission until submission has been accepted by the Owner's Representative.

B. In addition to the submittals required by the various Technical Specifications, provide the following submittals within 10 days after the effective date of the Agreement:

1. Schedule of Construction. Submit a proposed schedule of construction (schedule of operations) to the Owner's Representative.

a. Provide a bar-chart-type or Gantt-chart-type schedule that clearly indicates the start date and duration of specific construction activities. The Contractor shall not work on Saturday, Sunday, or Holidays without approval of the Owner. Portions of the Work to be performed by subcontractors or utilities shall be clearly indicated as such.

b. Incorporate the erosion control including construction phasing provisions into the construction schedule.

c. Prepare scaled drawing clearly showing proposed construction phasing areas corresponding to construction schedule.

d. No work shall be started until the schedule of construction is reviewed and approved by the Owner.

e. Contract completion date shall not be changed by submission of a schedule, unless specifically authorized by Change Order approved by the Owner.

2. Schedule of Submittals/Shop Drawings. The Contractor shall submit his proposed schedule of submittals to the Owner's Representative.

3.3 PROJECT MEETINGS

A. Pre-construction Conference: Prior to the start of construction, a pre-construction conference will be held with the representatives of the Contractor, Owner's Representative, Owner, and other interested parties.

B. Progress Meetings: During progress of the Work, meetings will be conducted in order that scheduling and overall job coordination can be maintained. The Contractor shall be required to attend these meetings throughout the Project duration.

3.4 PERMIT CONDITIONS

A. The Contractor is required to comply with the conditions in the permits attached as Exhibit A including but not limited to.

1. Attachment A - Remedial Action Work Plan
2. Attachment B - Remedial Approval Letter File No. SR-38-1776 and SR-38-1777

3.5 REGULATORY COMPLIANCE

A. All equipment operators and workers performing work at the proposed location shall hold the appropriate State of Rhode Island licenses for their responsibilities.

B. Contractor shall provide a 'Competent Person', as defined by the US Department of Labor Occupational Safety & Health Administration (OSHA), for the location of the proposed work.

C. Contractor and all subcontractor and vendors working at the Site shall have an OSHA ten (10) hour construction safety program for their on-site employees.

D. All required licenses and/or certificates for work being performed shall be in the possession of the person(s) while performing the work.

E. The Contractor shall be solely responsible to conduct their operations in a manner that meets all local, state and federal regulations including RIDEM, USEPA, OSHA and labor and equipment licensing requirements.

END OF SECTION

Measurement and Payment

SECTION 012200 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.2 SUMMARY

A. This Section describes the measurement and payment for the Work to be completed under each item in the Bid Form. The descriptions may not reference all of the associated Work. Work specified but not designated as a separate Bid item is considered incidental to all Bid items. The Contractor shall review all work associated with each work item and shall have no claim for being unfamiliar with the requirements of these specifications.

B. Payment Procedures are described in the Contract, General Conditions and related Documents.

1.3 DEFINITIONS

A. Payment Items: the Owner's distribution of the Contract Sum through listed work items, as outlined in this Section, reviewed, and accepted by the Owner's Representative.

1. Each item is specified to include a defined scope of services. The payment items have been established for the Owner's convenience only and, not all materials, labor, equipment, or services of a payment item are guaranteed to be listed or specified herein.
2. Include costs associated with items of work required to complete the defined scope of services within the appropriately specified payment item.
3. Payment items include all necessary products, materials, equipment, plus costs for delivery, handling, storage, installation, all applicable fees and taxes (where applicable), administrative over-site, tools, labor, incidentals, research and testing, overhead, and profit.
4. Unit bid price items shall be paid only as accepted and where approved prior to the completion of the respective work.
5. All work and associated costs described in the Contract Documents shall be included in the payment items described herein.
6. The price so-stated on the bid form for the payment items below, constitutes full and complete compensation for all products, materials, equipment, tools labor, overhead and profit, and incidentals required to finish the work and accepted by the Owner's Representative.

1.4 PROCEDURES

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

1.5 SCHEDULE OF VALUES

Coordination: Coordinate preparation of the Schedule of Values for Base Bid items with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
   a. Application for Payment forms with Continuation Sheets.
   b. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports.

1.6 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Owner's Representative and paid for by Owner.
   1. Initial/Monthly Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days before the date for each progress payment. The Town of Westerly's standard payment terms are net 30.

C. Payment Application Forms: AIA Document G 702 or an approved equal. Form must reference the Town of Westerly's Purchase Order Number.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner's Representative will return incomplete applications without action.
   1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
   2. Include amounts of Change Orders and Work Change Directives issued before last day of construction period covered by application.
   3. Itemized data and format provided on continuation sheets shall include schedules, line items, values as stipulated in the Schedule of Values as accepted by Owner.
      a. Continuation sheets shall include a total list of all scheduled component items of work with item number and scheduled dollar value for each item. Dollar values to be included in each column for each scheduled line item when Work has been performed or products stored. Round off values to nearest dollar or as may be specified for Schedule of Values.
      b. List each Change Order executed prior to date of submission at end of continuation sheets. List by Change Order number and description as to original component item of Work.

E. Initial/Monthly Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following, which shall be updated for Monthly Applications for Payment, as applicable:

1. List of subcontractors with current MBE certification forms, as applicable.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final), updated monthly.
4. Schedule of unit prices.
5. Submittals Schedule (preliminary if not final).
6. Name of Contractor Superintendent.
7. Copies of building permits.
8. Copies of authorizations and licenses from governing authorities for performance of work.
9. Any material stored off site must carry additional insurance (All Risk Ryder) stating Owner as insured. All material is to be inspected by the Owner's Representative personnel before billing can be approved. Bill of Sale and receipts for items being billed at cost only are required and 25 percent retainage will be held for off-site stored materials. Paperwork must accompany request two weeks prior to billing to insure adequate time to schedule inspection.
10. Contractor's Health and Safety Plan (HASP).
11. Certificates of insurance and insurance policies.

F. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. Submit Warranties and maintenance agreements, as applicable.
3. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

G. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Completion of items specified by the Owner's Representative for correction after Substantial Completion.
3. Required Project Records including as constructed drawings both on hard copy and in electronic format.
4. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
5. Updated final statement, accounting for final changes to the Contract Sum.
6. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
7. AIA Document G706A, "Contractor's Affidavit of Release of Liens."

8. AIA Document G707, "Consent of Surety to Final Payment."
9. List of unsettled claims, if any.
10. Evidence that claims have been settled, if any.
11. Final, liquidated damages settlement statement, if any.
12. Removal of all temporary facilities and services
13. Removal of all surplus materials, rubbish, and similar elements.

1.7 DESCRIPTION OF BASE BID LUMP SUM PRICE PAY ITEMS

A. The payment items listed below include references to Specification Sections of work to be completed under the payment item, however not all Sections of related work are guaranteed to be listed.

B. Bid Price Item No. 1 –Utility Clearance/Health and Safety Plan

1. Work associated with this item will be paid for at the stated price including respective portions of work under all specifications necessary to initiate, sustain and conclude Contractor's activities at the project site.

   a. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to obtain utility clearance and prepare a site-specific Health & Safety Plan prior to commencing site activities.

2. Payment: Lump Sum.
3. Measurement: This item will not be measured for Payment.

C. Bid Price Item No. 2 – Pre-Remedial Activities

1. Work associated with this item will be paid for at the stated price including, but not limited to, work under the following:

   a. All or portions of Division 1 specifications, as applicable.
   b. Section 021100 Site Clearing
   c. Section 312500 Erosion and Sediment Control
   d. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to survey and stake out lot lines, provide site layout of the four Cover System locations, protecting existing trees and vegetation to remain, clearing and grubbing, and installation of perimeter erosion and sediment controls in accordance with the approved Remedial Action Work Plan (RAWP) and the Contract Documents prior to commencing site activities.
   e. This work also includes Contractor's general requirements for completing the work, including temporary measures not specified elsewhere and miscellaneous costs associated with the Work including boundary survey and as-built drawings.

2. Payment: Lump Sum.
3. Measurement: This item will not be measured for payment.

D. Bid Price Item No. 3 – Soil Excavation

1. Work associated with this item will be paid for at the stated price including, but not limited to, work under the following:
   a. All or portions of Division 1 specifications, as applicable.
   b. Section 310000 Earth Work
   c. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to excavate contaminated soils from Cover System locations 1, 2 and 3 and stockpile soils in accordance with the approved Remedial Action Work Plan (RAWP) and the Contract Documents.
2. Payment: Lump Sum.
3. Measurement: This item will not be measured for payment.

E. Bid Price Item No. 4 – Contaminated Soil Removal

1. Work associated with this item will be paid for at the stated price including, but not limited to, work under the following:
   a. All or portions of Division 1 specifications, as applicable.
   b. Section 310000 Earth Work
   c. Section 329343 Trees
   d. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to analyze the excavated contaminated soils, prepare necessary waste profile reports and shipping documents for facility acceptance pre-approval, transport soil off-site to a licensed disposal/recycling facility and provide documentation of the disposal facility in the form of certified weight slips in accordance with Section 5.5 of the approved Remedial Action Work Plan (RAWP).
2. Payment: Lump Sum.
3. Measurement: This item will not be measured for payment.

F. Bid Price Item No. 5 – Construction of Cover System 1: Tree Protective Cap

1. Work associated with this item will be paid for at the stated price including, but not limited to, work under the following:
   a. All or portions of Division 1 specifications, as applicable.
   b. Section 310000 Earth Work
   c. Section 329343 Trees
   d. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to install Cover System 1 at 26 Canal Street in accordance with Sections 5.3 and 5.6 of the approved Remedial Action Work Plan (RAWP).
2. Payment: Lump Sum.
3. Measurement: This item will not be measured for payment.

G. Bid Price Item No. 6 – Construction of Cover System 2: Sand Area Protective Cap

1. Work associated with this item will be paid for at the stated price including, but not limited to, work under the following:

a. All or portions of Division 1 specifications, as applicable.

b. Section 310000 Earth Work

c. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to install Cover System 2 at 22 Canal Street in accordance with Sections 5.3 and 5.6 of the approved Remedial Action Work Plan (RAWP).

2. Payment: Lump Sum.

3. Measurement: This item will not be measured for payment.

H. Bid Price Item No. 7 – Construction of Cover System 3: Engineered Cap

1. Work associated with this item will be paid for at the stated price including, but not limited to, work under the following:

a. All or portions of Division 1 specifications, as applicable.

b. Section 310000 Earth Work

c. Section 329219 Seeding

d. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to install Cover System 3 at 22 and 26 Canal Street in accordance with Sections 5.3 and 5.6 of the approved Remedial Action Work Plan (RAWP).

2. Payment: Lump Sum.

3. Measurement: This item will not be measured for payment.

I. Bid Price Item No. 8 – Construction of Cover System 4: Dissuasive Vegetation

1. Work associated with this item will be paid for at the stated price including, but not limited to, work under the following:

a. All or portions of Division 1 specifications, as applicable.

b. Section 310000 Earth Work

c. Section 329343 Trees

d. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to install Cover System 4 at 22 and 26 Canal Street in accordance with Section 5.3 of the approved Remedial Action Work Plan (RAWP).

2. Payment: Lump Sum.

3. Measurement: This item will not be measured for payment.

J. Bid Price Item No. 9 – Timber Rail Fence

1. Work associated with this item will be paid for at the stated price including, but not limited to, work under the following:

a. All or portions of Division 1 specifications, as applicable.

b. Section 310000 Earth Work

c. Section 323129 Timber Rail Fence

d. Includes, but is not limited to: All labor, equipment, tools, and materials necessary to install split rail fencing at 22 and 26 Canal Street in accordance with the approved RAWP (as depicted on the Contract Drawings).

2. Payment – Lump Sum

3. Measurement: This item will not be measured for payment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL

A. Measurement: Notify Owner's Representative at least 48-hours prior to the time at which necessary measurements must be taken. Notification must be in advance of obscuring pay item; do not proceed until such measurements have been taken in the presence of the Owner's Representative.

END OF SECTION

Submittal Procedures

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Owner's Representative responsive action.

B. Informational Submittals: Written information that does not require Owners Representative's approval. Submittals may be rejected for not complying with requirements.

C. Addresses: Include mailing address, telephone number, facsimile number, and e-mail address.

1.3 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Owner's Representative for Contractor's use in preparing submittals, unless requested to by the contractor.

B. Method of Transmitting Submittals: Electronic transmission via email

C. Clarity: Provide neat, clean and legible printed materials that can be easily reproduced by normal photocopying or blueprinting process. Illegible submittals will be returned unreviewed.

D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's Representative's receipt of submittal.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Owner's Representative will advise Contractor when a submittal being processed must be delayed for coordination.

2. Concurrent Review: Where concurrent review of submittals by Owner's Representative's consultants, Owner, or other parties is required, allow 30 days for initial review of each submittal.
3. If intermediate submittal is necessary, process it in same manner as initial submittal.
4. Allow 21 calendar days for processing each resubmittal.
5. No extension of the Contract Time or claims for delay will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

F. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Owner's Representative.
3. Include the following information on label for processing and recording action taken:
a. Project name.
b. Date.
c. Name and address of Owner's Representative.
d. Name and address of Contractor.
e. Name and address of subcontractor.
f. Name and address of supplier including name and telephone number of contact.
g. Name of manufacturer including name and telephone number of contact.
h. Unique identifier, including revision number.
i. Number and title of appropriate Standard Specification Section.
j. Drawing number and detail references, as appropriate.
k. Other necessary identification.

G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals. Provide list or narrative of deviations on Submittal Transmittal form.

H. Additional Copies: Unless additional copies are required for final submittal, and unless Owner's Representative observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Owner's Representative.
2. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner's Representative will return submittals**,** without review received from sources other than Contractor.
1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner's

Representative on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.

2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

3. Transmittal Form: Use sample form at end of Section.

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Use only final submittals with mark indicating action taken by Owner's Representative in connection with construction.

1.4 QUALITY ASSURANCE

A. Where "Standard Specification" is used, it shall mean "Commonwealth of Massachusetts, Massachusetts Department of Transportation, Standard Specifications for Highway and Bridges" English Edition, and latest issued supplements.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Standard Specification Sections.

1. Number of Copies: Submit five copies of each submittal, unless otherwise indicated. Mark up and retain one returned copy as a Record Document.

a. Submit a preliminary single copy of each submittal where selection of options, color, pattern, texture, or similar characteristics is required. Owner's Representative will return submittal with options selected.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

a. Manufacturer's written recommendations.

b. Manufacturer's product Standard Specifications.

c. Manufacturer's installation instructions.

d. Standard color charts.

e. Manufacturer's catalog cuts.

f. Wiring diagrams showing factory-installed wiring.

g. Printed performance curves.

h. Operational range diagrams.

i. Mill reports.

j. Standard product operating and maintenance manuals.

k. Compliance with recognized trade association standards.

l. Compliance with recognized testing agency standards.

m. Application of testing agency labels and seals.

n. Notation of coordination requirements.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:

a. Dimensions.

b. Identification of products.

c. Fabrication and installation drawings.

d. Roughing-in and setting diagrams.

e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.

f. Shopwork manufacturing instructions.

g. Templates and patterns.

h. Schedules.

i. Design calculations.

j. Compliance with specified standards.

k. Notation of coordination requirements.

l. Notation of dimensions established by field measurement.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.

D. Samples: Prepare physical units of materials or products, including the following:

1. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Include cost and wearing capability of each color and pattern.

2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing

color, texture, and pattern; color range sets; and components used for independent testing and inspection.

3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Owner's Representative's sample where so indicated. Attach label on unexposed side that includes the following:
   a. Generic description of Sample including type, quality or grade designation.
   b. Product name or name of manufacturer.
   c. Sample source.
   d. Name of Project.
   e. Name of Contractor or subcontractor.

4. Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, provide the following:
   a. Size limitations.
   b. Compliance with recognized standards.
   c. Availability.
   d. Delivery time.

5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
   a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least two sets of paired units that show approximate limits of the variations.
   b. Refer to individual Standard Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

6. Disposition: Maintain sets of approved Samples at Project Site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
   a. Samples that may be incorporated into the Work are indicated in individual Standard Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise not designated as Owner's property, are the property of Contractor.

E. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location.

F. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."

G. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Standard Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Standard Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."

B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Owner’s Representatives and owners, and other information specified.

C. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

D. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

E. Material or Product Certificates: Prepare written statements on manufacturer's letterhead certifying that material or product complies with requirements. Use attached sample Material Certificate, or provide certificate that includes the following information.

1. Project to which material is consigned.
2. Name of contractor receiving material.
3. Item number and description of material.
4. Quantity of material represented by the certificate.
5. Means of identifying consignment including label, marking, or lot number.
6. Date and method of shipment.
7. Signature of Supplier’s authorized agent.
8. Notarization of certificate.

F. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

G. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

H. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

I. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

J. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project Site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Standard Specification Sections.

K. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark each copy of each submittal with approval stamp before submitting to Owner's Representative.

B. Approval Stamp: Stamp each submittal with a uniform approval stamp.

C. Include Project name and location, submittal number, Standard Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents. See attached Submittal Transmittal for sample of statement.

3.2 OWNER'S REPRESENTATIVE'S ACTION

A. General: Owner's Representative will not review submittals that do not bear Contractor's approval stamp and submittal transmittal and will return them without action.

1. Owner's Representative may elect not to review partial or incomplete submittals and will return such submittals with no action taken.

B. Action Submittals: Owner's Representative will review each submittal, make marks to indicate corrections or modifications required, and return it. Owner's Representative will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. Furnish as Submitted: Submittal appears to conform to Contract Documents and Contractor may proceed with ordering and installation.

2. Furnish as Noted: Same as "Furnish as Submitted" accept that the Contractor must comply with modifications or notes added to the submittal by the Owner's Representative.

3. Rejected: Submittal must be revised and resubmitted.

C. Informational Submittals: Owner's Representative will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Owner's Representative will forward each submittal to appropriate party.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION

SUBMITTAL TRANSMITTAL Date: _____

To: From:

PROJECT: _____ SUBMITTAL NO.: _____

(List Section No., Article No., Paragraph)

_____

_____ _____

(Revision: 1st, 2nd, 3rd, etc.)

Transmitted herewith for review and comment are the following:

Copies	Dwg.	No.	Description

MANUFACTURER / SUPPLIER

Name: _____

Address: _____

Telephone No.: _____ Facsimile No.: _____

For Additional Information, Contact _____

E-mail Address: _____

I hereby certify that I have carefully examined the enclosed submittal and have determined and verified all field measurements, construction criteria, materials, catalog numbers and similar data, coordinated the submittal with other submissions and the work of other trades and contractors, and that to the best of my knowledge and belief, the enclosed submittal is in full compliance with the Contract Documents, except for the following deviations:

BY:

Signature: _____ Date:

Title: _____

- - SAMPLE - - MATERIALS CERTIFICATE - - SAMPLE - -

(Submit on Manufacturer's letterhead)

Date: _____

WE HEREBY CERTIFY THAT _____

(Description, Kind of Material, Product Name, Model No.)

FURNISHED TO _____

(Name of Contractor) (Prime or Subcontractor)

FOR USE ON _____

(Project Name)

OWNER _____

(Project Owner)

IDENTIFIED BY: _____

(Label, Marking, Seal No., Consignment, or Waybill No.)

SHIPPED VIA: _____

(Method of Shipment, Car No., Truck No.)

SHIPPED ON: _____ DELIVERED ON: _____

MEETS THE REQUIREMENTS OF THE CONTRACT DOCUMENTS FOR THE SUBJECT PROJECT IN ALL RESPECTS. PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH APPLICABLE STANDARD SPECIFICATIONS, DRAWINGS AND STANDARDS OF ARTICLES FURNISHED. ARTICLES FURNISHED COMPLY WITH THE FOLLOWING STANDARD SPECIFICATIONS:

_____

_____

_____

_____

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than 3 years from the date of this certificate.

_____
(Name of Manufacturer)

_____
(Authorized Representative's Signature)

_____
(Title)

- - SAMPLE - - EQUIPMENT RECORD SHEET - - SAMPLE - -

PROJECT: _____ SUBMITTAL NO.: _____
(list Section No., Article No., and Paragraph)

_____ _____
(Revision: 1st, 2nd, 3rd, etc.)

EQUIPMENT MANUFACTURER	SERVICE REPRESENTATIVE
_____	_____
_____	_____
_____	_____
_____	_____

TYPE _____ Motor Mfr. _____

MODEL NO._____ Motor Size _____

SERIAL NO._____ Volts _____ Amps _____

CAPACITY _____ at _____ Phase _____ Cycles_____ RPS _____

SPECIAL NOTES AND REMARKS:

_____

_____

_____

_____

_____

_____

_____

_____

Mobilization

SECTION 015000 - MOBILIZATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes work necessary for the movement of personnel and equipment to and from the Project Site.

1.2 SUBMITTALS

A. Submit site-specific Health and Safety Plan for informational purposes.

1.3 QUALITY ASSURANCE

A. Not used.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 SAFETY

A. The Contractor shall prepare a site-specific Health and Safety Plan (HASP) in accordance with 29 CFR Part 1910.120: Hazardous Waste Operations and Emergency Response of the Occupational Safety and Health Administration.

B. The Contractor shall comply with all requirements of the most recent version of the Occupational Safety and Health Act (OSHA).

C. When any support system is used that requires design by an engineer, copies of the design stamped by a Professional Engineer registered in the State of Rhode Island shall be submitted to the Engineer.

D. The Contractor has full responsibility to comply with all provisions of the State of Rhode Island Public General Statutes concerning Occupational Safety and Health. Any fines levied against the Contractor for violations shall be the Contractor's responsibility.

3.2 PROTECTION

A. The Contractor shall assume full responsibility for the protection of all public or private buildings, structures and utilities in the streets, gas pipes, water pipes, hydrants, sewers, drains and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from damage of every description and any such damage thereto shall be repaired or otherwise made good by the Contractor, at his expense, in a manner acceptable to the Owner's Representative.

B. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. The Contractor shall, at the Contractor's own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer.

END OF SECTION

Temporary Facilities

SECTION 015900 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. Temporary utilities include, but are not limited to, the following:

1. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
2. Electric power service.

C. Support Facilities include, but are not limited to, the following:

1. Project identification and temporary signs.
2. Waste disposal facilities.

D. Construction Facilities include, but are not limited to, the following:

1. Environmental protection.
2. Vehicular access.
3. Parking.
4. Progress cleaning and waste removal.
5. Security Fencing.
6. Stormwater control.
7. Tree and plant protection.
8. Barricades, warning signs, and lights.

1.2 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Owner's Representative and shall be included in the Work. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner.
2. Owners' Representative.
3. Testing agencies.
4. Personnel of authorities having jurisdiction.

B. Sewage Disposal Service: Pay sewage disposal service use charges for sewage disposal from Project Site.

C. Potable Water Service: Pay potable water service use charges, whether metered or otherwise, for water used in construction activities at Project Site.

1.3 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by the Owner's Representative. Provide materials suitable for use intended.

B. Water: Potable.

2.2 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material for the exclusive use of the Owner's Representative.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. The Contractor may provide and maintain suitable field offices and storage facilities at a location agreeable to the Owner.

1. The Contractor shall provide a weather proof construction bulletin board at the Work Site to post permits as required of the regulatory process.

B. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service if needed. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company requirements.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
3. Obtain easements to bring temporary utilities to Project Site where Owner's easements cannot be used for that purpose.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.

C. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.

1. Install power distribution wiring overhead and rise vertically where least exposed to damage.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion.

B. Provide sedimentation control measures in accordance with Division 2 Section “Erosion and Sedimentation Control”

C. Dewatering Facilities and Drains: Maintain Project Site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

3.4 CONSTRUCTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise.

B. Vehicular Access: Construct temporary access roads from public thoroughfares to serve construction area, of width and load-bearing capacity to accommodate unimpeded traffic for construction purposes.

C. Progress Cleaning: Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.

D. Security Fencing: Protect Work on existing premises from theft, vandalism, and unauthorized entry. Temporary chain link fencing shall be installed around open excavations when the Contractor is not on the Site.

E. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.

F. Tree and Plant Protection: Install temporary fencing located as indicated on the Drawings or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.

G. Barricades, Warning Signs, and Lights: Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights. Shall comply with standards and code requirements for erecting structurally adequate barricades and the most recent edition of the Manual on Uniform Traffic Control Devices (MUTCD).

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

B. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of the Contractor.

2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION

Execution Requirements

SECTION 017000 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Boundary Survey
2. Field engineering and surveying
3. Construction layout
4. General installation of products
5. Progress cleaning
6. Starting and adjusting
7. Protection of installed construction
8. Correction of the Work

B. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.

C. Certified Surveys: Submit 2 copies stamped by a professional land surveyor.

1.2 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of Site improvements and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning Site Work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

a. Description of the work

b. List of detrimental conditions, including substrates

c. List of unacceptable installation tolerances

d. Recommended corrections

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to the Owner's Representative. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 FIELD ENGINEERING

A. Identification: Owner's Representative will identify existing benchmarks, control points. Contractor shall locate property lines prior to beginning work.

B. Property Survey: Prepare a Class I Survey in accordance with the Procedural and Technical Standards for the Practice of Land Surveying in the State of Rhode Island. Establish and maintain a minimum of two permanent benchmarks on Project Site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Record Documents.

2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

4. Do not change or relocate existing benchmarks or control points without prior written approval of Owner. Report lost or destroyed permanent benchmarks or control points promptly.

3.4 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Owner's Representative prior to proceeding with the Work.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines, grades, and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Check the location, level and plumb, of every major element as the Work progresses.
4. Notify Owner's Representative when deviations from required grades, lines, and levels exceed allowable tolerances.
5. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out Site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Structure Lines and Levels: Locate and lay out control lines and levels for structures. Transfer survey markings and elevations for use with control lines and levels.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Owner's Representative.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

B. Comply with manufacturers' written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. Clean Project Site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

B. Maintain Project Site free of waste materials and debris.

C. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

D. Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

F. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

1. Thoroughly clean surfaces before applying paint or other finishing materials.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer’s written instructions for temperature and relative humidity.

3.8 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

END OF SECTION

Closeout Requirements

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:

1. Inspection procedures
2. Final cleaning

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Complete final cleaning requirements.

B. Inspection: When the Work is ready for its intended use, submit a written request for inspection for Substantial Completion. On receipt of request, the Owner's Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. The Owner's Representative will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor’s list or additional items identified by the Owner's Representative that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment
2. Submit certified copy of Owner's Representative's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by the Owner's Representative. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, the Owner's Representative will either proceed with inspection or notify Contractor of

unfulfilled requirements. The Owner's Representative will notify Contractor of construction that must be completed or corrected before final payment will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.5 RECORD DOCUMENTS

A. General: Do not use Record Documents for construction purposes. Protect Record Documents from deterioration and loss. Provide access to Record Documents for the Owner's Representative's reference during normal working hours.

B. Prepare and submit Record Documents in accordance with Division 1 Section "Record Documents."

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal, State, and local environmental and antipollution regulations.

B. Cleaning:

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean areas disturbed by construction activities of rubbish, surplus soil, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project Site.

e. Remove debris from limited access spaces, including trenches, equipment vaults, manholes, and similar spaces.

f. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury stumps, debris or excess materials brought to the Site on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project Site and dispose of lawfully.

D. If the Contractor fails to clean up, the Owner may do so and the cost thereof will be charged to the Contractor.

END OF SECTION

Record Documents

SECTION 017810 - RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit 2 sets of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:
   a. Initial Submittal: Submit 2 sets of marked-up Record Prints. The Owner's Representative will initial and date each and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. The Owner's Representative will return prints for organizing into sets, printing, binding, and final submittal.
   b. Final Submittal: Submit 2 sets of marked-up Record Prints. Print each Drawing, whether or not changes and additional information were recorded.
   c. Final Submittal: Submit 2 sets of marked-up Record Prints printed from record plots. Plot and print each Drawing, whether or not changes and additional information were recorded.
      1) Electronic Media: CD-ROM

B. Record Specifications: Submit one copy of Project's Standard Specifications, including addenda and contract modifications.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

b. Accurately record information in an understandable drawing technique.

c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.

b. Revisions to details shown on Drawings.

c. Locations and depths of underground utilities.

d. Revisions to routing of piping and conduits.

e. Changes made by Change Order or Construction Change Directive.

f. Changes made following the Owner's Representative's written orders.

g. Details not on the original Contract Drawings.

h. Field records for variable and concealed conditions.

i. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Standard Specifications to indicate the actual product installation where installation varies from that indicated in Standard Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Record the name of the manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.

5. Note related Change Orders, Record Drawings, and Product Data where applicable.

2.3 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Standard Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Record Document purposes. Post changes and modifications to Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Record Documents for Owner's Representative's reference during normal working hours.

END OF SECTION

Site Clearing

SECTION 021100 – SITE CLEARING

PART 1 - GENERAL

1.1 SCOPE

A. Section includes, but is not limited to, the following:

1. Protecting existing trees and plants, utilities, and other items to remain within and outside limit of disturbance.
2. Selective clearing and grubbing of vegetation.
3. Removing existing brush and other vegetation and rubbish.
4. Off-site disposal of above items.

1.2 DEFINITIONS

A. Tree and Plant Protection Zone (TPZ): Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

B. Site Improvements: Miscellaneous structures and site elements including soil caps, fences and railings.

1.3 MATERIAL OWNERSHIP

A. All material removed from the Site shall become the property of the Contractor, who shall bear all responsibility for its proper disposal in accordance with this Section.

1.4 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and Site improvements that might be misconstrued as damage caused by Site clearing.

1.5 QUALITY ASSURANCE

A. Preconstruction Meeting: Conduct meeting with the Owner's Representative and Review the following:

1. Clearing limits.
2. Trees and other on-site improvements to be protected.
3. Location of tree and plant protection zones.
4. Tree removal marking system and requirements.

B. Where "Standard Specification" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction," 2013 Edition and all amendments.

1.6 PROJECT CONDITIONS

A. The following practices are prohibited within tree and plant protection zones:
   1. Storage of construction materials, debris, or excavated material.
   2. Parking vehicles or equipment.
   3. Foot traffic.
   4. Erection of sheds or structures.
   5. Impoundment of water.
   6. Excavation or other digging unless otherwise indicated.
   7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Limits of Work: Minimize disturbance within clearing limits. Perform only as much clearing as required to complete the Work.

1.7 EQUIPMENT OPERATIONS

A. Operate equipment with care to prevent injury to overhanging branches and limbs of trees to remain within limits of disturbance.

B. Traffic: Minimize interference with adjoining roads, streets, walks, driveways, and other adjacent occupied or used facilities during site-clearing operations.

C. Protect-In-Place Existing Site Improvements: Support and protect in place existing Site improvements designated by the Owner's Representative to be preserved in place or to remain. Notable items include trees and shrubs as indicated on the Contract Drawings. Other items include utility structures, piping, poles, wires, and other structures to remain within the Project Limits. Restore items promptly if damaged; do not leave until end of construction. Restore items damaged by the Contractor, at a minimum, to the condition in which the item was found immediately before beginning the Work.

D. Remove and Reset Existing Site Improvements: Remove and protect items to be reset upon completion of construction.

E. Utility Locator Service: Notify "Dig Safe" and conduct utility location survey for area within limits of disturbance before commencing Site clearing.

F. Install all temporary erosion and sedimentation control measures prior to commencing Site clearing operations

G. Restore items and finished surfaces that have been damaged by Contractor's operations to a condition at least equal to condition before work began.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION

3.1 GENERAL

A. Selective clearing shall be limited to areas indicated on Contract Drawings.

B. Erosion and Sedimentation Control: Examine the Site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree and plant protection zones.

3.2 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Protect existing Site improvements to remain from damage during construction.

C. Locate and clearly identify trees, shrubs, and other vegetation to remain.

3.3 TREE AND PLANT PROTECTION ZONES

A. Do not cut or damage trees and shrubs to remain.

B. Do not store construction materials, debris, or excavated material within drip line of trees to remain. Maintain tree and protection zones free of weeds and trash.

C. Do not cut branches, limbs or roots except where approved by the Owner's Representative or indicated on the Contract Drawings.

D. Repair or replace trees, shrubs, and other vegetation indicated to remain that are damaged by construction operations, in a manner approved by Owner's Representative.

3.4 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

3.5 DISPOSAL

A. Disposal: See Section 310000 for soil disposal criteria.

END OF SECTION

Earthwork

SECTION 310000 - EARTH WORK

PART 1 - GENERAL

1.1 SCOPE

A. Protecting existing trees and vegetation to remain.

B. Excavating and disposal of impacted surface soil in accordance with the approved Remedial Action Work Plan (RAWP) and in compliance with the Soil Management Plans (SMP) for each Site.

C. Installation of barriers layers (i.e. snow fence, geotextile).

D. Installation, compaction, and grading of imported soil materials.

E. Installation of crushed stone and riprap.

1.2 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

B. Clean fill: Satisfactory soil imported from off-site for use as fill or backfill.

C. Clearing Limits: Areas depicted on the Contract Drawings within the properties constituting the Sites.

D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated on the Contract Drawings.

E. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by the Owner's Representative. Unauthorized excavation, as well as remedial work directed by the Owner's Representative, shall be without additional compensation.

F. Impacted Surface Soil: All on-site soil material is considered contaminated with metals (antimony, arsenic, and lead) and polycyclic aromatic hydrocarbons (PAHs), as laboratory analysis has revealed the presence of these substances in soil at the Sites at concentrations exceeding the RIDEM Remediation Regulations residential direct exposure criteria (RDEC) and/or industrial/commercial direct exposure criteria (ICDEC), and lead in excess of the GA leachability criteria. The source of contamination has been attributed to urban fill. Human exposure to on-site soil should be limited to the extent practical.

G. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material that cannot be removed by excavating equipment, without systematic drilling, ram hammering, ripping, or blasting, when permitted; and that when tested by an independent geotechnical testing agency, according to ASTM D 1586, exceeds a standard penetration resistance of 100 blows/2 inches.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, culverts, fence and rails, or other man-made stationary features constructed above or below the ground surface.

I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill.

J. Topsoil: Shall be imported from offsite and shall meet the requirements of Section M.18.01 of the Standard Specifications

K. Utilities: On-site underground pipes, conduits, ducts, and cables, underground services, as well as aboveground electrical lines and utilities.

1.3 SUBMITTALS

A. Material Testing Results, Analytical Laboratory Reports.

B. Origin of clean fill and topsoil.

C. Cut sheets of snow fence and geotextile.

D. Product data of crushed stone and riprap.

1.4 MATERIALS OWNERSHIP

A. Cleared materials, including impacted surface soil, shall become Contractor's property and shall be removed from the Sites and disposed of legally.

1.5 QUALITY ASSURANCE

A. Where “Standard Specification” is used, it shall mean “State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction,” 2013 Edition and all amendments.

1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by the Owner’s Representative and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify the Owner’s Representative and Owner not less than two days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without the Owner’s Representative's written permission.

3. Contact “Dig Safe” before excavating. Proceed with excavation only after utility locator service completes marking of utility locations.

B. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

C. Remove and Reset Improvements: Carefully remove and protect items to be reset upon completion of construction. Restore damaged items to existing condition or better.

1. Restore existing property or structures as promptly as practicable. Do not leave restoration until end of construction period.

D. Equipment Operations

1. On paved surfaces, do not operate equipment with tracks, treads, or wheels that cut or otherwise damage paved surfaces.

2. Operate equipment with care to prevent injury to trees designated to remain, including overhanging branches and limbs.

E. Restore surfaces that have been damaged by Contractor's operations to a condition at least equal to condition before work began.

1.7 PROTECTING EXISTING STRUCTURES

A. Support and protect in place existing Site improvements designated by the Owner's Representative to be preserved in place. Existing Site improvements include pipes, culverts, poles, wires, fences, monuments, benches, trash receptacles, and other structures.

1. Restore items damaged by the Contractor, at a minimum, to the condition in which the item was found immediately before beginning the work. Restore items promptly; do not leave until end of construction.

1.8 MATERIAL TESTING

E. Material Test Reports: From a qualified Rhode Island State certified analytical laboratory indicating and interpreting test results for compliance of the following with requirements indicated. Prepare separate reports for each type and application of fill material. Fill material shall be tested at minimum frequency of one composite sample for every 500 cubic yards of material, for each material type. Submittals must be approved by the Owner's Representative prior to delivery to the Sites.

1. Physical Properties

i. Origin of clean fill and topsoil.

2. Chemical Properties

i. Laboratory analyses for compliance with RIDEM Method 1 Residential Direct Exposure Criteria will include: VOCs, Total PP 13 metals, PAHs, and total petroleum hydrocarbons.

ii. Laboratory analytical results will be reviewed, approved and certified by the Owner's Representative contracted to oversee the construction activities prior to use at the Site.

iii. Source letters for clean fill and topsoil.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Clean Fill: Shall be imported from off-site and shall meet the requirements of common borrow; Section 202.02.1 of the Standard Specifications, and shall conform to Section M.01.01 of the Standard Specifications.

B. Topsoil: Shall be imported from off-site and shall conform to Section M.18.01 of the Standard Specifications.

1. Do not obtain from agricultural land, bogs or marshes
2. Do not reuse impacted surface soil from on-site.

2.2 SNOW FENCE

A. Snow Fence: Maintains the standard 40 pounds of weight for a 4-ft x 100-ft roll and 50 pounds for a 5-ft x 100 ft roll, US Netting SF50 (color orange) or approved equal, maintains a nominal mesh opening of 55 percent to insure optimum snow control with an extended service life.

2.3 GEOTEXTILES

A. Geotextile: A needle-punched nonwoven permeable geotextile, Mirafi 140N 6 percent or approved equal, composed of polypropylene fibers inert to biological degradation and designed to resist naturally encountered chemicals, alkalis, and acids, shall be installed at the interface of existing subgrade and clean fill.

2.4 CRUSHED STONE

A. Crushed Stone: All crushed stone shall be washed, shall meet the requirements for crushed stone under structures; Section 203.01.6 of the Standard Specifications, and shall conform to the gradation requirements of Section M.01.09 of the Standard Specifications.

2.5 RIPRAP

A. Riprap: All riprap shall conform to the quality requirements of Subsection M.10.03 of the Standard Specifications. The stone shall be well-graded and conform to the size requirements for Modified NSA No. R-3 riprap as specified within Section M.10.03.2 of the Standard Specifications.

PART 3 - EXECUTION

3.1 GENERAL

A. Do not reuse excavated material on-site.

B. All operations involving the removal, clearing, protection, relocation or other handling of trees and brush shall be conducted in accordance with the latest revision of ANSI Z133.1, the national safety standard for arboricultural operations.

3.2 SITE PREPARATION

A. Protect structures, utilities, sidewalks, pavements, Site improvements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

3.3 TREE AND VEGETATION PROTECTION

A. Where excavation is required within dripline of trees, use low impact techniques (air spade or equivalent approved method) and excavate to minimize damage to root system. Use narrow-

tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

1. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
2. Coat cut faces of roots more than 1-1/2 inches in diameter with a root promoter.
3. Backfill with crushed stone as soon as possible.
4. Aerate soil that has become compacted over roots of trees to be preserved.

B. Repair or replace trees and vegetation to remain that are damaged by construction operations, in a manner approved by The Owner's Representative.

1. Employ a qualified arborist, licensed in the State of Rhode Island, to submit details of proposed repairs and to repair damage to trees and shrubs.
2. Replace trees and shrubs that cannot be repaired and restored to full-growth status, as determined by the qualified arborist.
3. Replace vegetation with injuries that diminish beauty or affect growth or usefulness, with similar species and quality.

C. Do not store construction materials, debris, or excavated material within drip line of trees to remain.

D. Do not permit vehicles, equipment, or foot traffic within drip line of trees to remain.

E. Protect tree trunks adjacent to the Work from damage from equipment and construction operations.

3.4 EXCAVATION

A. The Contractor shall excavate all types of material encountered within the limits of the project to the lines, grades, and elevations indicated on the Contract Drawings and as specified by the Owner's Representative. Grading shall be in accordance with the typical sections shown on the Contract Drawings. During construction, the Contractor shall perform excavation and fill in a manner and sequence that will provide proper drainage at all times. Excavations and trenching should be performed in accordance with OSHA regulations.

3.5 DISPOSAL OF IMPACTED SURFACE SOIL

A. The Sites, which are contaminated primarily with metals (antimony, arsenic, and lead) and polycyclic aromatic hydrocarbons (PAHs), are located within a historically urbanized section of the Town of Westerly and surrounding properties have been utilized for industrial or commercial purposes for over 100 years. Material that is excavated from anywhere within the Sites as outlined on the Contract Drawings, shall be considered contaminated and must be transported to an approved landfill. The contractor shall be responsible for performing all analytical testing, preparing and obtaining approval from the selected landfill, supplying the Owner's Representative all disposal documentation for this material, and adhering to all applicable rules and regulations governing the handling and disposal of this material.

B. Disposal methods shall conform to those criteria outlined in the Remedial Action Work Report (RAWP), Soil Management Plan (SMP), and on the Contract Drawings.

C. Material for disposal must be characterized by sampling at a frequency of one composite sample per 1,000 cubic yards. No additional quality assurance or quality control sampling is necessary for the disposal material sampling. The sample should be collected and sent for analysis at a

Rhode Island Certified Laboratory. A summary of the analytical requirements is presented below:

Table 2: Soil Disposal Analytical Requirements

Analysis	Number of Samples	Method
VOCs	1 Composite	8260B
SVOCs	1 Composite	8270D
Total Petroleum Hydrocarbons	1 Composite	8100
PP 13 Metals (Ag, As, Sb, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Tl, Zn)	1 Composite	SW-846 7471B for Hg, 6010C for all others
Polychlorinated Biphenyls	1 Composite	8082
pH	1 Composite	9045
Water Content/Free Liquids	1 Composite	9025B
Particle Size	1 Composite	Sieve
Toxic Characteristic Leachability Profile Metals	1 Composite	7471

3.6 APPROVAL OF SUBBGRADE

A. Notify The Owner's Representative when excavations have reached required subgrade.

B. If the Owner's Representative determines that unsatisfactory soil is present, continue excavation and replace with clean fill as directed.

   a. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the work.

C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by The Owner's Representative.

3.7 STORAGE OF SOIL MATERIALS

A. Stockpiling of impacted surface soil, clean fill, and topsoil shall conform to those criteria outlined in the Remedial Action Work Report (RAWP), Soil Management Plan (SMP), and on the Contract Drawings. All stockpiles of impacted material must be placed on, and covered with 10-mil polyethylene sheeting.

B. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Prevent windblown dust. Provide erosion control measures (baled straw or silt fence) around the entire perimeter of each stockpile.

C. Stockpile soil materials away from the edge of excavations. Do not store soil materials within the drip line of trees to remain.

3.8 FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 3 horizontal so fill material will bond with existing material.

C. Place and compact fill material in layers to required elevations.

3.9 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to the satisfaction of the Owner's Representative.

a. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

b. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that is too wet to compact to meet the satisfaction of the Owner's Representative.

3.10 COMPACTION OF FILL

A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

3.11 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to match existing grades, allowing for the provision of surface restoration (e.g., topsoil and seed).

3.12 SNOW FENCE

A. Snow fence shall be installed where shown on the Contract Drawings; prior to placing riprap.

1. Overlap seams of snow fence a minimum of 12 inches to ensure full coverage.

3.13 GEOTEXTILES

A. Geotextile shall be installed where shown on the Contract Drawings; prior to placing clean fill.

1. Overlap seams of geotextile a minimum of 12 inches to ensure full coverage.

2. Geotextile to be installed with staples shall be made from 12-inch lengths of No. 11 gauge steel wire bent to form a "U" of 1.5 to 2 inches in width or approved equal. Longer staples may be required for loose soils.

3.14 CRUSHED STONE

A. Snow fence shall be installed where shown on the Contract Drawings; prior to placing crushed stone.

B. Crushed stone shall be placed and distributed such that there will be no large accumulation of either the larger or smaller stone in any given area.

3.15 RIPRAP

A. Snow fence shall be installed where shown on the Contract Drawings; prior to placing riprap.

B. Riprap stones shall be placed and distributed such that there will be no large accumulation of either the larger or smaller stone in any given area.

END OF SECTION

Erosion and
Sediment Control

SECTION 312500 - EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SCOPE

A. Work included in this Section consists of furnishing and placing temporary erosion and pollution control devices, specified herein, and/or shown on the Contract Drawings, and as needed for a complete and proper installation. All erosion control work is to be done in conformance with all federal, state and local permits and regulations. Measures include the following:

a Straw Bales

b Silt fence

c Spill kit

d Erosion control blanket

e Dust control

1.2 QUALITY ASSURANCE

A. The Contractor shall comply with the following Reference Standards and Codes:

1. Rhode Island Soil Erosion and Sediment Control Handbook
2. Where "Standard Specification" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction," 2013 Edition and all amendments.

PART 2 - PRODUCTS

2.1 STRAW BALES

A. Straw bales shall conform to Section 6 of the Rhode Island Soil Erosion and Sediment Control Handbook.

1. Straw bales for erosion control shall consist of rectangular shaped bales of straw or straw weighing at least 40 pounds per bale. They shall be free from primary noxious weed seeds and rough or woody materials. The minimum dimension of any bale shall be 18 inches.

2.2 SILT FENCE

A. Silt fence shall conform to Section 206.02.2 of the Standard Specifications.

1. The weight shall average 0.50 pound per square yard, with a tolerance of plus or minus 10 percent.
2. Staples used with erosion control blanket shall be made from 11-gauge steel and shall be 6 inches long.

2.3 SPILL KIT

A. Skimming Spill Kit, packed in a 65-gallon container, capable of absorbing 40 gallons of oil, containing at a minimum, the following:

1. Nine 10-foot socks.
2. Two 10-foot booms.
3. 40 Skimming mat pads.
4. Miscellaneous: Disposal bags and ties; labels; emergency response guidebook, and instruction manual.

2.4 EROSION CONTROL BLANKET

A. Erosion control blanket shall conform to Section M.18.09.3 of the Standard Specifications.

1. The width shall be 40 inches or 80 inches, plus or minus 1 inch.

2.5 DUST CONTROL

A. Dust control shall meet the requirements of Section 907.03.1 of the Standard Specifications and the requirements of the Contract Drawings.

PART 3 - EXECUTION

3.1 GENERAL

A. Minimize environmental damage during construction. Prevent discharge of fuel, oil, lubricants, and other fluids. Mitigate effects of discharge.

B. Install erosion and sediment control measures prior to clearing, demolition, soil disturbance, or construction.

C. Construct erosion and sediment control measures in accordance with standards and specifications of the “Soil Erosion and Sediment Control Handbook”, Town of Westerly regulations.

D. Attend a preconstruction meeting with the Owner’s Representative and Town of Westerly, to review permit conditions.

E. Install additional control measures, if deemed necessary by the State, Town, or Owner.

F. Implement and maintain the erosion and sediment control notes on the Contract Drawings. Inform parties engaged on the construction site of the requirements and objectives of the plan.

G. Control dust and wind erosion. Control dust to prevent a hazard to traffic on adjacent transportation corridors. Dust control includes sprinkling of water on exposed soils and haul roads.

H. Within 14 days of stopping or completing slope construction, stabilize slopes with vegetation or erosion control blanket to minimize exposure.

I. Stockpiles

1. Implement and maintain the stockpile notes on the Contract Drawings.
2. Side Slopes: 2:1 maximum.
3. Surround stockpiles by a sediment barrier (silt fence).

4. Stabilize stockpiles left bare for more than 14 days with temporary vegetation or erosion control blanket.

J. Final Grading

1. If final grading of any phase is delayed for more than 14 days after land disturbances cease, stabilize soils with temporary vegetation or erosion control blanket.

K. Areas to Be Left Bare Prior to Finished Grading and Seeding (Not within Regular Planting Season)

1. Within Temporary Planting Seasons

a. Temporarily seed according to Contract Drawings.

b. Where grass predominates, fertilize according to a soil test at a minimum application rate of one pound per acre.

2. Outside of Any Planting Seasons

a. Install air-dried wood chip mulch, free of coarse matter.

b. Apply at a rate of 185 to 275 pounds per 1000 sq. ft.

3.2 SILT FENCE

A. Install fencing in accordance with Section 206.03.2 of the Standard Specifications.

3.3 STRAW BALES

A. Install straw bales in accordance with Section 6 of the Rhode Island Soil Erosion and Sediment Control Handbook.

3.4 EROSION CONTROL BLANKET

A. Install blanket in accordance with manufacturer's instructions or as directed by the Owner's Representative.

3.5 SPILL KIT

A. Maintain spill kit on-site for duration of construction.

3.6 MAINTENANCE

A. Erosion Control Measures

1. Inspect and maintain in accordance with Section 212 of the Standard Specifications and requirements in the Contract Drawings.

2. Remove and dispose of accumulated sediments when sediment reaches approximately one-third the height of the control system, or when directed by the Owner's Representative.

3. Replace control system promptly if fabric decomposes or system becomes ineffective.

4. Maintain or replace system until no longer necessary for the intended purpose.

5. Contractor shall be responsible to fix and/or replace all damaged erosion control systems damaged by severe weather to the satisfaction of the Owner's Representative or Owner.

3.7 REMOVAL

A. Remove and dispose of control systems after respective upgradient areas stabilize with stable growth or as directed by the Owner's Representative.

B. Remove in accordance with Section 206.03 of the Standard Specifications.

END OF SECTION

Timber Rail Fence

SECTION 323129 – TIMBER RAIL FENCE

PART 1 - GENERAL

1.1 SCOPE

A. This section covers specifications regarding acquisition, delivery, storage, handling and installation of timber rail fence.

1.2 SUBMITTALS

A. Product Certificate:

1. Wood post and rail.
2. Wood preservative treatment.

B. Shop Drawings: Plan and details of post and rail system; including layout and post spacing based on field dimensions.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Prevent breaking and splintering of timber.

B. Use rope or fabric slings when lifting with equipment. Do not use equipment and methods that will damage or penetrate timber surface.

C. Stack timber and lumber in dry and level areas that are free of weeds, rubbish, and combustible materials. Protect timber and lumber from the weather.

1. Prevent timbers and lumber from sagging, twisting, or warping.
2. Maintain a minimum of 8 inches clear between stacked lumber and grade.

1.4 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others' unless permitted in writing by the Owner's Representative and then only after arranging to provide temporary utility services according to requirements indicated:

1. Contact local utility locator service before excavating. Proceed with excavation only after utility locator service completes marking of utility locations.

PART 2 - PRODUCTS

2.1 TIMBER RAIL FENCE

A. Rails and Posts: AASHTO M168; sawn structural lumber made of northern white cedar.

1. Preservative Treatment: AASHTO M133.

PART 3 - EXECUTION

3.1 PREPARATION

A. Field-verify dimensions and layouts which may affect fabrication and erection.

3.2 INSTALLATION

A. Post Setting. Excavate holes for post foundations in firm, undisturbed or compacted soil.

1. Remove boulders encountered during excavation of post hole.
2. Set posts plumb, at correct height and spacing, and in alignment with the rail.
   a. Hold posts in position during backfilling and compaction. Material excavated for post holes cannot be reused on-site for any application other than backfilling posts.
3. Rail Setting. Insert rails into post slots.
4. Excavated impacted surface soil that cannot be replaced into excavation hole shall be handled according to Section 310000.

END OF SECTION

Seeding

SECTION 329219 – SEEDING

PART 1 - GENERAL

1.1 SCOPE

A. Section Includes, but is not limited to:

1. Subgrade preparation
2. Grading of topsoil
3. Seeding (or hydroseeding)
4. Inorganic soil amendments
5. Fertilizers
6. Mulching

1.2 SUMMARY

A. This work shall consist of seeding for all areas designated to receive seeding as specified in the Contract Drawings.

1.3 SUBMITTALS

A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

B. Product Certificates for Amendments and Fertilizers: For soil amendments and fertilizers, from manufacturer.

1.4 QUALITY ASSURANCE

A. Where “Standard Specifications” is used, it shall mean “State of Rhode Island Department of Transportation Standard Specifications for Roads and Bridge Construction, Revision of 2013” and issued supplements.

1.5 MATERIAL TESTING

A. See Section 310000 for material testing requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.

1.7 PROJECT CONDITIONS

A. Seed shall be applied using hydroseeding methods only. Hand seeding shall not be allowed.

B. Seeding Restrictions: Install permanent seed during one of the following periods. Coordinate seeding periods with initial maintenance periods to provide required maintenance from date of planting completion.

1. Spring Planting: April 1 to May 31.

2. Fall Planting: August 15 to October 15.

C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

D. If permanent seeding cannot be completed within the dates specified above, install temporary seeding. Temporary seeding may be installed from March 15 to November 15 upon approval by the Owner's Representative. If neither permanent nor temporary seeding can be installed within the recommended seeding periods, use temporary mulching to protect the Site and delay seeding until the next recommended seeding period in accordance with Part 3.

1.8 MAINTENANCE SERVICE

A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees under the supervision of a qualified supervisor demonstrating a background in seeding and landscape operations and whose work has resulted in successful turf establishment. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:

1. Seeded Turf: 60 days from date of planting completion.

a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with Association of Official Seed Analysts' (AOSA) "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Mixture: As indicated on the Contract Drawings.

1. Type I - Park Seed Mix in accordance with Section M.18.10.2 of the Standard Specifications.

2. Type III - Temporary Seed Mix in accordance with Section M.18.10.5 of the Standard Specifications.

2.2 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: O, with a minimum of 95 percent passing through No. 8 (2.36-mm) sieve and a minimum of 55 percent passing through No. 60 (0.25-mm) sieve.

2. Provide lime in form of ground dolomitic limestone.

2.3 FERTILIZERS

A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: 10 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.

2.4 MULCHES

A. Mulch: Shall be meet the requirements of Section M.18.08.1 of the Standard Specifications.

2.5 TOPSOIL

A. Topsoil: See Specification 310000 for topsoil product data.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be seeded for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.

2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.

3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.

4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a seeding area, remove the soil and contamination as directed by the Owner's Representative and replace with new planting soil.

3.2 PREPARATION

A. Protect structures, utilities, footpaths, pavements, walls and other facilities (including trees, shrubs, and plantings to remain) from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding overspray.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 LAWN PREPARATION

A. Limit lawn subgrade preparation to areas to be restored or newly planted.

B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter from the Site and dispose of legally.

1. Spread topsoil to a depth of 4 inches minimum but not less than required to meet finish grades, after light rolling and natural settlement. Do not spread if topsoil or subgrade is frozen, muddy, or excessively wet.

C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Finish grades shall be the same as existing grades. Limit fine grading to areas that can be planted in the immediate future.

D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.4 APPLICATION OF LIME

A. Apply lime in accordance with Section L.02.03.3 of the Standard Specifications.

3.5 APPLICATION OF FERTILIZER

A. Apply fertilizer in accordance with Section L.02.03.4 of the Standard Specifications.

3.6 HYDROSEEDING

A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.

2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre (15.6-kg/92.9 sq. m) dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

B. Adhere to Section L.02.03.7 of the Standard Specifications for care of seeded areas during construction.

3.7 MULCHING

A. Mulch in accordance with Section L.02.03.6 of the Standard Specifications.

3.8 SATISFACTORY LAWN

A. Satisfactory Seeded Lawn: A healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 square feet and bare spots not exceeding 3 by 3 inches.

B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.9 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving Site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove non-degradable erosion-control measures after grass establishment period.

END OF SECTION

Trees

SECTION 329343 - TREES

PART 1 - GENERAL

1.1 SCOPE

A. The work of this Section covers specifications regarding acquisition, delivery, storage, and handling of trees and shrubs and consists of providing all labor, equipment, materials, incidental work, and construction methods necessary to perform all planting work and related items as indicated on the Contract Documents and as specified in this Section and includes, but is not limited to, the following:

1. Planting soils
2. Amending existing soils, as necessary, to meet the project requirements.
3. Planting trees and shrubs.
4. Planting area mulching.
5. Staking, guying, and anchoring trees.
6. One year guarantee period for all plants.
7. Planting maintenance.

B. As soon as practicable following final grading of Sites, and prior to hydroseeding where applicable, the Contractor shall furnish, place and install balled and containerized trees and shrubs of acceptable type and quality depicted in this section and in the appropriate locations as shown in the Contract Drawings.

C. The Contractor shall be responsible for furnishing, installation, establishment, protection, and maintenance of trees and shrubs until complete site demobilization. The Contractor shall be responsible for the in-kind replacement of any and all installed trees and shrubs that do not successfully establish during the specified warranty.

1.2 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation.

B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with caliper of tree trunk not less than sizes indicated on Contract Drawings; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.

C. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than sizes indicated.

D. Container-Grown Stock: Healthy, vigorous, well-rooted exterior plants grown in a container with well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for kind, type, and size of exterior plant required.

E. Finish Grade: Elevation of finished surface of loam.

F. Loam: Refer to Section M.18.01 of the Standard Specifications.

G. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

H. Pests: Living organisms that occur where they are not desired, or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

I. Planting Area: Areas to be planted.

J. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.

K. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

L. Soil Amendments: Fertilizer.

M. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before topsoil is placed.

N. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

O. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Sites. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.3 SUBMITTALS

A. Soil Amendments: Submit manufacturer’s product data for all soil additives needed to amend a specific soil in order to meet the requirements of this Division 2 Section, TREES.

B. Plant Materials: Include quantities, sizes, quality, and sources for plant materials indicated on the Contract Drawings. Contractor shall provide this information in written certification and verification that plantings have been grown under Zone 5 or hardier conditions.

C. Tree Guying System: Submit manufacturer's product data of system.

1.4 QUALITY ASSURANCE

A. Where “Standard Specifications” is used, it shall mean “State of Rhode Island Department of Transportation Standard Specifications for Roads and Bridge Construction, Revision of 2013” and issued supplements.

B. Installer Qualifications: The planting shall be done by horticulturally skilled workers, trained and experienced in accepted nursery practices. The Work shall be done under the supervision of a qualified planting supervisor demonstrating a background in landscape operations.

C. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.

1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Measure caliper of tree trunk from, approximately 6 inches from the trees' base.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.

B. Deliver bare-root stock plants freshly dug. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.

C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

D. Handle planting stock by root ball.

E. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist. Protect all plants and products from weather or other damaging or deteriorating conditions.

1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.

2. Do not remove container-grown stock from containers before time of planting.

3. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition.

F. All areas to be planted shall be inspected by the Contractor before starting work and any defects shall be reported to the Owner's Representative prior to beginning this work. The commencement of work by the Contractor shall indicate acceptance of the areas to be planted.

G. The Contractor shall be solely responsible for judging the full extent of work requirements involved, including, but not limited to the potential need for storing and maintaining temporarily and/or re-handling plants prior to final installation.

H. Plants which have been damaged or have deteriorated in transit or storage are not acceptable.

I. Keep plants moist, fresh, and protected against exposure to sun, wind, and freezing temperatures whether in the receiving yard, in transit, while being handled, or at the job site awaiting planting.

J. Deliver trees and shrubs after preparations for planting have been completed and plant immediately.

K. All trees shall be planted within the same season that they are dug. No heeling in of trees over the winter or planting out of season will be permitted.

L. Those species known to be fall digging hazards shall be dug during the spring season only. Fall planting of these species shall be permitted only with certification from the nursery at the time of digging, and at the discretion of the Owner's Representative.

M. Correlate planting schedule with specified maintenance periods to provide maintenance to date of acceptance.

N. Coordination with Seeded Areas: Plant trees and shrubs after finish grades are established and before seeding turf areas unless otherwise indicated or permission is granted by the Owner's Representative.

1. When planting trees and shrubs after seeding turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual grade elevations, service and utility locations, and dimensions of plantings and construction contiguous to the proposed location of new plantings by field measurements before proceeding with planting work.

B. Planting Restrictions: Plant trees and shrubs during the following period. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.

Deciduous material: Spring – March 1 to June 30
Fall – September 1 to December 15

C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.

1.7 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within 12 months of date of Substantial Completion.

1. Failures include, but are not limited to, the following:

a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.

b. Structural failures including plantings falling or blowing over.

c. Faulty performance of tree stabilization.

2. Include the following remedial actions as a minimum:

a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.

b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.

c. A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.

d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

1.8 MAINTENANCE SERVICE

A. Trees and Shrubs: Maintain for the following maintenance period by pruning, cultivating, watering, weeding, mulching, restoring planting saucers, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required to keep trees and shrubs free of insects and disease. Restore or replace damaged tree wrappings.

1. Maintenance Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PLANTING SOILS

A. Loam: Shall be imported from offsite and shall meet the requirements of Section M.18.01 of the Standard Specifications.

2.2 FERTILIZERS

A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: 10 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.

2.3 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features shown on the Details sheet of Contract Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and

free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch (19 mm) in diameter; or with stem girdling roots will be rejected.
2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.

B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to the Owner's Representative, with a proportionate increase in size of roots or balls.

2.4 MULCHES

A. Pine Bark Mulch: Shall meet the requirements of Section M.18.08.3 of the Standard Specifications.

2.5 TREE STABILIZATION MATERIALS

A. Upright and Guy Stakes: Shall meet the requirements of Section M.18.13.1 of the Standard Specifications.

B. Guys and Tie Wires: Shall meet the requirements of Section M.18.13.2 of the Standard Specifications.

2.6 MISCELLANEOUS PRODUCTS

A. Burlap: Shall meet the requirements of Section M.18.13.3 of the Standard Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Owner's Representative and replace with new planting soil.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Owner's Representative's acceptance of layout before excavating or planting. Make minor adjustments as required.

D. Lay out plants at locations shown on the Contract Drawings. Stake locations of individual trees and shrubs and outline areas for multiple plantings.

E. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

3.3 EXCAVATION FOR PLANTING

A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.

1. If area under the plant was initially dug too deep, add loam to raise it to the correct level and thoroughly tamp the added soil to prevent settling.

2. Maintain required angles of repose of adjacent materials as shown on the Contract Drawings. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.

B. Subsoil and topsoil removed from excavations may not be reused as loam or backfill around planting excavations and shall be handled similar to impacted surface soil excavated elsewhere onsite.

3.4 TREE AND SHRUB PLANTING

A. Shall meet the requirements of Section L.06.03 of the Standard Specifications.

B. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.

C. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

D. Set balled and burlapped trees or shrubs plumb and in center of planting pit or trench with root flare 2 inches (50 mm) above adjacent finish grades.

1. Use loam for backfill.

2. After placing some loam backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides to one third of the depth of root ball, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.

E. Set container-grown shrubs plumb and in center of planting pit or trench with root flare 2 inches (50 mm) above adjacent finish grades.

1. Use loam for backfill.

F. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.5 TREE AND SHRUB PRUNING

A. Remove only dead, dying, or broken branches. Do not prune for shape.

B. Do not apply pruning paint to wounds.

3.6 PLANTING AREA MULCHING

A. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Trees and Shrubs: Apply pine bark mulch ring of 4-inch (100-mm) average thickness around trees and a 3-inch (75-mm) average thickness around shrubs, to a distance of 8-inches outside of staking around trees and to a distance of 24-inches around trunk or stem of shrubs. Do not place mulch within 3 inches (75 mm) of trunks or stems.

3.7 PLANT MAINTENANCE

A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.

3.8 DISPOSAL

A. Remove surplus soil and waste material including excess subsoil and unsuitable soil in accordance with Section 310000. Legally dispose of trash and debris.

END OF SECTION

Exhibit A

Remedial Action Work Plan

Remedial Action Work Plan
Targeted Brownfields Assessment
22 and 26 Canal Street
Westerly, Rhode Island
RIDEM File Numbers: SR-38-1776 & SR-1777

Prepared for

Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Boulevard, Suite 102
Warwick, Rhode Island 02886

August 2016
EA Project No. 15258.03

Remedial Action Work Plan
Targeted Brownfields Assessment
22 and 26 Canal Street
Westerly, Rhode Island
RIDEM File Numbers: SR-38-1776 & SR-1777

In accordance with Section 9.19A of Rhode Island Department of Environmental Management's Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases (Remediation Regulations), I hereby certify that to the best of my knowledge, the information contained in this 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.

8/15/16

Ronald Mack, P.E., Project Manager
EA Engineering, Science, and Technology, Inc., PBC

Date

RONALD MACK
No. 9823
REGISTERED
PROFESSIONAL ENGINEER
CIVIL

In accordance with Section 9.19B of Rhode Island Department of Environmental Management's Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases (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.

8/15/16

Date

Town of Westerly

August 2016
EA Project No. 15258.03

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LIST OF ACRONYMS AND ABBREVIATIONS

ABCA	Analysis of Brownfield Cleanup Alternatives
EA	EA Engineering, Science, and Technology, Inc., PBC
ELUR	Environmental Land Use Restriction
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ft	Foot (feet)
FEMA	Federal Emergency Management Agency
Fuss and O'Neill, Inc.	Fuss and O'Neill
ICDEC	Industrial/Commercial Direct Exposure Criteria
LDI	Limited Design Investigation
NAVD88	North American Vertical Datum 1988
PAH	Polycyclic aromatic hydrocarbons
PP	Priority Pollutant
RAWP	Remedial Action Work Plan
RDEC	Residential Direct Exposure Criteria
Remediation Regulations	Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases
RIDEM	Rhode Island Department of Environmental Management
SIR	Site Investigation Report
Sites	22 and 26 Canal Street, Westerly, Rhode Island
SMPs	Soil Management Plans
SVOC	Semi-volatile organic compound
VOC	Volatile organic compound

1. INTRODUCTION AND SITE DESCRIPTION

1.1 INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA), on behalf of the Rhode Island Department of Environmental Management (RIDEM), is pleased to submit this Remedial Action Work Plan (RAWP) for parcels located at 22 and 26 Canal Street, Westerly Rhode Island (the Sites). The proposed RAWP is being completed as part of a U.S. Environmental Protection Agency (EPA) Targeted Brownfields Assessment and has been prepared in compliance with RIDEM's Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations).

1.2 SITE DESCRIPTION

The subject sites are located on two lots on the west side of Canal Street in a high density, mixed use and residential zone of Westerly, Rhode Island (Washington County). The Sites are identified by the Westerly Town Tax Assessor as Map No. 56, Lots 29 (22 Canal Street) and 31 (26 Canal Street). The proposed use of the properties is open space. A Site Location Map is included as Figure 1 and an Existing Conditions Plan as Figure 2 of the Plan Set (Appendix A).

The lot at 22 Canal Street is an irregular shaped parcel and is approximately 0.16 acres in area. The lot is currently owned by the Town of Westerly. The property slopes from an elevation of approximately 10 feet (ft) on the eastern portion of the Site, which abuts Canal Street, to an elevation of approximately 1 ft on the western property line (NAVD88), which abuts the Pawcatuck River. To the north of Lot 22 is a fenced vacant lot. To the south of Lot 22 is a Town of Westerly sewer pump station. According to Federal Emergency Management Agency (FEMA) maps, the lot is located within the Zone AE - 1 percent annual chance flood hazard area.

Structures located on Lot 22 include a former furniture store and warehouse. The structures occupy the majority of the lot area. A small, dirt drive area is located at the front of the building along Canal Street. The western portion of the furniture store building is built on piers and overhangs the river. Approximately one half of the furniture store building has been built on piers. The front half of the furniture building (along Canal Street) and the warehouse building are built on a concrete foundation that appears to be at grade along Canal Street and expands into a crawl space foundation as the property slopes down to the west. The land area beneath the portion of the building supported by piers is unvegetated sand with minimal organics that extends from the building foundation in the east to the Pawcatuck River in the west. A concrete culvert approximately 8 ft wide × 4 ft high runs under the furniture building along the southern property line of the lot. This culvert extends across Canal Street to the east. At the rear of the furniture building, the culvert empties into a stone-lined channel that discharges to the river. Several small, 6- to 8-inch diameter deciduous trees are located in the small undeveloped northwest corner of the lot along the Pawcatuck River.

The lot at 26 Canal Street is a rectangular-shaped parcel approximately 0.23 acres in area and is currently owned by the Town of Westerly. The lot is bounded to the east by Canal Street, to the

south by a fenced vacant lot, to the west by the Pawcatuck River, and to the north by a commercial property. Lot 26 is comprised of gently sloping vacant land. The western boundary of the lot along the Pawcatuck River features a steep, stone-lined slope that drops down approximately 3 ft to the water surface. According to FEMA maps the entire lot is located within the Zone AE 1 percent annual chance flood hazard area.

The majority of Lot 26 is grassed. An area of small scrubby vegetation, approximately 10-15 ft wide is present along the edge of the river. Evidence of dumping was observed in the western portions of the lot. Two deciduous trees, approximately 3 ft and 1 ft in diameter, are located along the river in the western portion of the lot. Additionally, two other deciduous trees that are approximately 3 and 1.5 ft in diameter are located along the northern and southern property lines, respectively.

2. SUMMARY OF SITE INVESTIGATIONS

Previous investigations conducted on the properties include the following:

- A Phase I Environmental Site Assessment (ESA) completed by Fuss and O'Neill, Inc. (Fuss and O'Neill) for 22 Canal Street, dated August 2012
- A Phase I ESA completed by Fuss and O'Neill for 26 Canal Street, dated August 2012
- A subsurface investigation and Site Investigation Report (SIR) for both lots conducted by Fuss and O'Neill, dated June 2015.

In addition to the above investigations, a Limited Design Investigation (LDI) was completed by EA as part of the preparation of this RAWP. A summary of the findings of the Fuss and O'Neill investigations is presented below. The results of EA's LDI are presented in Section 3.

2.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT – 22 CANAL STREET

Fuss and O'Neill completed a Phase I ESA for the property at 22 Canal Street. The following key findings were made:

- The ESA revealed no evidence of recognized environmental conditions in connection with the subject site.
- The Site was located within a historically urbanized section of Town, and surrounding properties have been utilized for industrial or commercial purposes for over 100 years. The usage history of surrounding properties included documented handling and storage of oil and/or hazardous materials.
- Properties regulated by RIDEM due to documented releases are located in close proximity to the Site, and there is the potential for contaminants to have been released on

nearby properties that could migrate to and impact the environmental quality of the subject site.

2.2 PHASE I ENVIRONMENTAL SITE ASSESSMENT – 26 CANAL STREET

Fuss and O'Neill completed a Phase I ESA for the property at 26 Canal Street. The following key findings were made:

- A recognized environmental condition was identified in connection with the subject site: Historical Site Use – According to historical mapping of the subject site, the Site was part of the Westerly Scouring Mill and John Ross Wool Scouring Mill until the early 1900s. By 1907, the Site was vacant except for a small out-building in the central portion of the Site and remained vacant until the construction of the existing residential building in approximately 1910. Portions of the wool scouring mill facility were located in the southern portion of the subject Site, and the building spanned both the subject site and the southerly-abutting parcel located at 24 Canal Street. A coal room was located in the southern portion of the subject Site. There is the potential for the environmental quality of the subject site to have been impacted by releases of contaminants associated with the historical operation of the Site as a scouring mill.

- The Site was located within a historically urbanized section of Town and surrounding properties have been utilized for industrial or commercial purposes for over 100 years. The usage history of surrounding properties included documented handling and storage of oil and/or hazardous materials.

- Properties regulated by RIDEM due to operation of underground storage tanks and documented releases are located in close proximity to the Site, and there is the potential for contaminants to have been released on nearby properties that could migrate to and impact the environmental quality of the subject site.

2.3 SITE INVESTIGATION REPORT – 22 AND 26 CANAL STREET

A site investigation was conducted on the properties by Fuss and O'Neill. The investigation included soil and groundwater sampling. A brief summary of the field activities conducted onsite and the findings from the investigation is presented below:

- Six soil borings were conducted on the properties (three on each lot). Soil samples collected from each boring were field screened for volatile organic compounds (VOCs) using a photoionization detector. One shallow soil sample from each location was collected for laboratory analyses for VOCs, semivolatile organic compounds (SVOCs), Priority Pollutant (PP) 13 metals, total petroleum hydrocarbons, and polychlorinated biphenyls. Additionally, one deeper sample from four of the locations was submitted for analyses for only VOCs.

- Monitoring wells were installed in three of the borings (two on lot 26 and one on lot 22). One groundwater sample was collected from each of the wells for laboratory analyses for VOCs, SVOCs, and dissolved PP13 metals.

A summary of the key findings of the field activities is presented below:

- No evidence of VOCs was revealed based on the results of the soil field screening.

- Laboratory analyses revealed the presence of metals (antimony, arsenic, and lead) and polycyclic aromatic hydrocarbons (PAHs) in the soils of the properties at concentrations exceeding the RIDEM Rules and Remediation Regulations residential direct exposure criteria (RDEC), industrial/commercial direct exposure criteria (ICDEC), and lead in excess of the GA leachability criteria.

- Laboratory analyses of the groundwater samples revealed that no VOCs, SVOCs, or dissolved metals were detected at concentrations in excess of the RIDEM Remediation Regulations GA Groundwater Objectives.

Based on these findings, Fuss and O'Neill concluded that the source of the contamination was likely urban fill. The preferred remedial alternative proposed in the SIR included the removal of the top 1 ft of impacted soil and replacement with a geotextile fabric and clean soil cap. Additionally, it was recommended that this should be combined with the implementation of an Environmental Land Use Restriction (ELUR) to restrict future use of the properties. The remedial approach was approved by RIDEM in Remedial Decision Letters for each lot dated 12 May 2016. Copies of the Remedial Decision Letters are provided in Appendix B.

3. LIMITED DESIGN INVESTIGATION

RIDEM retained EA to conduct an LDI on Lot 26. The purpose of the LDI was to further refine the findings of the site investigation to determine if there were clean areas on the property that could be delineated from areas containing jurisdictional soils. To complete the LDI, EA conducted the following scope of work:

- A Site-Specific Work Plan and Quality Assurance Project Plan addendum were prepared for submission to RIDEM and EPA.

- A Site-Specific Health and Safety Plan was prepared for the project.

- Public notice was conducted prior to commencement of field activities.

- Dig-Safe was notified to mark the underground utilities on the lot prior to commencement of any subsurface investigation.

- Shallow soil samples were collected from 10 locations on the property and analyzed for PAHs, lead, arsenic, and antimony.

The activities conducted are more specifically described below.

3.1 PRELIMINARY ACTIVITIES

As an addendum to EA's EPA Region 1-approved Brownfields Generic Quality Assurance Project Plan, EA prepared a Site-Specific Work Plan and Quality Assurance Project Plan describing the scope, goals, analytical procedures, analytical laboratory, sampling locations and methods, and other information pertinent to the project. The document was submitted to and approved by RIDEM and EPA.

EA conducted public notification in accordance with Sections 7.01 and 7.07 of the Remediation Regulations. Pre-LDI public notice includes sending public notice mailings to the abutters of the Site.

EA prepared a Site-Specific Health and Safety Plan for the project as an addendum to the company's General Health and Safety Plan. Prior to commencement of any subsurface investigation and in accordance with Occupational Safety and Health Administration regulations, EA contacted Dig-Safe to mark the underground utilities on the lot.

3.2 SOIL SAMPLING

On 15 February 2016, EA and Geologic-Earth Exploration Inc. conducted 10 soil borings in a grid pattern across the lot. The borings were advanced using Geoprobe direct push drilling techniques. The borings were advanced a total of 2 ft below ground surface. Soil samples were collected in dedicated, disposal plastic sleeves. Each sample was visually classified and logged for characterization purposes. In general, the soils encountered consisted of various mixtures of silt, sand, and gravel. No visual or olfactory evidence of impacted soil was observed in any of the borings. Descriptions of the subsurface soils encountered are detailed in the boring logs provided in Appendix C. Locations of the soil borings are depicted on Figure 3 (Appendix A).

Two samples were collected for laboratory analysis from each boring location at a depth of 0-1 and 1-2 ft. The soil samples were placed in laboratory prepared sample jars, stored on ice, and transferred under chain-of-custody protocol to Microbac Labs of Dayville, Connecticut for analysis. Each sample was analyzed for the metals lead, arsenic, and antimony by EPA Method 6010 and PAHs by EPA Method 8270.

3.3 SOIL ANALYTICAL RESULTS

The laboratory analytical results revealed the presence of lead, arsenic, and several PAHs in excess of RIDEM standards at 8 of 10 boring locations across the property. Laboratory analytical data sheets are provided in Appendix D. A summary of the laboratory data is presented in Table 1.

Lead was found in the soil samples collected from 8 of the borings at concentrations in excess of the RDEC and/or ICDEC. Only samples collected from borings EA 3 and EA 9 had concentrations of lead below applicable RIDEM criteria. Additionally, arsenic was detected in samples from 4 of the borings (EA 1, EA 2, EA 4, and EA 6) at concentrations in excess of the RDEC and ICDEC. Both lead and arsenic were detected in the surface samples (0-1 ft) and the deeper samples (1-2 ft). Antimony was not detected in any of the samples at a concentration in excess of the laboratory detection limits.

Several PAHs were detected in 5 of the soil borings (EA 1, EA 4, EA 6, EA 8, and EA 10) at concentrations in excess of the RDEC. Additionally, benzo(a)pyrene was detected above the ICDEC in samples collected from 4 borings (EA 4, EA 6, EA8, and EA 10) and benzo(b)flouranthene was detected above the ICDEC in a sample from boring EA 6. PAHs were detected in both the surface samples (0-1 ft) and the deeper samples (1-2 ft).

Based on EA's review of the analytical results, no clear delineation could be made distinguishing clean soils from jurisdictional soils, either by location on the property or by depth.

3.4 LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL

All laboratory data provided by Microbac Laboratory met the required detection limits of the RIDEM RDEC, ICDEC, and GA leachability. The following non-conformances were reported by the laboratory and are shown on the laboratory data sheets provided in Appendix D. The non-conformances listed below are not anticipated to effect the overall usability of the data or the conclusions of the LDI.

Metals Analysis

- The antimony recovery for the matrix spike analysis performed on sample EA 2 (0-1 ft) was outside of the established quality control limits. In compliance with Method 6010C, the digested sample was post spiked, yielding the following recovery: antimony – 59 percent.

- The relative percent difference for the sample/sample duplicate analysis performed on sample EA 2 (0-1 ft) for lead was outside of the 35 percent control limit.

- The relative percent difference between the sample result and the sample duplicate result for the following compounds was outside the 20 percent quality control limit: cobalt – 33 percent, chromium – 35 percent, nickel – 33 percent, and zinc – 26 percent.

- The lead and antimony recoveries for the matrix spike analysis performed on sample EA 9 (1-2 ft) were outside of the established quality control limits. In compliance with Method 6010C, the digested sample was post spiked, yielding the following recovery: lead – 68 percent and antimony – 74 percent.

PAH Analysis

- The matrix spike and matrix spike duplicate analysis performed on sample EA 2 (0-1) resulted in the following: spike recovery – 4 out of 34 outside limits relative percent difference and 1 out of 17 outside limits.

3.5 LIMITED DESIGN INVESTIGATION FINDINGS AND CONCLUSIONS

Key findings of this LDI are presented below:

- Shallow soil samples were collected from 10 soil boring locations distributed in a grid pattern across the property, at depths of 0-1 ft and 1-2 ft.

- All soil samples were analyzed for lead, arsenic, antimony, and PAHs.

- The laboratory analytical results revealed the presence of lead, arsenic, and several PAHs in excess of RIDEM standards at 8 of the 10 boring locations across the property.

- Based on EA's review of the analytical results, no clear delineation could be made distinguishing clean soils from jurisdictional soils, either by location on the property or by depth.

Based on these findings, EA has determined the following conclusions:

- The types of contaminants detected on the property are consistent with historical urban fill.

- The distribution of the contamination in the shallow soils of the Site is ubiquitous and, therefore, any proposed remedial activities should encompass the entire lot area.

- The findings of this LDI support the proposed preferred remedial alternative recommended in the SIR, which included removal of the top 1 ft of impacted soil and replacement with a geotextile fabric and clean soil cap, combined with the implementation of an ELUR to restrict future use of the property.

4. REMEDIAL OBJECTIVES

In accordance with Section 9.0 of the RIDEM Remediation Regulations, this RAWP addresses remedial objectives for potentially-impacted media including groundwater, surface water/sediment, soil, and air. Remedial technologies have been selected to address the following issues:

Media	Contaminant	Risk	Technology
Groundwater	None	None	None
Surface Water and Sediment	Possible erosion and sedimentation during remediation activities	Impacts to adjacent Pawcatuck River	Maintenance of existing grades and erosion/sedimentation controls
Soil	Metals and PAHs	Direct exposure	Soil removal, engineered cap, physical barriers, and ELUR
Air	None	None	None

Remedial objectives for each of the media are discussed below.

4.1 GROUNDWATER OBJECTIVES

Groundwater beneath the Sites is classified as GA by RIDEM. Laboratory analyses of groundwater samples collected by Fuss and O'Neill during the 2014 site investigation indicated that no VOCs, SVOCs, or dissolved metals were detected at concentrations in excess of the RIDEM Remediation Regulations GA Groundwater Objectives in groundwater at the Sites. Leachable lead was detected in one sample collected from soil boring MW-1 that was analyzed via Synthetic Precipitation Leaching Procedure at a concentration greater than the RIDEM GA leachability. However, lead was not detected in groundwater samples collected from the Sites at concentrations exceeding laboratory detection limits, including groundwater that was sampled from monitoring well MW- 1. Therefore, the Site soil conditions do not appear to be posing risk to groundwater quality. Based on this, the Sites are in compliance with the RIDEM GA Groundwater Objectives and no groundwater remediation is proposed.

4.2 SURFACE WATER AND SEDIMENT OBJECTIVES

There have been no identified impacts on sediments associated with the Sites; there has been no sediment analysis as part of the investigations, therefore, no sediment remedial objectives are proposed.

No contamination concerns have been identified for the Pawtucket River, which abuts the lots to the west. However, the Sites are located within the Zone AE 1 percent-annual-chance flood hazard area; therefore, grade changes made during remediation activities could result in loss of flood storage capacity. Because of this concern, all proposed grade changes associated with the remediation as proposed will result in a zero net loss of flood storage capacity. The volume of any materials brought to the Sites will be compensated for by removal and equal volume of material to be disposed of offsite.

Additionally, because of the proximity of the Sites to the Pawcatuck River, soil management procedures and erosion and sediment control measures will be implemented throughout the remediation process to prevent offsite migration of soils and/or sediment during earth moving activities.

4.3 SOIL OBJECTIVES

The Sites are located in a mixed residential and commercial area. Laboratory analysis of soil samples collected by Fuss and O'Neill during the 2014 site investigation and by EA during the above described LDI indicate that lead, arsenic, antimony, and PAHs have been detected at concentrations in excess of the RIDEM Remediation Regulations RDEC and ICDEC standards.

The proposed remedial objectives are to prevent direct exposure to the Site soils through the installation of an engineered cap, physical barriers, and implementation of an ELUR for each lot.

All soil installed as part of the engineered cap must adhere to the RIDEM RDEC standards. A sampling regimen will be imposed that will demonstrate compliance with the RDEC and is discussed in Section 5.6.

4.4 AIR OBJECTIVES

Air quality issues are not anticipated during the remedial activities proposed for the Sites; therefore, no remedial are proposed for air at the Sites. Minor issues such as dust control will be addressed in the procedures outlined in the Soil Management Plans (SMPs) (Appendix E).

5. PROPOSED REMEDY

This section details the proposed remedies for two lots comprising the project Sites and explains how the implementation of each remedy will meet the objectives described in Section 3.

The proposed use of both lots is open space. A summary of the proposed remedies for each lot is presented below:

Table 1: Soil Remediation Summary Table

Lot	Proposed Remedial Alternative
22 Canal Street	• 6-inch stone cap under drip line of trees • 6-inch rip-rap cap in sand areas • 12-inch soil cap • Fencing • ELUR
26 Canal Street	• Dissuasive vegetation within 20 ft of river's edge • 6-inch stone cap under drip line of trees • 12-inch soil cap • Fencing • ELUR

A detailed description of the proposed remedies follows.

5.1 PRE-REMEDIAL ACTIVITIES

Prior to any soil disturbing activities, all perimeter erosion and sedimentation controls are to be installed as shown on the Site plans and specified in Figure 4 (Appendix A). All soil excavation and removal will be completed in compliance with the SMPs (Appendix E).

5.2 BUILDING DEMOLITION (LOT 22)

The Town of Westerly will procure an appropriately qualified demolition contractor to complete the removal of the onsite buildings from the property. This will include the removal all building materials, foundations, and support piers and disposal of all materials at an appropriate approved offsite disposal facility.

5.3 COVER SYSTEMS

The goal of preventing direct exposure to impacted soils on the lot will be accomplished by using four different cover systems on the various portions of the two lots. Each system was designed for use on a specific portion of the Sites based on the physical conditions and constraints of each location. The cover systems include three different capping techniques and the use of dissuasive vegetation. The proposed areas for each cover system are depicted on the Proposed Conditions Plan (Figure 4) and typical cross-sections and specifications for each cover system are depicted on the Site Detail Plan (Figure 5).

Any excavated soil removed from the Sites will be pre-characterized for disposal at a suitable facility and shipped offsite by a qualified hauler. In all of the cover systems where soil will be excavated, the techniques applied include the removal of a volume of material of equal volume to new materials brought onto the Sites for the purpose of constructing the cover systems and are, therefore, designed to achieve a zero net volume of fill thus preserving the existing flood storage capacity of the subject properties. The proposed cover systems are described below.

Cover System 1, Tree Protective Cap (Lot 26)—This cover system is a modified cap designed to be protective of the existing onsite trees with a trunk diameter greater than 12 inches. Construction of this cap will include removal of 6 inches of impacted surface soil using low impact techniques (air spade or equivalent approved method) in the vicinity of the existing trees. The cap will be installed to cover an area of 30 ft from each tree trunk or directly under the canopy drip line whichever is less. The removed soil will be replaced with a snow fence physical barrier layer overlain by a 6-inch layer of 1.5-inch crushed stone.

Cover System 2, Sand Area Protective Cap (Lot 22)—The area underneath the existing building and adjacent to the Pawcatuck River and the stone lined culvert drainage channel is comprised of sandy soil littered with numerous glass bottles. It is unlikely that vegetation can be established in the sandy soils in this area due to the minimal amount of organics present. This area is also subject to river flooding. The proposed construction of this cap will include removal of 6 inches of impacted surface soil, including any glass bottles or other debris to prevent direct exposure to

the impacted soils. The removed soil will be replaced with a snow fence physical barrier layer overlain by a 6-inch layer of 4-inch rip-rap.

EA has proposed this design to provide the best balance between minimizing soil disturbance, stabilizing the shoreline and preventing public access. The design features are explained below.

A six inch excavation depth of soil (rather than one foot) was chosen for this cap. This will result in less soil disturbance in the area directly adjacent to the river thus reducing possible impacts from sedimentation or erosion during construction. Additionally, a six inch excavation would reduce the need for on-site soil stockpiling and the length of time that unprotected soil would be exposed.

Due to the sandy nature of the soil in this area, the planting of dissuasive vegetation (or any vegetation to stabilize the shoreline) would not be effective; as the plants will likely not survive. We propose a six inch layer of four inch rip rap to provide greater erosion protection (compared to sand or a soil cap) in the area along the river where flooding and higher energy flows would be most likely. Additionally, rip rap will also aid in reducing flow velocities and sediment load of any overland flow runoff that may flow across the site to the river.

The six inch layer of rip rap will form a solid impediment to any potential excavation of soil in the area and act as an effective barrier to prevent public access to potentially impacted soil. Extending the depth of rip rap greater than 6 inches will not provide any significant additional dissuasive characteristics to the cap system. Additionally, the use of the proposed snow fence provides a physical and visual barrier beneath the rip rap.

The proposed cap design will minimize soil disturbance, provide a stable erosion resistant cap with an infiltrative surface, and will prevent direct contact with impacted soils

Cover System 3, Engineered Cap (Lot 22 and 26)—The majority of the project Sites will be covered by this engineered cap, as was proposed by Fuss and O'Neill in the SIR. This cap will include the removal of the top 1 ft of impacted soil surfaces soil and replacement with a geotextile fabric layer covered by a clean soil cap. The clean soil cap will be comprised of 8 inches of clean soil fill and 4 inches of topsoil. The finished cap is to be hydro-seeded with a suitable grass mixture. This composite cap system will prevent human exposure to impacted soil at the Sites while allowing for groundwater infiltration. The geotextile layer will be installed so that the seams overlap to prevent the underlying impacted soil from mixing with the clean soil.

Cover System 4, Dissuasive Vegetation (Lot 22 and 26)—This cover system is to be used in the vegetated areas bordering the Pawcatuck River. This cover system is comprised of the planting of dissuasive (thorny) shrubs to discourage people from entering the area. The dissuasive vegetation is proposed for the northwest corner of Lot 22 and the area within 20 ft of the edge of the river on Lot 26 to preserve the integrity of the riverbank area and minimize potential wetland impacts.

5.4 SITE ACCESS

Access to the Sites will be limited by the installation of fencing in key locations of the lots. Split rail fencing is proposed along the upland edge of the dissuasive vegetation areas as shown on Figure 4 (Appendix A).

5.5 EXCAVATED SOIL DISPOSAL

Excavated soil will be characterized and disposed of offsite at a licensed facility. Material for offsite disposal will be stockpiled on and covered by polyethylene sheeting prior to transport to the disposal facility.

Areas of the sites where contaminated soils are to be excavated must be staged and temporarily stored in a designated area, as proposed in the RAWP, of the sites with proper polyethylene covers. Any stockpiled materials, including clean fill, must be underlain and covered with polyethylene sheeting and be secured at the end of each day with all appropriate erosion and sediment controls to limit the loss of the cover and protect against storm-water and wind erosion (i.e. hay bales, rocks, silt fencing). These appropriate sedimentation and erosion controls must be in place and in proper working order at all times until all disturbed areas are stabilized and capped as proposed. To the degree practicable, the storage location will be selected to limit the unauthorized access to the materials (i.e. away from public roadways/walkways). No regulated soil will be stockpiled on-site for greater than thirty (30) days. In the event that stockpiled soils pose a risk or threat of leaching hazardous materials, a proper leak-proof container (i.e. drum or lined roll-off) or secondary containment will be required and utilized.

If the soil is to be disposed at the Rhode Island Resource Recovery Corporation's Johnston, Rhode Island landfill, either as alternative cover material or solid waste, prior approval must be obtained. The material must be characterized by sampling at a frequency of one composite sample per 1,000 cubic yards. EA estimates that a maximum of approximately 500 yards of material will be excavated at the Sites; therefore, 1 composite sample will be required. No additional quality assurance or quality control sampling is necessary for the disposal material sampling. The sample should be collected and sent for analysis at a Rhode Island Certified Laboratory. A summary of the analytical requirements is presented below.

Table 2: Soil Disposal Analytical Requirements

Analysis	Number of Samples	Method
VOCs	1 Composite	8260B
SVOCs	1 Composite	8270D
Total Petroleum Hydrocarbons	1 Composite	8100
PP 13 Metals (Ag, As, Sb, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Tl, Zn)	1 Composite	SW-846 7471B for Hg, 6010C for all others
Polychlorinated Biphenyls	1 Composite	8082
pH	1 Composite	9045
Water Content/Free Liquids	1 Composite	9025B
Particle Size	1 Composite	Sieve
Toxic Characteristic Leachability Profile Metals	1 Composite	7471

5.6 CAP CONSTRUCTION MATERIAL REQUIREMENTS

Materials brought onto the Sites for use in construction of the various proposed caps are to consist of clean uncontaminated materials. Crushed stone and rip-rap are to be washed and free of fines. The estimated volumes of each type of construction material are shown below.

Table 3: Estimated Volumes Cap Construction Materials

Cap Type	Construction Material	Estimated Volume
Sand Cap	4-inch rip-rap	44 cubic yards
Tree Cap	1.5-inch crushed stone	39 cubic yards
Engineered Cap	Gravel sub-base	253 cubic yards
Engineered Cap	Top soil	134 cubic yards

Prior to delivery and placement, all clean fill material, including sub-grade material and top soil imported to the Sites, will be sampled and analyzed for compliance with the RIDEM Method 1 RDEC in accordance with the following frequency: one sample for every 500 cubic yards will be analyzed for arsenic, and one quarter of the total number of compliance samples will also be analyzed for VOCs, Total PP 13 metals, PAHs, and total petroleum hydrocarbons. Laboratory analytical results will be reviewed, approved and certified by the environmental professional contracted to oversee the construction activities prior to use at the Sites. If the RDEC are exceeded, the fill material will be rejected as unsuitable. Laboratory results and certifications for all clean materials will be included in the Remedial Action Closure Report for the Sites.

Barrier materials, including snow fencing and geotextile fabric, are to be placed under the fill materials to act as a physical barrier preventing access to the impacted soils beneath. The geotextile to be used shall be a non-woven, needle-punched, permeable geotextile such as Mirafi 140N 6 percent or equivalent (Appendix F provides specifications). Approximate quantities required for each barrier material are presented below:

Table 4: Estimated Volumes Cap Construction Materials

Barrier Type	Estimated Quantity
Snow Fencing	4,426 square ft
Geotextile	10,170 square ft

5.7 CONSTRUCTION COST ESTIMATE

EA has prepared a rough cost estimate for the remediation project. The estimate was based on estimated quantities of materials, time and associated projects costs. The estimate does not include demolition costs for the building on Lot 22. The estimated project costs are presented below, a detailed breakdown of the quantities, costs and assumptions used in the estimate are presented in Appendix J.

Table 5: Estimated Project Costs

Lot	Estimated Cost
Lot 22	$54,153
Lot 26	$48,654

Total Project Cost	$102,806

5.8 INSTITUTIONAL CONTROLS

An ELUR documenting the required maintenance and annual inspection of the remedy shall be recorded in the land evidence records of the Town of Westerly for each of the properties following the remedial action. The ELURs will be placed on both parcels that comprise the Sites. The ELURs will impose the following restrictions on the properties:

- The cap may not be altered without approval from RIDEM (unless during an emergency) and must remain in place at all times.
- Annual inspections of the cap must be conducted and a report of results prepared for RIDEM.

The ELUR will include the Soil Management Plan to provide protocol for any future excavations into the engineered cap. The draft ELURs are included in Appendix G and the SMPs are included in Appendix E.

6. SITE SPECIFIC CLIMATE CHANGE RISK FACTORS

In accordance with the new requirements from EPA regarding the Analysis of Brownfield Cleanup Alternatives (ABCA), site specific climate change conditions and risk factors, including cost and ease of implementation must be discussed and considered in the implementation of remedial actions.

Based on the proximity of the site properties to the Pawcatuck River, the predominant risks that would be associated with climate change include rising sea level and the associated increased potential for localized flooding. The Pawcatuck River is a freshwater river that discharges into Little Narragansett Bay approximately 5.5 miles south of the site. According to a September 2010 RIDEM report regarding total maximum daily load analysis for the Pawcatuck River, the river is tidally influenced south of the Route 1 Bridge located in downtown Westerly. The subject sites are both located to the north of the bridge and therefore are not tidally influenced.

To understand the relative sea level rise risks EA consulted the United States Army Corp of Engineers, Sea Level Curve calculator to attempt to estimate the potential sea level rise expected in the area over time. According to the data provided by the calculator, sea level rise projections for the Westerly Area are depicted in the table below:

Table 6: Estimated Sea Level Rise

Year	Low Estimate	Mid Estimate	High Estimate
2020	-0.07	0.0	0.22
2040	0.10	0.30	0.95
2060	0.27	0.68	1.98
2080	0.44	1.12	3.31
2100	0.60	1.64	4.93

Values in feet relative to NAVD88

Based on the data a maximum sea level rise of 4.93 feet could occur by the year 2100. However intermediate and low estimates are significantly lower. Additionally, this projection is for ocean sea level rise. The site is located upstream approximately 5.5 miles in an area that is currently not tidally influenced.

It is EA's opinion that the proposed remedial action remains valid from a perspective of cost and ease of implementation for the following reasons:

- The projected sea level rise is for ocean levels. It is assumed that the actual rise in the river water elevation located over five miles upstream from the ocean will be significantly less.

- The mid-level and low-level estimates for sea level rise will have little to no impact on the properties or the proposed remediation.

- The sites are currently located within the 100 year flood plain and therefore are currently at risk due to storm flooding. Due to their proximity to the river, this risk will continue into the future, however the proposed use of the site as open space will minimize the risks associated with site.

- If flooding should occur that damages the cap system. The damaged areas of the cap system could easily be repaired in a cost effective manner. After repair the cap system would continue to effectively function as originally designed.

7. POINTS OF COMPLIANCE

The Sites will be periodically inspected to ensure that the remedial design specifications are adhered to during construction activities. The impacted soil at the Sites will be considered to be in compliance once it has been completely capped as proposed in this RAWP. An ELUR for each lot, discussed in Section 5.7, will be placed on the Sites following construction activities.

Soil compliance at this Sites will also be evaluated through laboratory analysis of the clean fill material brought to the Sites for engineered cap construction in accordance with the protocol previously outlined in Section 5.6.

Compliance will be maintained through as-needed maintenance of the engineered cap and completion of annual ELUR inspection reports.

8. OPERATIONS LOGS AND RECORDKEEPING

A daily operations log will be completed by the supervising environmental professional at the Sites each day remedial activities are conducted. The log will document general scope of work, names of subcontractors, equipment used on-site, near misses, health and safety issues, hours of work, weather, and details regarding soil import or export. Photographs and sketches of Sites conditions may be attached to the operations logs.

Any samples taken for laboratory analysis will be documented and the chain-of-custody included with the operations log. Any instance of health or safety issues will be documented. A copy of the operations log is provided in Appendix H. Copies of the completed logs will be maintained on-site. Periodic inspections of erosion controls will also be required for compliance with the SMPs (Appendix E).

9. PROPOSED SCHEDULE FOR REMEDIATION AND REPORTING

The remediation schedule for the project has not been established pending approval of this RAWP. The project schedule will be forwarded to RIDEM upon finalization and updated throughout the project duration. A tentative schedule is outlined below:

Table 7: Project Schedule

Project Task	Approximate Date
Draft RAWP Submittal to RIDEM	July 2016
RIDEM Review Period	July 2016
Final RAWP	August 2016
Bidding and Contracting Activities	August - September 2016
Remedial Activities	September 2016
Filing of ELUR	October 2016
Remedial Action Closure Report	November 2016
Annual Inspections Begin	November 2017

10. CONTRACTORS AND CONSULTANTS

- Construction Contractor: To Be Determined
- Environmental Oversight Contractor: To Be Determined.

11. CONTINGENCY PLAN

A Contingency Plan is provided in Appendix I. The Contingency Plan will be provided to all personnel involved in this project. The document includes the names and telephone numbers of all emergency coordinators, and all emergency response procedures and arrangements.

A copy of the Contingency Plan is to be kept available on-site at all times during the implementation and operation of the remedial action.

12. SECURITY PROCEDURES

The Sites will be secured as needed to prevent access by the general public to any exposed impacted soils on the Sites. Site security will be the responsibility of the selected contractor who will follow the soil handling protocols and Site security procedures outlined in the SMPs (Appendix E). This includes proper storage of stockpiled soils and ensuring that access to open excavations will be secured overnight with the use of temporary chain-link fencing or other suitable barriers.

13. DAILY OPERATION/INSPECTION LOGS

During remedial activities, the Sites will be inspected on a daily basis and daily logs of the remedial activities, including photographs and field notes, will be maintained. Once remedial activities are complete, the daily inspection logs will be used to support the preparation of a Remedial Action Closure Report, as required by RIDEM. A copy of the daily inspection log is provided in Appendix H.

14. POST-CLOSURE REQUIREMENTS

Upon completion of the remedial action, the Performing Party shall close the remedial action and maintain all post-closure requirements as specified in the Remedial Approval Letter. Compliance with the Remedial Approval Letter shall be documented in a closure report submitted to RIDEM for review and approval.

The closure report is to be prepared by the environmental oversight contractor for the project and shall include details of the remedial actions conducted, including but not limited to:

- as built drawings of the cap;
- copies of daily inspection logs;
- relevant photographs and sketches of the remediation activities;
- soil compliance laboratory analysis of the clean fill material brought to the Sites for engineered cap construction;
- a schedule for future maintenance and annual ELUR inspections;
- adherence to any further requirements specified by RIDEM in the Remedial Approval Letter.

Prior to submission of the site post closure reports, the property owner shall record on the property deed (for each lot), an ELUR approved by the DEM, to maintain required capping and engineering controls.

15. REFERENCES

Federal Emergency Management Agency (FEMA) Flood Map Service Center website, https://msc.fema.gov/portal/search#searchresultsanchor. FIRM Map No. 44009C0139J,Map Revised 16 October 2013, Accessed 20 May16.

Fuss and O'Neill, Inc. (Fuss and O'Neill). 2012a. Phase I Environmental Site Assessment, Miceli's Furniture Warehouse, 22 Canal Street, Westerly, Rhode Island. August.

———. 2012b. Phase I Environmental Site Assessment, Residential Building, 26 Canal Street, Westerly, Rhode Island. August.

———. 2015. Site Investigation Report/Targeted Brownfields Assessment, Canal Street Parcels, 22 and 26 Canal Street, Westerly, Rhode Island. June.

Rhode Island Department of Environmental Management (RIDEM). 2011. *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases*. Office of Waste Management. Amended November 2011. http://www.dem.ri.gov/pubs/regs/regs/waste/remreg11.pdf.

———. 2016. Environmental Resource Map, http://www.dem.ri.gov/maps. Accessed on 12 May 2016.

———. 2010. Total Maximum Daily Load Analysis for the Pawcatuck River and Little Narragansett Bay Waters. September

Town of Westerly. 2015. Rhode Island Geographic Information System website, http://host.cdmsmithgis.com/westerlyri/. Accessed on 12 May 2015.

US Army Corp of Engineers, Sea-Level Change Curve Calculator, http://www.corpsclimate.us/ccaceslcurves.cfm. Accessed on 14 July 2016

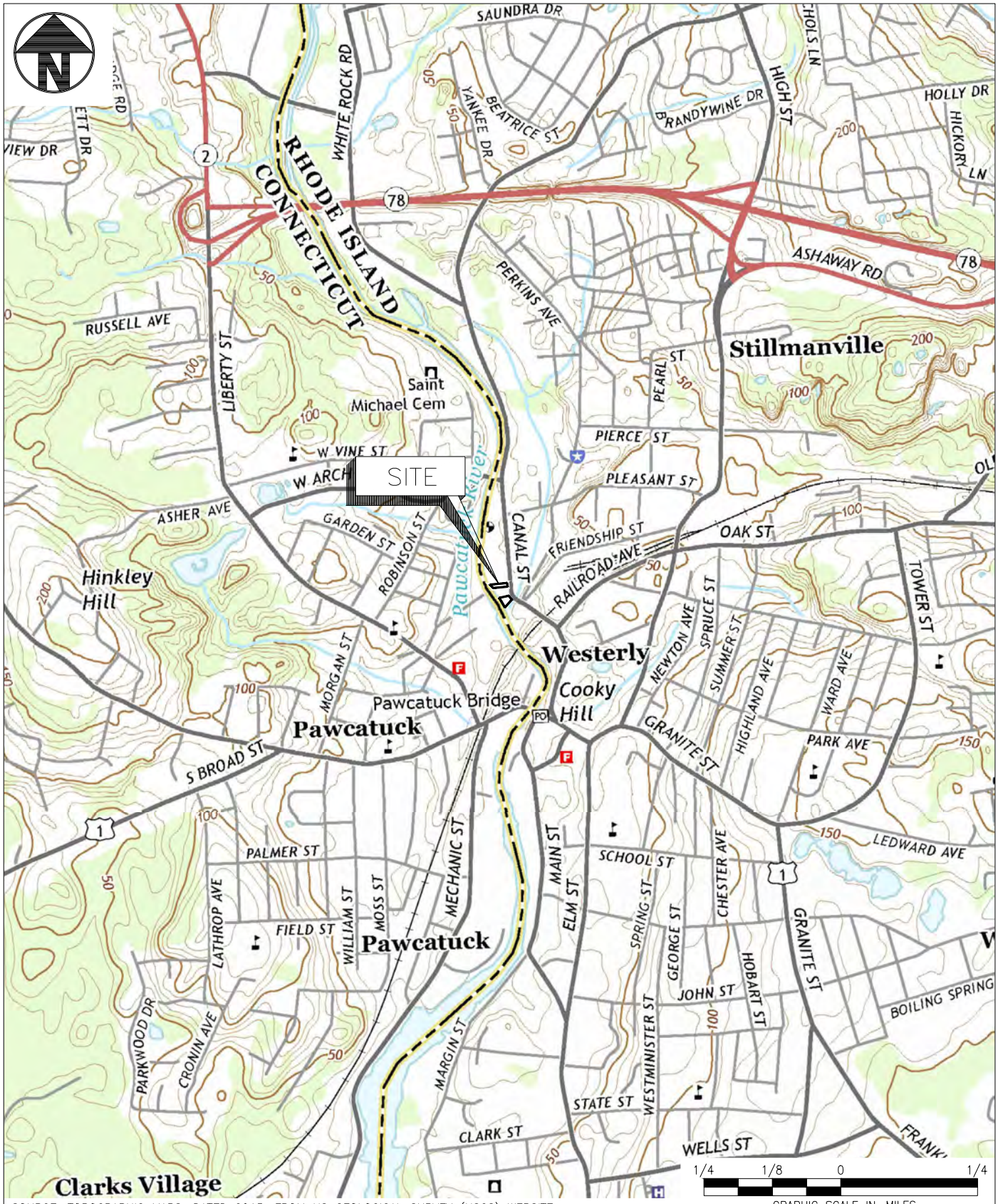
US Environmental Protection Agency, CHECKLIST: How to Address Changing Climate Concerns in an Analysis of Brownfield Cleanup Alternatives, https://www.epa.gov/sites/production/files/2015-09/documents/epa_oblr_climate_adaptation_checklist.pdf. Accessed on 14 July 2016

Rhode Island Coastal Resources Management Council, Shoreline Change Special Area Management Plan, Arc GIS Stormtools for Municipalities, http://www.beachsamp.org/resources/stormtools/. Accessed 14 July 2016

Appendix A

Plan Set

1. Site Location Map
2. Existing Conditions Plan
3. Soil Boring Location Plan
4. Proposed Remediation Plan
5. Site Details Plan



SOURCE: TOPOGRAPHIC MAPS, DATED 2015, FROM US GEOLOGICAL SURVEY (USGS) WEBSITE.

EA Engineering, Science, and Technology, Inc., PBC

REMEDIAL ACTION WORK PLAN
LIMITED DESIGN INVESTIGATION
22 & 26 CANAL STREET

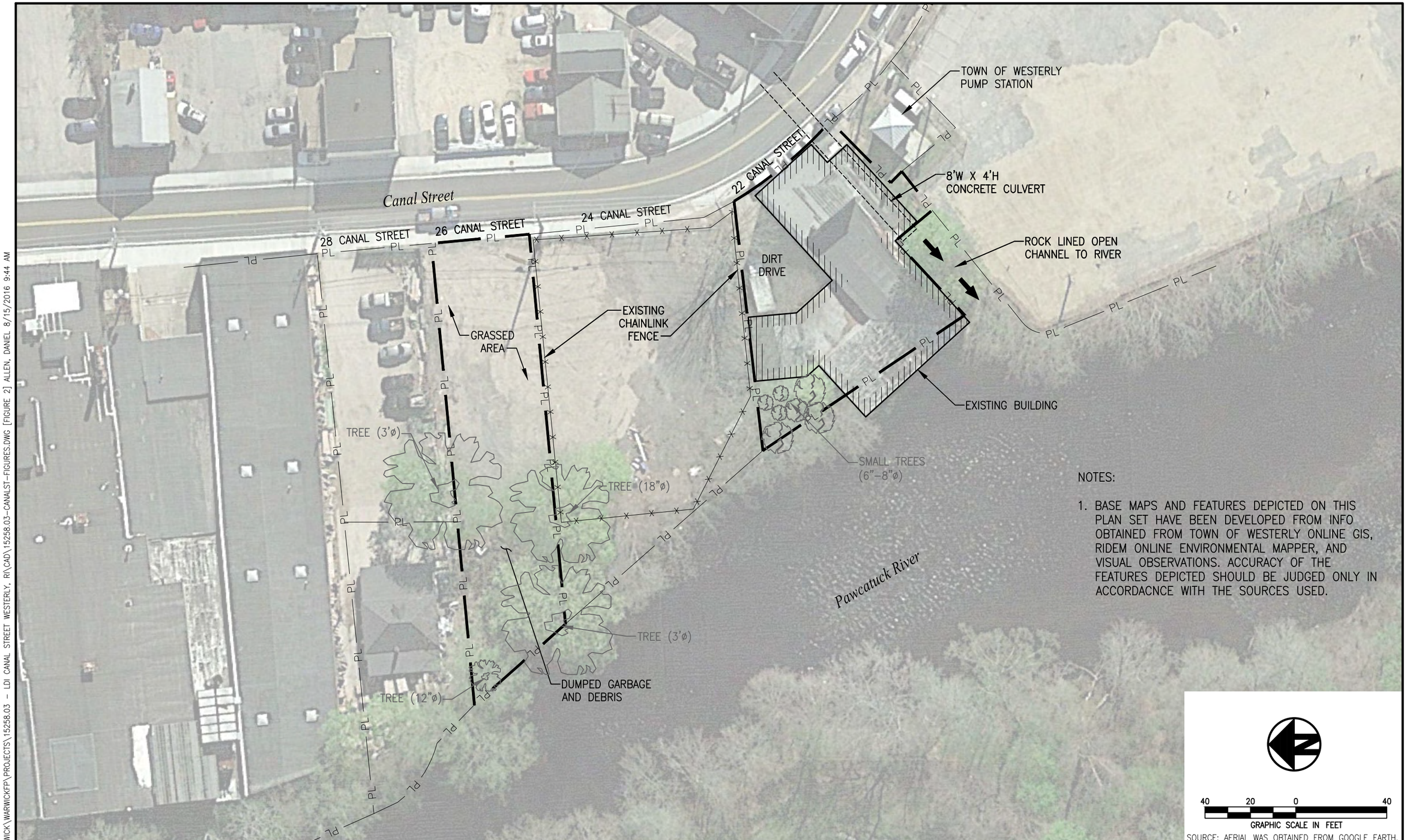
PLAT 56 LOTS 29 & 31, WESTERLY, RHODE ISLAND

SITE LOCATION MAP

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT MGR.:	DATE:	PROJECT NUMBER:	SHEET NUMBER:	FIGURE:
TLD	DPA	RGM	TLD	JULY 2016	15258.03	1 OF 5	1

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\15258.03 – LDI CANAL STREET WESTERLY, RI\CAD\15258.03-CANALST-FIGURES.DWG [FIGURE 1] ALLEN, DANIEL 8/15/2016 9:44 AM

FOR PERMITTING ONLY



NOTES:

1. BASE MAPS AND FEATURES DEPICTED ON THIS PLAN SET HAVE BEEN DEVELOPED FROM INFO OBTAINED FROM TOWN OF WESTERLY ONLINE GIS, RIDEM ONLINE ENVIRONMENTAL MAPPER, AND VISUAL OBSERVATIONS. ACCURACY OF THE FEATURES DEPICTED SHOULD BE JUDGED ONLY IN ACCORDACNCE WITH THE SOURCES USED.

SOURCE: AERIAL WAS OBTAINED FROM GOOGLE EARTH.

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\15258.03 - LDI CANAL STREET WESTERLY, RI\CAD\15258.03-CANALST-FIGURES.DWG [FIGURE 2] ALLEN, DANIEL 8/15/2016 9:44 AM

EA Engineering, Science, and Technology, Inc., PBC

REMEDIAL ACTION WORK PLAN
LIMITED DESIGN INVESTIGATION
22 & 26 CANAL STREET

PLAT 56 LOTS 29 & 31, WESTERLY, RHODE ISLAND

EXISTING CONDITIONS PLAN

PROJECT NUMBER:	DESIGNED BY:	DRAWN BY:	FIGURE:
15258.03	TLD	DPA	2
DATE:	CHECKED BY:	PROJECT MGR.:	SHEET NUMBER:
JULY 2016	RGM	TLD	2 OF 5

FOR PERMITTING ONLY

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\15258.03 - LDI CANAL STREET WESTERLY, RI\CAD\15258.03-CANALST-FIGURES.DWG [FIGURE 3] ALLEN, DANIEL 8/15/2016 9:44 AM

EA Engineering, Science, and Technology, Inc., PBC

REMEDIAL ACTION WORK PLAN
LIMITED DESIGN INVESTIGATION
22 & 26 CANAL STREET

PLAT 56 LOTS 29 & 31, WESTERLY, RHODE ISLAND

SOIL BORING LOCATION PLAN

PROJECT NUMBER:	DESIGNED BY:	DRAWN BY:	FIGURE:
15258.03	TLD	DPA	3
DATE:	CHECKED BY:	PROJECT MGR.:	SHEET NUMBER:
JULY 2016	RGM	TLD	3 OF 5

FOR PERMITTING ONLY

NOTES:

1. A BOUNDARY SURVEY SHOULD BE COMPLETED TO CONFIRM EXACT PROPERTY LINE LOCATIONS PRIOR TO COMMENCEMENT OF WORK.

2. ALL PERIMETER EROSION/SEDIMENTATION CONTROLS (HAYBALES OR EQUIVALENT) ARE TO BE INSTALLED PRIOR TO ANY SOIL MOVING ACTIVITIES.

3. TEMPORARY ON-SITE STOCKPILES ARE TO BE LOCATED AS DISATANT AS POSSIBLE FROM THE PAWCATUCK RIVER AND PROTECTED IN ACCORDANCE WITH THE RAWP SOIL MANAGEMENT PLAN.

4. THESE PLANS ARE FOR PERMITTING ONLY – NOT FOR CONSTRUCTION.

LEGEND:

1 COVER SYSTEM 1 – TREE PROTECTIVE CAP

2 COVER SYSTEM 2 – SAND AREA PROTECTIVE CAP

3 COVER SYSTEM 3 – ENGINEERED CAP

4 COVER SYSTEM 4 – DISSUASIVE VEGETATION

HB PROPOSED STAKED HAYBALES

PROPOSED SPLIT RAIL FENCE

40 20 0 40

GRAPHIC SCALE IN FEET

SOURCE: AERIAL WAS OBTAINED FROM GOOGLE EARTH.

FOR PERMITTING ONLY

EA Engineering, Science, and Technology, Inc., PBC

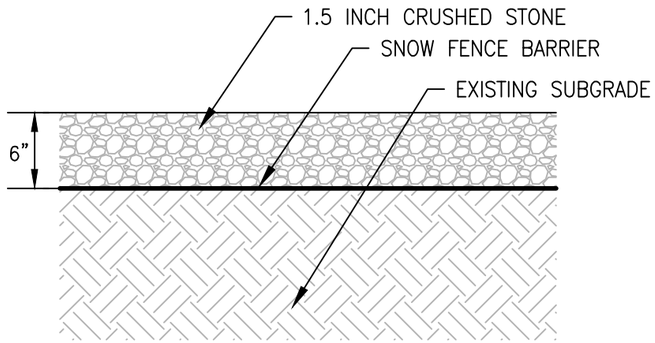
REMEDIAL ACTION WORK PLAN
LIMITED DESIGN INVESTIGATION
22 & 26 CANAL STREET

PLAT 56 LOTS 29 & 31, WESTERLY, RHODE ISLAND

PROPOSED REMEDIATION PLAN

PROJECT NUMBER:	DESIGNED BY:	DRAWN BY:	FIGURE:
15258.03	TLD	DPA	4
DATE:	CHECKED BY:	PROJECT MGR.:	SHEET NUMBER:
JULY 2016	RGM	TLD	4 OF 5

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\15258.03 – LDI CANAL STREET WESTERLY, RI\CAD\15258.03-CANALST-FIGURES.DWG [FIGURE 4] ALLEN, DANIEL 8/15/2016 9:44 AM



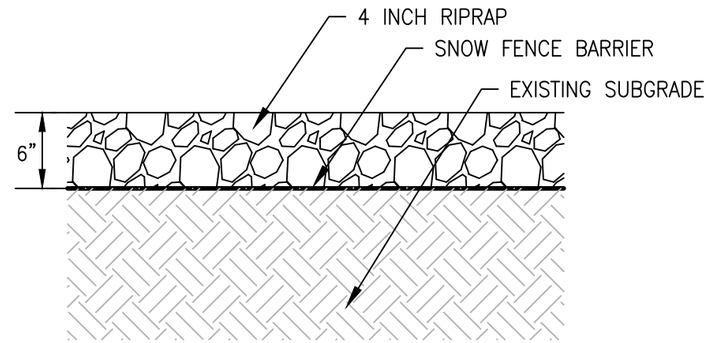
NOTES:
1. THIS CAP TO BE INSTALLED TO COVER AN AREA OF 30 FEET FROM TRUNKS OF TREES.

2. EXCAVATE 6 INCHES OF SURFACE SOIL USING LOW IMPACT TECHNIQUE (AIR SPADE OR EQUIVALENT APPORVED METHOD).

3. INSTALL SNOW FENCING BARRIER AND CLEAN 1.5 INCH CRUSHED STONE.

4. SET FINISHED GRADE TO MATCH EXISTING GRADE. NO NET INCREASE OF FILL.

COVER SYSTEM #1 TREE PROTECTIVE CAP



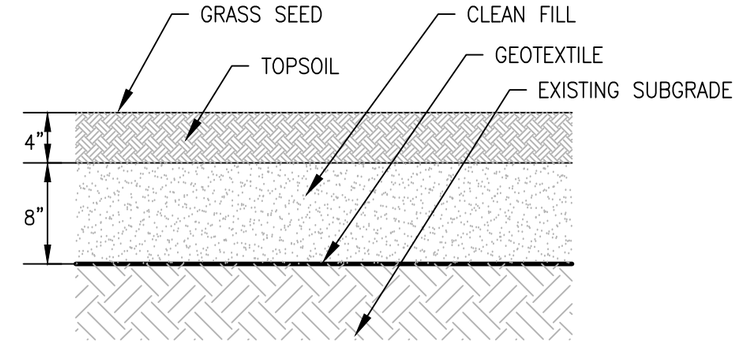
NOTES:
1. THIS CAP TO BE INSTALLED IN SANDY AREA UNDER EXISTING BUILDING ON LOT 22.

2. EXCAVATE 6 INCHES OF SURFACE SAND AND GLASS DEBRIS.

3. INSTALL SNOW FENCING BARRIER AND RIPRAP.

4. SET FINISHED GRADE TO MATCH EXISTING GRADE. NO NET INCREASE OF FILL.

COVER SYSTEM #2 SAND AREA PROTECTIVE CAP



NOTES:
1. TO BE INSTALLED IN MAJORITY OF SITE.

2. EXCAVATE 1 FOOT OF SURFACE SOIL.

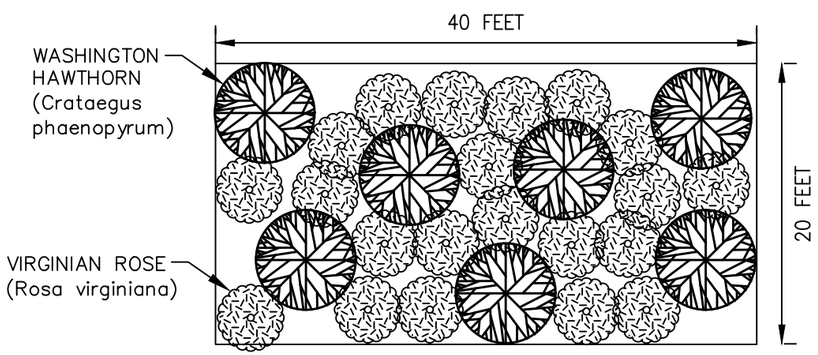
3. INSTALL GEOTEXTILE LAYER, MIRAFI 160N OR APPROVED EQUIVALENT (SPEC. IN APPENDIX F OF RAWP).

4. COVER WITH 8 INCHES CLEAN FILL AND 4 INCHES TOPSOIL.

5. PLANT SUITABLE DROUGHT RESISTANT GRASS SEED MIXTURE.

6. SET FINISHED GRADE TO MATCH EXISTING GRADE. NO NET INCREASE OF FILL.

COVER SYSTEM #3 ENGINEERED CAP



TYPICAL PLANTING PLAN

COVER SYSTEM #1 DISSUASIVE VEGETATION

PLANTING NOTES:

1. PLANTING WILL CONSIST OF TYPE AND DENSITY SHOWN ON THE PLAN, SUBSTITUTIONS MUST BE APPROVED BY RIDEM PRIOR TO INSTALLATION.

2. DISSUASIVE VEGETATION PLANTINGS ARE TO PLANTED AS SHOWN ON FIGURE 4 AND EXTEND 20 FEET INLAND FROM THE EDGE OF THE RIVER.

GENERAL NOTES:

1. ALL CONSTRUCTION ACTIVITIES TO BE CONDUCTED ON THE SITE ARE TO COMPLY WITH THE THE RAWP PREPARED FOR THE PROJECT.

2. SOIL EXCAVATION AND HANDLING ARE TO COMPLY WITH THE PROCEDURES DESCRIBED IN THE SOIL MANAGEMENT PLAN (SMP).

3. ALL SOIL AND DEMOLITION MATERIALS TO BE REMOVED FROM THE SITE ARE TO BE PRE-CHARACTERIZED FOR DISPOSAL AT A LICENSED FACILITY PRIOR TO BEING REMOVED FROM THE SITE.

4. ALL STONE MATERIALS TO BE IMPORTED ON-SITE ARE TO BE WASHED.

5. SOIL THAT IS TO IMPORTED TO THE SITE IS TO BE SAMPLED AND LABORATORY ANALYZED AS DESCRIBED IN THE RAWP.

FOR PERMITTING ONLY

EA Engineering, Science, and Technology, Inc., PBC	REMEDIAL ACTION WORK PLAN LIMITED DESIGN INVESTIGATION 26 CANAL STREET PLAT 56 LOTS 29 AND 31, WESTERLY, RHODE ISLAND	DETAILS	PROJECT NUMBER: 15258.03	DESIGNED BY: TLD	DRAWN BY: DPA	FIGURE: 5
			DATE: JULY 2016	CHECKED BY: RGM	PROJECT MGR.: TLD	SHEET NUMBER: 5 OF 5

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\15258.03 - LDI CANAL STREET WESTERLY, RI\CAD\15258.03-CANALST-FIGURES.DWG [FIGURE 5] ALLEN, DANIEL 8/15/2016 9:44 AM

Appendix B

Remedial Decision Letters

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE / DIVISION OF WASTE MANAGEMENT
235 Promenade Street, Room 380
Providence, Rhode Island 02908

REMEDIAL DECISION LETTER May 12, 2016
File No. SR-38-1776

Marilyn Shellman
Town Planner
Town of Westerly
45 Broad Street
Westerly, RI 02891

RE: 22 CANAL STREET - MICELI-TUDISCO PROPERTY
22 Canal Street
Westerly, Rhode Island
Plat Map 56 / Lot 29

Dear Ms. Shellman:

On November 9, 2011, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management (OWM) amended the 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 in a timely and cost-effective manner. 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 OWM is in receipt of the following documentation submitted pursuant to the Remediation Regulations in response to the reported release at the Site:

1. Targeted Brownfields Assessment Application Form, received by the Department on October 3, 2011, and prepared by the Town of Westerly;

2. Phase I Environmental Assessment, Miceli's Furniture Warehouse, 22 Canal Street, received by the Department on August 23, 2012, and prepared by Fuss & O'Neill (F&O);

3. Phase I Environmental Site Assessment, Canal Street Parcels, 22-26 Canal Street, received by the Department on June 30, 2014, and prepared by F&O;

4. Notification of a Public Meeting, received by the Department on December 10, 2014 and prepared by F&O;

5. Site-Specific Quality Assurance Project Plan Addendum, received by the Department on March 27, 2015, and prepared by F&O;

6. Site Investigation Report/Targeted Brownfields Assessment, Canal Street Parcels, received by the Department on June 23, 2015, and prepared by F&O; and

7. Public Notice Letter, Completion of Site Investigation Activities, received by the Department on July 10, 2015, and prepared by F&O;

Collectively, these documents define "Existing contamination" at the Site, and fulfill the requirements of a Site Investigation Report (SIR) as described in Rule 7.08 of the Remediation Regulations. In addition, according to our records, public notice was conducted to all abutting property owners, tenants, easement holders, and the municipality regarding the substantive findings of the completed investigation in accordance with Rules 7.07(A)(ii) and 7.09 of the Remediation Regulations. The opportunity for public review and comment on the technical feasibility of the proposed remedial alternatives commenced on June 15, 2015 and the period closed on July 15, 2015. No comments were received

The preferred remedial alternative, as stated in the SIR, consists of the following conceptual measures:

- Excavation and off-site disposal of contaminated soil as needed for flood storage compensatory measures.
- Capping in conjunction with an Environmental Land Usage Restriction (ELUR) and Soil Management Plan (SMP) to include two feet of clean fill or one foot of clean fill overlaying a geotextile fabric.

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 8.00 and 9.00 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 9.00 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. The RAWP is currently being completed as part of the Targeted Brownfields Assessment.

2. Pursuant to Rule 10.02 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 8.00 and 9.00 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 Town of Westerly 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. 7126, or by E-mail at cindy.gianfrancesco@dem.ri.gov.

Sincerely,

Cynthia M. Gianfrancesco

Cynthia M. Gianfrancesco, CHMM, CPG
Principal Environmental Scientist
Office of Waste Management

cc: Kelly Owens, DEM
Jessica Dominguez, EPA
Amy Grzybowski, Town of Westerly
Mary Miceli, 19 High Street, Westerly, RI 02891

Attachment: Remedial Action Approval Application Fee Form

Rhode Island Department of Environmental Management
Office of Waste Management

REMEDIAL ACTION APPROVAL APPLICATION FEE FORM

Rule 10.02 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: __22 Canal Street_____

Address:__22 Canal Street_____

Town/City:__Westerly_____

File Number:__SR-38-1776_____

Contact Person:____Amy Grzybowski_____

Phone No:_____401-348-2617_____

RIDEM Project Manager:__Cindy Gianfrancesco

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

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE / DIVISION OF WASTE MANAGEMENT
235 Promenade Street, Room 380
Providence, Rhode Island 02908

REMEDIAL DECISION LETTER May 12, 2016
File No. SR-1777

Marilyn Shellman
Town Planner
Town of Westerly
45 Broad Street
Westerly, RI 02891

RE: 26 CANAL STREET – TOWN PROPERTY
26 Canal Street
Westerly, Rhode Island
Plat Map 56 / Lot 31

Dear Ms. Shellman:

On November 9, 2011, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management (OWM) amended the 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 in a timely and cost-effective manner. 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.

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2. Pursuant to Rule 10.02 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.

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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:

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- Information previously unknown to the Department becomes available;
- Policy and/or regulatory requirements change; and/or
- Failure by the Town of Westerly 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. 7126, or by E-mail at cindy.gianfrancesco@dem.ri.gov.

Sincerely,

Cynthia M. Gianfrancesco

Cynthia M. Gianfrancesco, CHMM, CPG
Principal Environmental Scientist
Office of Waste Management

cc: Kelly Owens, DEM
Jessica Dominguez, EPA
Amy Grzybowski, Town of Westerly

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Office of Waste Management

REMEDIAL ACTION APPROVAL APPLICATION FEE FORM

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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: __26 Canal Street_____

Address:__26 Canal Street_____

Town/City:__Westerly_____

File Number:__ SR-38-1777_____

Contact Person:___ Amy Grzybowski_____

Phone No:_____401-348-2617__ _____

RIDEM Project Manager:__Cindy Gianfrancesco

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 C

Soil Boring Logs

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 1
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: Southeast corner of property.

						Drilling Start	Drilling Finish
Water Level:							
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 08:30 AM	TIME 08:35 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	10/12		--	0	0-5": Dark brown gray, FINE TO COARSE GRAVEL. Some organic material.
				0.5	5-10": Light gray, FINE TO COARSE GRAVEL.
	10/12		--	1	0-7": Gray GRAVEL. Large portions of wood and paper material.
				1.5	7-10": Dark brown SILT and ORGANIC material.
				2	NOTE: Two borings from 0-2' bored first to break-up frozen ground. Soil used as duplicate sample for EA 1 (0-1) and for extra soil material for EA 1 (1-2) sample as other boring had low recovery of samplable material (e.g. not soil).

Monitoring Well Construction Information

Monitoring Well Diameter: _____ in
Bottom of Monitoring Well: _____ ft bgs
Stick Up or Flush Mount: _____
Screen Interval: _____ To _____ ft bgs
Riser Interval: _____ To _____ ft bgs
Sand Pack Interval: _____ To _____ ft bgs
Bentonite Seal: _____ To _____ ft bgs
Grout Interval: _____ To _____ ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point: _____ ft
Bottom of Tubing: _____ ft
Top of Sand Pack: _____ ft
Top of Bentonite Seal: _____ ft

Logged by: _____ Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 2
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: To the south along fenceline.

						Drilling	
Water Level:						**Start**	**Finish**
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 08:40 AM	TIME 08:50AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-6": Tan to light gray, FINE TO MEDIUM GRAVEL.
				0.5	6-12": Light gray/white, MEDIUM TO COARSE GRAVEL. Small portion of dark brown silt and organic material at the bottom of the boring.
	10/12		--	1	0-10": Dark brown, SILT and CLAY. Dark gray streaks throughout.
				1.5	
				2	NOTE: Two extra borings taken from 0-1' for Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples.

Monitoring Well Construction Information				Soil Vapor Point Installation Information	
Monitoring Well Diameter:	_____	in		Depth of Soil Vapor Point:	_____ ft
Bottom of Monitoring Well:	_____	ft bgs		Bottom of Tubing:	_____ ft
Stick Up or Flush Mount:	_____			Top of Sand Pack:	_____ ft
Screen Interval:	_____	To	_____ ft bgs	Top of Bentonite Seal:	_____ ft
Riser Interval:	_____	To	_____ ft bgs		
Sand Pack Interval:	_____	To	_____ ft bgs		
Bentonite Seal:	_____	To	_____ ft bgs		
Grout Interval:	_____	To	_____ ft bgs		

Logged by: _____ Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 3
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: To the south along fenceline.

						Drilling	
Water Level:						**Start**	**Finish**
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 09:10 AM	TIME 09:20 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-4": Brown gray, FINE TO MEDIUM GRAVEL in silt matrix. Some organic material.
				0.5	4-12": Tan to light gray, SAND and FINE GRAVEL.
	12/12		--	1	0-2": Tan, SAND and FINE GRAVEL.
				1.5	2-12": Dark brown to orange, well consolidated, SILT and CLAY.
				2	

Monitoring Well Construction Information				Soil Vapor Point Installation Information	
Monitoring Well Diameter:	_____ in			Depth of Soil Vapor Point:	_____ ft
Bottom of Monitoring Well:	_____ ft bgs			Bottom of Tubing:	_____ ft
Stick Up or Flush Mount:	_____			Top of Sand Pack:	_____ ft
Screen Interval:	_____	To	_____ ft bgs	Top of Bentonite Seal:	_____ ft
Riser Interval:	_____	To	_____ ft bgs		
Sand Pack Interval:	_____	To	_____ ft bgs		
Bentonite Seal:	_____	To	_____ ft bgs		
Grout Interval:	_____	To	_____ ft bgs		

Logged by: _____ Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 4
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: To the southwest after fenceline.

						Drilling	
Water Level:						**Start**	**Finish**
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 09:20 AM	TIME 09:30 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-12": Brown, SILT with FINE TO COARSE GRAVEL throughout. Some organic material.
				0.5	
	7/12		--	1	0-7": Dark brown and gray, SILT and LARGE ROCK FRAGMENTS. Some fine and medium gravel throughout.
				1.5	
				2	

Monitoring Well Construction Information				Soil Vapor Point Installation Information	
Monitoring Well Diameter:	in			Depth of Soil Vapor Point:	ft
Bottom of Monitoring Well:	ft bgs			Bottom of Tubing:	ft
Stick Up or Flush Mount:				Top of Sand Pack:	ft
Screen Interval:	To		ft bgs	Top of Bentonite Seal:	ft
Riser Interval:	To		ft bgs		
Sand Pack Interval:	To		ft bgs		
Bentonite Seal:	To		ft bgs		
Grout Interval:	To		ft bgs		

Logged by: [signature] Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 5
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: Southwest corner of property.

						Drilling	
Water Level:						**Start**	**Finish**
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 09:30 AM	TIME 09:40 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-12": Tan and light gray, FINE TO MEDIUM GRAVEL.
				0.5	
	12/12		--	1	0-12": Light brown, SAND and SILT. Fine to coarse gravel throughout. Bottom 1" is dark brown consolidated silt.
				1.5	
				2	NOTE: Soil boring location moved due to large snowbank in the southwest corner of property.

Monitoring Well Construction Information				Soil Vapor Point Installation Information	
Monitoring Well Diameter:	in			Depth of Soil Vapor Point:	ft
Bottom of Monitoring Well:	ft bgs			Bottom of Tubing:	ft
Stick Up or Flush Mount:				Top of Sand Pack:	ft
Screen Interval:	To		ft bgs	Top of Bentonite Seal:	ft
Riser Interval:	To		ft bgs		
Sand Pack Interval:	To		ft bgs		
Bentonite Seal:	To		ft bgs		
Grout Interval:	To		ft bgs		

Logged by: [signature] Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 6
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: Northwest corner of property.

						Drilling Start	Drilling Finish
Water Level:							
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 09:45 AM	TIME 09:55 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-12": Dark brown, SILT, SAND, and FINE GRAVEL. Fragments of glass throughout.
				0.5	
	12/12		--	1	0-8": Dark brown, CLAY and SILT.
				1.5	8-12": Tan to brown, SAND and FINE GRAVEL.
				2	NOTE: Soil boring location moved due to snow piled in the northwest corner of property.

Monitoring Well Construction Information

Monitoring Well Diameter:	in		
Bottom of Monitoring Well:	ft bgs		
Stick Up or Flush Mount:			
Screen Interval:	To		ft bgs
Riser Interval:	To		ft bgs
Sand Pack Interval:	To		ft bgs
Bentonite Seal:	To		ft bgs
Grout Interval:	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	ft
Bottom of Tubing:	ft
Top of Sand Pack:	ft
Top of Bentonite Seal:	ft

Logged by: _____ Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 7
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: To the north along property line.

						Drilling Start	Drilling Finish
Water Level:							
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 10:00 AM	TIME 10:10 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-8": Light gray, SAND and SILT, with fine to coarse gravel throughout.
				0.5	8-12": Brown, FINE TO COARSE GRAVEL.
	12/12		--	1	0-6": Brown, SAND, with fine to coarse gravel throughout.
				1.5	6-12": Dark brown, well consolidated, SILT and CLAY.
				2	

Monitoring Well Construction Information

Monitoring Well Diameter: _____ in
Bottom of Monitoring Well: _____ ft bgs
Stick Up or Flush Mount: _____
Screen Interval: _____ To _____ ft bgs
Riser Interval: _____ To _____ ft bgs
Sand Pack Interval: _____ To _____ ft bgs
Bentonite Seal: _____ To _____ ft bgs
Grout Interval: _____ To _____ ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point: _____ ft
Bottom of Tubing: _____ ft
Top of Sand Pack: _____ ft
Top of Bentonite Seal: _____ ft

Logged by: [signature] Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 8
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: To the north along property line.

						Drilling Start	Drilling Finish
Water Level:							
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 10:10 AM	TIME 10:20 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-12": Gray to light gray, SAND and SILT, with fine to coarse gravel and large rock fragments throughout.
				0.5	
	12/12		--	1	0-6": Dark brown, SAND and SILT.
				1.5	6-12": Orange, SAND and SILT.
				2	

Monitoring Well Construction Information

Monitoring Well Diameter:	_____	in	
Bottom of Monitoring Well:	_____	ft bgs	
Stick Up or Flush Mount:	_____		
Screen Interval:	_____	To	_____ ft bgs
Riser Interval:	_____	To	_____ ft bgs
Sand Pack Interval:	_____	To	_____ ft bgs
Bentonite Seal:	_____	To	_____ ft bgs
Grout Interval:	_____	To	_____ ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	_____	ft
Bottom of Tubing:	_____	ft
Top of Sand Pack:	_____	ft
Top of Bentonite Seal:	_____	ft

Logged by: _____ Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 9
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: To the north along property line.

						Drilling Start	Drilling Finish
Water Level:							
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 10:20 AM	TIME 10:30 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-5": Light gray, SAND and FINE GRAVEL, with large rock fragments throughout.
				0.5	7-12": Tan, SAND and SILT.
	12/12		--	1	0-12": Orange and brown, well consolidated, SAND and SILT.
				1.5	
				2	

Monitoring Well Construction Information

Monitoring Well Diameter: _____ in
Bottom of Monitoring Well: _____ ft bgs
Stick Up or Flush Mount: _____
Screen Interval: _____ To _____ ft bgs
Riser Interval: _____ To _____ ft bgs
Sand Pack Interval: _____ To _____ ft bgs
Bentonite Seal: _____ To _____ ft bgs
Grout Interval: _____ To _____ ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point: _____ ft
Bottom of Tubing: _____ ft
Top of Sand Pack: _____ ft
Top of Bentonite Seal: _____ ft

Logged by: [signature]
Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc.
Driller: Taylor and Jim

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 15258.03	**Client:** RIDEM	**Project:** 26 Canal St Investigation	**Location:** 26 Canal St, Westerly, RI
Drilling Method: Geoprobe - 1' continuous			**Soil Boring/Well Number:** EA 10
Sampling Method: Grab			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description: Northeast corner of property.

						Drilling Start	Drilling Finish
Water Level:							
Time:						DATE 2/15/2016	DATE 2/15/2016
Date:						TIME 10:45 AM	TIME 10:55 AM

Surface Conditions: Some ice and snow over soil.
Weather: Cloudy
Temperature: Between 10 and 20 degrees F.

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
	12/12		--	0	0-6": Tan and light gray, SAND and SILT, with fine to medium gravel throughout.
				0.5	6-10": Light gray, SAND and SILT, with fine gravel throughout. 10-12": White, crushed rock.
	12/12		--	1	0-6": Tan and light gray, SAND and SILT, with fine to medium gravel throughout.
				1.5	6-12": White, crushed rock and rock fragments.
				2	

Monitoring Well Construction Information				Soil Vapor Point Installation Information	
Monitoring Well Diameter:	_____ in			Depth of Soil Vapor Point:	_____ ft
Bottom of Monitoring Well:	_____ ft bgs			Bottom of Tubing:	_____ ft
Stick Up or Flush Mount:	_____			Top of Sand Pack:	_____ ft
Screen Interval:	_____	To	_____ ft bgs	Top of Bentonite Seal:	_____ ft
Riser Interval:	_____	To	_____ ft bgs		
Sand Pack Interval:	_____	To	_____ ft bgs		
Bentonite Seal:	_____	To	_____ ft bgs		
Grout Interval:	_____	To	_____ ft bgs		

Logged by: _____ Date: 02/15/16
Drilling Contractor: Geologic-Earth Exploration Inc. Driller: Taylor and Jim

Appendix D

Laboratory Data Sheets

61 Louisa Viens Drive
Dayville, CT 06241
Fax: 860-774-2689
Phone: 860-774-6814
Toll-Free: 800-334-0103

ANALYTICAL DATA REPORT

prepared for:

EA Engineering
301 Metro Center Blvd.
Suite 102
Warwick, RI 02886-2242

Report Number: E602D78
Project: 26 Canal Street LDI 15258.03
Attn: Tom Daley

Received Date: 02/16/2016
Report Date: 02/25/2016

David Dickinson
Technical Director

CT DPH #PH-0465 EPA #CT00008 MA DEP #M-CT008 MD #349 ME DHHS #CT0050
NH ELAP #2020 NY ELAP #11549 PA DEP #68-04413 RI DOH #LAO00346 VA #460279 VT DOH #VT11549

101-000000475490

61 Louisa Viens Drive
Dayville, CT 06241
Fax: 860-774-2689
Phone: 860-774-6814
Toll-Free: 800-334-0103

Report No: E602D78
Client: RI DEM
Project: 26 Canal Street LDI 15258.03

CASE NARRATIVE / METHOD CONFORMANCE SUMMARY

This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included, along with a copy of the chain of custody and any subcontracted analyses reports, if applicable, for the sample(s) in this report. Subcontractor results are identified by 'SUB' next to the analysis.

Microbac Laboratories, Inc. received 21 samples from RI DEM on 02/16/2016. The samples were analyzed for the following list of analyses in accordance with RI DOH regulations unless otherwise indicated:

Semivolatiles by 8270D in SW
8270D[3550C]

Trace Metals by 6010C in SW
6010C[3050B]

Sample results are reported on a dry weight basis.

Non-Conformances:

Work Order:

None

Sample:

None

Analysis:

Metals:
The antimony recovery for the matrix spike analysis performed on sample EA 2(0-1) was outside of the established quality control limits. In compliance with Method 6010C, the digested sample was post spiked, yielding the following recovery: Sb: 59%.
The relative percent difference for the sample/sample duplicate analysis performed on sample EA 2(0-1) for lead was outside of the 35% control limit.
The RPD between the sample result and the sample duplicate result for the following compounds was outside the 20% quality control limit: Cobalt = 33%, Chromium = 35%, Nickel = 33% and Zinc = 26%.

The lead and antimony recoveries for the matrix spike analysis performed on sample EA 9(1-2) were outside of the established quality control limits. In compliance with Method 6010C, the digested sample was post spiked, yielding the following recovery: Pb 68%, Sb: 74%.

Semivolatile Organics:
The matrix spike and matrix spike duplicate analysis performed on sample EA 2 (0-1) resulted in the following:
Spike Recovery: 4 out of 34 outside limits
RPD: 1 out of 17 outside limits

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Date Received: 02/16/2016 15:30

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Parameter	Result	DL	Units	Completed	By	Dilution
(1) EA 1 (0-1)						
Date Collected: 02/15/2016 08:35	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	58	0.32	mg/kg	02/18/2016 17:21	KDT	
Arsenic	6.5	0.32	mg/kg	02/18/2016 17:21	KDT	
Antimony	ND	0.19	mg/kg	02/18/2016 17:21	KDT	
(2) EA 1 (1-2)						
Date Collected: 02/15/2016 08:35	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	660	0.29	mg/kg	02/18/2016 17:24	KDT	
Arsenic	6.6	0.29	mg/kg	02/18/2016 17:24	KDT	
Antimony	ND	0.17	mg/kg	02/18/2016 17:24	KDT	
(3) EA 2 (0-1)						
Date Collected: 02/15/2016 08:50	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	1000	0.31	mg/kg	02/18/2016 16:55	KDT	
Arsenic	8.4	0.31	mg/kg	02/18/2016 16:55	KDT	
Antimony	ND	0.19	mg/kg	02/18/2016 16:55	KDT	
(4) EA 2 (1-2)						
Date Collected: 02/15/2016 08:50	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	93	0.33	mg/kg	02/18/2016 17:27	KDT	
Arsenic	3.0	0.33	mg/kg	02/18/2016 17:27	KDT	
Antimony	0.53	0.20	mg/kg	02/18/2016 17:27	KDT	
(5) EA 3 (0-1)						
Date Collected: 02/15/2016 09:15	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	48	0.31	mg/kg	02/18/2016 17:30	KDT	
Arsenic	6.0	0.31	mg/kg	02/18/2016 17:30	KDT	
Antimony	ND	0.19	mg/kg	02/18/2016 17:30	KDT	
(6) EA 3 (1-2)						
Date Collected: 02/15/2016 09:20	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	41	0.32	mg/kg	02/18/2016 17:33	KDT	
Arsenic	1.5	0.32	mg/kg	02/18/2016 17:33	KDT	
Antimony	ND	0.19	mg/kg	02/18/2016 17:33	KDT	

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Date Received: 02/16/2016 15:30

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Parameter	Result	DL	Units	Completed	By	Dilution
(7) EA 4 (0-1)						
Date Collected: 02/15/2016 09:25	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	420	0.35	mg/kg	02/18/2016 17:36	KDT	
Arsenic	4.7	0.35	mg/kg	02/18/2016 17:36	KDT	
Antimony	ND	0.21	mg/kg	02/18/2016 17:36	KDT	
(8) EA 4 (1-2)						
Date Collected: 02/15/2016 09:30	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	1300	0.33	mg/kg	02/18/2016 17:39	KDT	
Arsenic	11	0.33	mg/kg	02/18/2016 17:39	KDT	
Antimony	0.83	0.20	mg/kg	02/18/2016 17:39	KDT	
(9) EA 5 (0-1)						
Date Collected: 02/15/2016 09:35	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	5.2	0.28	mg/kg	02/18/2016 17:42	KDT	
Arsenic	1.2	0.28	mg/kg	02/18/2016 17:42	KDT	
Antimony	ND	0.16	mg/kg	02/18/2016 17:42	KDT	
(10) EA 5 (1-2)						
Date Collected: 02/15/2016 09:40	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	280	0.28	mg/kg	02/18/2016 17:45	KDT	
Arsenic	3.7	0.28	mg/kg	02/18/2016 17:45	KDT	
Antimony	ND	0.17	mg/kg	02/18/2016 17:45	KDT	
(11) EA 6 (0-1)						
Date Collected: 02/15/2016 09:50	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	1800	0.30	mg/kg	02/18/2016 17:48	KDT	
Arsenic	13	0.30	mg/kg	02/18/2016 17:48	KDT	
Antimony	0.98	0.18	mg/kg	02/18/2016 17:48	KDT	
(12) EA 6 (1-2)						
Date Collected: 02/15/2016 09:55	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	110	0.43	mg/kg	02/18/2016 17:57	KDT	
Arsenic	1.4	0.43	mg/kg	02/18/2016 17:57	KDT	
Antimony	ND	0.26	mg/kg	02/18/2016 17:57	KDT	

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Date Received: 02/16/2016 15:30

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Parameter	Result	DL	Units	Completed	By	Dilution
(13) EA 7 (0-1)						
Date Collected: 02/15/2016 10:05	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	220	0.28	mg/kg	02/18/2016 18:00	KDT	
Arsenic	3.6	0.28	mg/kg	02/18/2016 18:00	KDT	
Antimony	ND	0.17	mg/kg	02/18/2016 18:00	KDT	
(14) EA 7 (1-2)						
Date Collected: 02/15/2016 10:10	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	160	0.32	mg/kg	02/19/2016 15:57	KDT	
Arsenic	2.7	0.32	mg/kg	02/19/2016 15:57	KDT	
Antimony	1.1	0.19	mg/kg	02/19/2016 15:57	KDT	
(15) EA 8 (0-1)						
Date Collected: 02/15/2016 10:15	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	74	0.28	mg/kg	02/19/2016 16:00	KDT	
Arsenic	3.4	0.28	mg/kg	02/19/2016 16:00	KDT	
Antimony	ND	0.17	mg/kg	02/19/2016 16:00	KDT	
(16) EA 8 (1-2)						
Date Collected: 02/15/2016 10:20	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	300	0.30	mg/kg	02/19/2016 16:02	KDT	
Arsenic	1.4	0.30	mg/kg	02/19/2016 16:02	KDT	
Antimony	ND	0.18	mg/kg	02/19/2016 16:02	KDT	
(17) EA 9 (0-1)						
Date Collected: 02/15/2016 10:25	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	61	0.32	mg/kg	02/19/2016 16:11	KDT	
Arsenic	6.3	0.32	mg/kg	02/19/2016 16:11	KDT	
Antimony	ND	0.19	mg/kg	02/19/2016 16:11	KDT	
(18) EA 9 (1-2)						
Date Collected: 02/15/2016 10:30	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	32	0.30	mg/kg	02/19/2016 15:45	KDT	
Arsenic	1.4	0.30	mg/kg	02/19/2016 15:45	KDT	
Antimony	ND	0.18	mg/kg	02/19/2016 15:45	KDT	

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Date Received: 02/16/2016 15:30

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Parameter	Result	DL	Units	Completed	By	Dilution
(19) EA 10 (0-1)						
Date Collected: 02/15/2016 10:50	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	140	0.28	mg/kg	02/19/2016 16:14	KDT	
Arsenic	3.8	0.28	mg/kg	02/19/2016 16:14	KDT	
Antimony	0.42	0.16	mg/kg	02/19/2016 16:14	KDT	
(20) EA 10 (1-2)						
Date Collected: 02/15/2016 10:55	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	360	0.28	mg/kg	02/19/2016 16:17	KDT	
Arsenic	5.6	0.28	mg/kg	02/19/2016 16:17	KDT	
Antimony	0.65	0.17	mg/kg	02/19/2016 16:17	KDT	
(21) Duplicate						
Date Collected: 02/15/2016	**Matrix: Solid**					
Trace Metals by 6010C						
Lead	230	0.29	mg/kg	02/19/2016 16:20	KDT	
Arsenic	16	0.29	mg/kg	02/19/2016 16:20	KDT	
Antimony	1.0	0.18	mg/kg	02/19/2016 16:20	KDT	

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 1
Sample Description: EA 1 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 08:35
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 19:04 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 21
Sample Weight/Volume: 30.25
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484610.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	210	ug/kg
208-96-8	Acenaphthylene	ND	210	ug/kg
120-12-7	Anthracene	ND	210	ug/kg
56-55-3	Benzo[a]anthracene	600	210	ug/kg
50-32-8	Benzo[a]pyrene	680	210	ug/kg
205-99-2	Benzo[b]fluoranthene	1000	210	ug/kg
191-24-2	Benzo[g,h,i]perylene	360	210	ug/kg
207-08-9	Benzo[k]fluoranthene	450	210	ug/kg
218-01-9	Chrysene	690	210	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	210	ug/kg
206-44-0	Fluoranthene	1500	210	ug/kg
86-73-7	Fluorene	ND	210	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	210	ug/kg
91-20-3	Naphthalene	ND	210	ug/kg
85-01-8	Phenanthrene	770	210	ug/kg
129-00-0	Pyrene	1300	210	ug/kg
91-57-6	2-Methylnaphthalene	ND	210	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	75%	32%-118%
2-Fluorobiphenyl	85%	30%-110%
2-Fluorophenol	73%	25%-100%
4-Terphenyl-d14	81%	38%-155%
Nitrobenzene-d5	69%	28%-108%
Phenol-d6	75%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 2
Sample Description: EA 1 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 08:35
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 19:34 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 14
Sample Weight/Volume: 30.15
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484611.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	190	ug/kg
208-96-8	Acenaphthylene	ND	190	ug/kg
120-12-7	Anthracene	ND	190	ug/kg
56-55-3	Benzo[a]anthracene	440	190	ug/kg
50-32-8	Benzo[a]pyrene	540	190	ug/kg
205-99-2	Benzo[b]fluoranthene	710	190	ug/kg
191-24-2	Benzo[g,h,i]perylene	250	190	ug/kg
207-08-9	Benzo[k]fluoranthene	280	190	ug/kg
218-01-9	Chrysene	570	190	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	190	ug/kg
206-44-0	Fluoranthene	1000	190	ug/kg
86-73-7	Fluorene	ND	190	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	240	190	ug/kg
91-20-3	Naphthalene	ND	190	ug/kg
85-01-8	Phenanthrene	510	190	ug/kg
129-00-0	Pyrene	950	190	ug/kg
91-57-6	2-Methylnaphthalene	ND	190	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	72%	32%-118%
2-Fluorobiphenyl	77%	30%-110%
2-Fluorophenol	65%	25%-100%
4-Terphenyl-d14	72%	38%-155%
Nitrobenzene-d5	64%	28%-108%
Phenol-d6	69%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 3
Sample Description: EA 2 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 08:50
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 20:04 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 20
Sample Weight/Volume: 30.22
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484612.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	200	ug/kg
208-96-8	Acenaphthylene	ND	200	ug/kg
120-12-7	Anthracene	ND	200	ug/kg
56-55-3	Benzo[a]anthracene	240	200	ug/kg
50-32-8	Benzo[a]pyrene	270	200	ug/kg
205-99-2	Benzo[b]fluoranthene	410	200	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	200	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	200	ug/kg
218-01-9	Chrysene	300	200	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	200	ug/kg
206-44-0	Fluoranthene	570	200	ug/kg
86-73-7	Fluorene	ND	200	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	200	ug/kg
91-20-3	Naphthalene	ND	200	ug/kg
85-01-8	Phenanthrene	320	200	ug/kg
129-00-0	Pyrene	560	200	ug/kg
91-57-6	2-Methylnaphthalene	ND	200	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	80%	32%-118%
2-Fluorobiphenyl	84%	30%-110%
2-Fluorophenol	73%	25%-100%
4-Terphenyl-d14	79%	38%-155%
Nitrobenzene-d5	69%	28%-108%
Phenol-d6	74%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 4
Sample Description: EA 2 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 08:50
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 17:33 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 24
Sample Weight/Volume: 30.25
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484607.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	220	ug/kg
208-96-8	Acenaphthylene	ND	220	ug/kg
120-12-7	Anthracene	ND	220	ug/kg
56-55-3	Benzo[a]anthracene	ND	220	ug/kg
50-32-8	Benzo[a]pyrene	ND	220	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	220	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	220	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	220	ug/kg
218-01-9	Chrysene	ND	220	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	220	ug/kg
206-44-0	Fluoranthene	ND	220	ug/kg
86-73-7	Fluorene	ND	220	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	220	ug/kg
91-20-3	Naphthalene	ND	220	ug/kg
85-01-8	Phenanthrene	ND	220	ug/kg
129-00-0	Pyrene	ND	220	ug/kg
91-57-6	2-Methylnaphthalene	ND	220	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	80%	32%-118%
2-Fluorobiphenyl	90%	30%-110%
2-Fluorophenol	76%	25%-100%
4-Terphenyl-d14	86%	38%-155%
Nitrobenzene-d5	73%	28%-108%
Phenol-d6	78%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 5
Sample Description: EA 3 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 09:15
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 18:03 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 20
Sample Weight/Volume: 30.02
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484608.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	210	ug/kg
208-96-8	Acenaphthylene	ND	210	ug/kg
120-12-7	Anthracene	ND	210	ug/kg
56-55-3	Benzo[a]anthracene	ND	210	ug/kg
50-32-8	Benzo[a]pyrene	ND	210	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	210	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	210	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	210	ug/kg
218-01-9	Chrysene	ND	210	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	210	ug/kg
206-44-0	Fluoranthene	330	210	ug/kg
86-73-7	Fluorene	ND	210	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	210	ug/kg
91-20-3	Naphthalene	ND	210	ug/kg
85-01-8	Phenanthrene	ND	210	ug/kg
129-00-0	Pyrene	280	210	ug/kg
91-57-6	2-Methylnaphthalene	ND	210	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	72%	32%-118%
2-Fluorobiphenyl	79%	30%-110%
2-Fluorophenol	71%	25%-100%
4-Terphenyl-d14	79%	38%-155%
Nitrobenzene-d5	70%	28%-108%
Phenol-d6	71%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 6
Sample Description: EA 3 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 09:20
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 17:02 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 22
Sample Weight/Volume: 30.08
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484606.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	210	ug/kg
208-96-8	Acenaphthylene	ND	210	ug/kg
120-12-7	Anthracene	ND	210	ug/kg
56-55-3	Benzo[a]anthracene	ND	210	ug/kg
50-32-8	Benzo[a]pyrene	ND	210	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	210	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	210	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	210	ug/kg
218-01-9	Chrysene	ND	210	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	210	ug/kg
206-44-0	Fluoranthene	ND	210	ug/kg
86-73-7	Fluorene	ND	210	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	210	ug/kg
91-20-3	Naphthalene	ND	210	ug/kg
85-01-8	Phenanthrene	ND	210	ug/kg
129-00-0	Pyrene	ND	210	ug/kg
91-57-6	2-Methylnaphthalene	ND	210	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	74%	32%-118%
2-Fluorobiphenyl	90%	30%-110%
2-Fluorophenol	79%	25%-100%
4-Terphenyl-d14	84%	38%-155%
Nitrobenzene-d5	77%	28%-108%
Phenol-d6	81%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 7
Sample Description: EA 4 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 09:25
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 18:34 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 28
Sample Weight/Volume: 30.01
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484609.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	230	ug/kg
208-96-8	Acenaphthylene	ND	230	ug/kg
120-12-7	Anthracene	ND	230	ug/kg
56-55-3	Benzo[a]anthracene	ND	230	ug/kg
50-32-8	Benzo[a]pyrene	260	230	ug/kg
205-99-2	Benzo[b]fluoranthene	470	230	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	230	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	230	ug/kg
218-01-9	Chrysene	290	230	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	230	ug/kg
206-44-0	Fluoranthene	560	230	ug/kg
86-73-7	Fluorene	ND	230	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	230	ug/kg
91-20-3	Naphthalene	ND	230	ug/kg
85-01-8	Phenanthrene	260	230	ug/kg
129-00-0	Pyrene	520	230	ug/kg
91-57-6	2-Methylnaphthalene	ND	230	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	76%	32%-118%
2-Fluorobiphenyl	78%	30%-110%
2-Fluorophenol	67%	25%-100%
4-Terphenyl-d14	80%	38%-155%
Nitrobenzene-d5	66%	28%-108%
Phenol-d6	69%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 8
Sample Description: EA 4 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 09:30
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 20:34 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 25
Sample Weight/Volume: 30.00
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484613.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	220	ug/kg
208-96-8	Acenaphthylene	ND	220	ug/kg
120-12-7	Anthracene	ND	220	ug/kg
56-55-3	Benzo[a]anthracene	890	220	ug/kg
50-32-8	Benzo[a]pyrene	1000	220	ug/kg
205-99-2	Benzo[b]fluoranthene	1500	220	ug/kg
191-24-2	Benzo[g,h,i]perylene	420	220	ug/kg
207-08-9	Benzo[k]fluoranthene	500	220	ug/kg
218-01-9	Chrysene	950	220	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	220	ug/kg
206-44-0	Fluoranthene	1900	220	ug/kg
86-73-7	Fluorene	ND	220	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	410	220	ug/kg
91-20-3	Naphthalene	ND	220	ug/kg
85-01-8	Phenanthrene	1200	220	ug/kg
129-00-0	Pyrene	1800	220	ug/kg
91-57-6	2-Methylnaphthalene	ND	220	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	81%	32%-118%
2-Fluorobiphenyl	88%	30%-110%
2-Fluorophenol	78%	25%-100%
4-Terphenyl-d14	88%	38%-155%
Nitrobenzene-d5	73%	28%-108%
Phenol-d6	79%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 9
Sample Description: EA 5 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 09:35
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 16:32 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 9.3
Sample Weight/Volume: 30.18
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484605.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	180	ug/kg
208-96-8	Acenaphthylene	ND	180	ug/kg
120-12-7	Anthracene	ND	180	ug/kg
56-55-3	Benzo[a]anthracene	ND	180	ug/kg
50-32-8	Benzo[a]pyrene	ND	180	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	180	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	180	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	180	ug/kg
218-01-9	Chrysene	ND	180	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	180	ug/kg
206-44-0	Fluoranthene	ND	180	ug/kg
86-73-7	Fluorene	ND	180	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	180	ug/kg
91-20-3	Naphthalene	ND	180	ug/kg
85-01-8	Phenanthrene	ND	180	ug/kg
129-00-0	Pyrene	ND	180	ug/kg
91-57-6	2-Methylnaphthalene	ND	180	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	64%	32%-118%
2-Fluorobiphenyl	86%	30%-110%
2-Fluorophenol	77%	25%-100%
4-Terphenyl-d14	83%	38%-155%
Nitrobenzene-d5	73%	28%-108%
Phenol-d6	78%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 10
Sample Description: EA 5 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 09:40
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/18/2016 21:04 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 12
Sample Weight/Volume: 30.04
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484614.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	190	ug/kg
208-96-8	Acenaphthylene	ND	190	ug/kg
120-12-7	Anthracene	ND	190	ug/kg
56-55-3	Benzo[a]anthracene	210	190	ug/kg
50-32-8	Benzo[a]pyrene	ND	190	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	190	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	190	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	190	ug/kg
218-01-9	Chrysene	260	190	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	190	ug/kg
206-44-0	Fluoranthene	520	190	ug/kg
86-73-7	Fluorene	ND	190	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	190	ug/kg
91-20-3	Naphthalene	ND	190	ug/kg
85-01-8	Phenanthrene	400	190	ug/kg
129-00-0	Pyrene	510	190	ug/kg
91-57-6	2-Methylnaphthalene	ND	190	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	90%	32%-118%
2-Fluorobiphenyl	84%	30%-110%
2-Fluorophenol	70%	25%-100%
4-Terphenyl-d14	85%	38%-155%
Nitrobenzene-d5	67%	28%-108%
Phenol-d6	73%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 11
Sample Description: EA 6 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 09:50
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/19/2016 17:08 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 17
Sample Weight/Volume: 30.08
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484625.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	200	ug/kg
208-96-8	Acenaphthylene	ND	200	ug/kg
120-12-7	Anthracene	670	200	ug/kg
56-55-3	Benzo[a]anthracene	7400	200	ug/kg
50-32-8	Benzo[a]pyrene	6400	200	ug/kg
205-99-2	Benzo[b]fluoranthene	10000	200	ug/kg
191-24-2	Benzo[g,h,i]perylene	2900	200	ug/kg
207-08-9	Benzo[k]fluoranthene	3900	200	ug/kg
218-01-9	Chrysene	6600	200	ug/kg
53-70-3	Dibenz[a,h]anthracene	720	200	ug/kg
206-44-0	Fluoranthene	8600	200	ug/kg
86-73-7	Fluorene	ND	200	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	3400	200	ug/kg
91-20-3	Naphthalene	ND	200	ug/kg
85-01-8	Phenanthrene	2400	200	ug/kg
129-00-0	Pyrene	9500	200	ug/kg
91-57-6	2-Methylnaphthalene	ND	200	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	72%	32%-118%
2-Fluorobiphenyl	67%	30%-110%
2-Fluorophenol	57%	25%-100%
4-Terphenyl-d14	74%	38%-155%
Nitrobenzene-d5	56%	28%-108%
Phenol-d6	60%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 12
Sample Description: EA 6 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 09:55
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/19/2016 15:34 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 42
Sample Weight/Volume: 30.19
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484622.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	290	ug/kg
208-96-8	Acenaphthylene	ND	290	ug/kg
120-12-7	Anthracene	ND	290	ug/kg
56-55-3	Benzo[a]anthracene	ND	290	ug/kg
50-32-8	Benzo[a]pyrene	ND	290	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	290	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	290	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	290	ug/kg
218-01-9	Chrysene	ND	290	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	290	ug/kg
206-44-0	Fluoranthene	ND	290	ug/kg
86-73-7	Fluorene	ND	290	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	290	ug/kg
91-20-3	Naphthalene	ND	290	ug/kg
85-01-8	Phenanthrene	ND	290	ug/kg
129-00-0	Pyrene	ND	290	ug/kg
91-57-6	2-Methylnaphthalene	ND	290	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	76%	32%-118%
2-Fluorobiphenyl	79%	30%-110%
2-Fluorophenol	66%	25%-100%
4-Terphenyl-d14	68%	38%-155%
Nitrobenzene-d5	63%	28%-108%
Phenol-d6	67%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 13
Sample Description: EA 7 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 10:05
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/23/2016 10:44 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 12
Sample Weight/Volume: 30.10
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484658.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	190	ug/kg
208-96-8	Acenaphthylene	ND	190	ug/kg
120-12-7	Anthracene	ND	190	ug/kg
56-55-3	Benzo[a]anthracene	240	190	ug/kg
50-32-8	Benzo[a]pyrene	280	190	ug/kg
205-99-2	Benzo[b]fluoranthene	490	190	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	190	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	190	ug/kg
218-01-9	Chrysene	350	190	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	190	ug/kg
206-44-0	Fluoranthene	560	190	ug/kg
86-73-7	Fluorene	ND	190	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	190	ug/kg
91-20-3	Naphthalene	ND	190	ug/kg
85-01-8	Phenanthrene	240	190	ug/kg
129-00-0	Pyrene	560	190	ug/kg
91-57-6	2-Methylnaphthalene	ND	190	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	62%	32%-118%
2-Fluorobiphenyl	64%	30%-110%
2-Fluorophenol	53%	25%-100%
4-Terphenyl-d14	61%	38%-155%
Nitrobenzene-d5	51%	28%-108%
Phenol-d6	55%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 14
Sample Description: EA 7 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 10:10
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/19/2016 16:05 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 21
Sample Weight/Volume: 30.03
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484623.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	210	ug/kg
208-96-8	Acenaphthylene	ND	210	ug/kg
120-12-7	Anthracene	ND	210	ug/kg
56-55-3	Benzo[a]anthracene	ND	210	ug/kg
50-32-8	Benzo[a]pyrene	ND	210	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	210	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	210	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	210	ug/kg
218-01-9	Chrysene	ND	210	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	210	ug/kg
206-44-0	Fluoranthene	ND	210	ug/kg
86-73-7	Fluorene	ND	210	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	210	ug/kg
91-20-3	Naphthalene	ND	210	ug/kg
85-01-8	Phenanthrene	ND	210	ug/kg
129-00-0	Pyrene	ND	210	ug/kg
91-57-6	2-Methylnaphthalene	ND	210	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	74%	32%-118%
2-Fluorobiphenyl	83%	30%-110%
2-Fluorophenol	68%	25%-100%
4-Terphenyl-d14	71%	38%-155%
Nitrobenzene-d5	68%	28%-108%
Phenol-d6	72%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 15
Sample Description: EA 8 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 10:15
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/19/2016 16:36 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 10
Sample Weight/Volume: 30.19
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484624.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	180	ug/kg
208-96-8	Acenaphthylene	ND	180	ug/kg
120-12-7	Anthracene	550	180	ug/kg
56-55-3	Benzo[a]anthracene	1800	180	ug/kg
50-32-8	Benzo[a]pyrene	1700	180	ug/kg
205-99-2	Benzo[b]fluoranthene	2200	180	ug/kg
191-24-2	Benzo[g,h,i]perylene	680	180	ug/kg
207-08-9	Benzo[k]fluoranthene	890	180	ug/kg
218-01-9	Chrysene	1700	180	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	180	ug/kg
206-44-0	Fluoranthene	3700	180	ug/kg
86-73-7	Fluorene	ND	180	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	680	180	ug/kg
91-20-3	Naphthalene	ND	180	ug/kg
85-01-8	Phenanthrene	2200	180	ug/kg
129-00-0	Pyrene	2800	180	ug/kg
91-57-6	2-Methylnaphthalene	ND	180	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	78%	32%-118%
2-Fluorobiphenyl	83%	30%-110%
2-Fluorophenol	70%	25%-100%
4-Terphenyl-d14	78%	38%-155%
Nitrobenzene-d5	69%	28%-108%
Phenol-d6	76%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 16
Sample Description: EA 8 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 10:20
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/19/2016 14:02 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 17
Sample Weight/Volume: 30.04
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484619.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	200	ug/kg
208-96-8	Acenaphthylene	ND	200	ug/kg
120-12-7	Anthracene	ND	200	ug/kg
56-55-3	Benzo[a]anthracene	ND	200	ug/kg
50-32-8	Benzo[a]pyrene	ND	200	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	200	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	200	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	200	ug/kg
218-01-9	Chrysene	ND	200	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	200	ug/kg
206-44-0	Fluoranthene	ND	200	ug/kg
86-73-7	Fluorene	ND	200	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	200	ug/kg
91-20-3	Naphthalene	ND	200	ug/kg
85-01-8	Phenanthrene	ND	200	ug/kg
129-00-0	Pyrene	ND	200	ug/kg
91-57-6	2-Methylnaphthalene	ND	200	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	60%	32%-118%
2-Fluorobiphenyl	83%	30%-110%
2-Fluorophenol	70%	25%-100%
4-Terphenyl-d14	74%	38%-155%
Nitrobenzene-d5	72%	28%-108%
Phenol-d6	72%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 17
Sample Description: EA 9 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 10:25
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/19/2016 14:32 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 22
Sample Weight/Volume: 30.21
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484620.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	210	ug/kg
208-96-8	Acenaphthylene	ND	210	ug/kg
120-12-7	Anthracene	ND	210	ug/kg
56-55-3	Benzo[a]anthracene	ND	210	ug/kg
50-32-8	Benzo[a]pyrene	ND	210	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	210	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	210	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	210	ug/kg
218-01-9	Chrysene	ND	210	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	210	ug/kg
206-44-0	Fluoranthene	ND	210	ug/kg
86-73-7	Fluorene	ND	210	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	210	ug/kg
91-20-3	Naphthalene	ND	210	ug/kg
85-01-8	Phenanthrene	ND	210	ug/kg
129-00-0	Pyrene	ND	210	ug/kg
91-57-6	2-Methylnaphthalene	ND	210	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	61%	32%-118%
2-Fluorobiphenyl	82%	30%-110%
2-Fluorophenol	66%	25%-100%
4-Terphenyl-d14	73%	38%-155%
Nitrobenzene-d5	67%	28%-108%
Phenol-d6	71%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 18
Sample Description: EA 9 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 10:30
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/19/2016 15:03 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 18
Sample Weight/Volume: 30.02
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484621.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	200	ug/kg
208-96-8	Acenaphthylene	ND	200	ug/kg
120-12-7	Anthracene	ND	200	ug/kg
56-55-3	Benzo[a]anthracene	ND	200	ug/kg
50-32-8	Benzo[a]pyrene	ND	200	ug/kg
205-99-2	Benzo[b]fluoranthene	ND	200	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	200	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	200	ug/kg
218-01-9	Chrysene	ND	200	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	200	ug/kg
206-44-0	Fluoranthene	ND	200	ug/kg
86-73-7	Fluorene	ND	200	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	200	ug/kg
91-20-3	Naphthalene	ND	200	ug/kg
85-01-8	Phenanthrene	ND	200	ug/kg
129-00-0	Pyrene	ND	200	ug/kg
91-57-6	2-Methylnaphthalene	ND	200	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	59%	32%-118%
2-Fluorobiphenyl	86%	30%-110%
2-Fluorophenol	69%	25%-100%
4-Terphenyl-d14	76%	38%-155%
Nitrobenzene-d5	72%	28%-108%
Phenol-d6	75%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 19
Sample Description: EA 10 (0-1)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 10:50
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/23/2016 11:15 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 9.5
Sample Weight/Volume: 30.09
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484659.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	180	ug/kg
208-96-8	Acenaphthylene	ND	180	ug/kg
120-12-7	Anthracene	ND	180	ug/kg
56-55-3	Benzo[a]anthracene	240	180	ug/kg
50-32-8	Benzo[a]pyrene	280	180	ug/kg
205-99-2	Benzo[b]fluoranthene	370	180	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	180	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	180	ug/kg
218-01-9	Chrysene	300	180	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	180	ug/kg
206-44-0	Fluoranthene	640	180	ug/kg
86-73-7	Fluorene	ND	180	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	180	ug/kg
91-20-3	Naphthalene	ND	180	ug/kg
85-01-8	Phenanthrene	340	180	ug/kg
129-00-0	Pyrene	550	180	ug/kg
91-57-6	2-Methylnaphthalene	ND	180	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	48%	32%-118%
2-Fluorobiphenyl	55%	30%-110%
2-Fluorophenol	43%	25%-100%
4-Terphenyl-d14	51%	38%-155%
Nitrobenzene-d5	43%	28%-108%
Phenol-d6	45%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 20
Sample Description: EA 10 (1-2)

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 10:55
Date Received: 02/16/2016 15:30
Date Extracted: 02/17/2016 09:00 By: CDT
Date Analyzed: 02/23/2016 11:46 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 9.8
Sample Weight/Volume: 30.18
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484660.D
QC Batch#: 137857

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	180	ug/kg
208-96-8	Acenaphthylene	ND	180	ug/kg
120-12-7	Anthracene	260	180	ug/kg
56-55-3	Benzo[a]anthracene	890	180	ug/kg
50-32-8	Benzo[a]pyrene	920	180	ug/kg
205-99-2	Benzo[b]fluoranthene	1300	180	ug/kg
191-24-2	Benzo[g,h,i]perylene	280	180	ug/kg
207-08-9	Benzo[k]fluoranthene	520	180	ug/kg
218-01-9	Chrysene	1000	180	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	180	ug/kg
206-44-0	Fluoranthene	1800	180	ug/kg
86-73-7	Fluorene	330	180	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	180	ug/kg
91-20-3	Naphthalene	230	180	ug/kg
85-01-8	Phenanthrene	1800	180	ug/kg
129-00-0	Pyrene	2000	180	ug/kg
91-57-6	2-Methylnaphthalene	260	180	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	74%	32%-118%
2-Fluorobiphenyl	82%	30%-110%
2-Fluorophenol	67%	25%-100%
4-Terphenyl-d14	77%	38%-155%
Nitrobenzene-d5	67%	28%-108%
Phenol-d6	70%	31%-107%

Microbac Laboratories, Inc.
Analytical Data Report

Report No: E602D78
Sample No: 21
Sample Description: Duplicate

Customer: RI DEM
Project: 26 Canal Street LDI 15258.03

Date Collected: 02/15/2016 00:00
Date Received: 02/16/2016 15:30
Date Extracted: 02/18/2016 12:35 By: CDT
Date Analyzed: 02/23/2016 12:17 By: DXC
Preparation Method: 3550C
Analytical Method: 8270D

Matrix: Solid
Percent Moisture: 14
Sample Weight/Volume: 30.08
Dilution Factor: 5
Extract Volume: 1
Lab Data File: L484661.D
QC Batch#: 137934

CAS No.	Parameter	Result	DL	Units
83-32-9	Acenaphthene	ND	190	ug/kg
208-96-8	Acenaphthylene	ND	190	ug/kg
120-12-7	Anthracene	ND	190	ug/kg
56-55-3	Benzo[a]anthracene	250	190	ug/kg
50-32-8	Benzo[a]pyrene	300	190	ug/kg
205-99-2	Benzo[b]fluoranthene	460	190	ug/kg
191-24-2	Benzo[g,h,i]perylene	ND	190	ug/kg
207-08-9	Benzo[k]fluoranthene	ND	190	ug/kg
218-01-9	Chrysene	310	190	ug/kg
53-70-3	Dibenz[a,h]anthracene	ND	190	ug/kg
206-44-0	Fluoranthene	680	190	ug/kg
86-73-7	Fluorene	ND	190	ug/kg
193-39-5	Indeno[1,2,3-cd]pyrene	ND	190	ug/kg
91-20-3	Naphthalene	ND	190	ug/kg
85-01-8	Phenanthrene	290	190	ug/kg
129-00-0	Pyrene	600	190	ug/kg
91-57-6	2-Methylnaphthalene	ND	190	ug/kg

Sample QC

Surrogate	Recovery	QC Limits
2,4,6-Tribromophenol	73%	32%-118%
2-Fluorobiphenyl	64%	30%-110%
2-Fluorophenol	52%	25%-100%
4-Terphenyl-d14	70%	38%-155%
Nitrobenzene-d5	51%	28%-108%
Phenol-d6	57%	31%-107%

Fortified Sample/Blank Recovery Report

Date:	February 18, 2016
Time:	16:46
Method:	6010C
Analyst:	KDT

Matrix	
Solid	X
Aqueous	

Run Log Reference Number
V-02182016-5

Work Order #: **E602D78**

QC Sample: E602D78-3

Units: mg/kg %Solids 80.4

Duplicate				Laboratory Fortified Matrix(LFM)/LFM Duplicate							LFB				LRB	
Element	Sample	Sample Duplicate	RPD	Spike Amount	LFM Result	% Recovery	LFMD Result	% Recovery	Recovery Limits	RPD	Spike Amount	Result	% Recovery	Recovery Limits	DL	Result
As	8.41	8.30	1.3	31.1	37.9	94.8	37.5	93.5	75-125	1.4	25.0	26.3	105	80-120	0.25	ND
Pb	1036	551	61	31.1	497	-1732	536.55	-1606	**	7.6	25.0	26.7	107	80-120	0.25	ND
Sb	0	0	0.0	31.1	20.3	65.4	19.3	62.2	PS = 59%	5.0	25.0	26.7	107	80-120	0.15	ND

Comments:

ND = Not Detected below DL

When the sample result or the duplicate result is < then 5X the DL the control limit becomes +/- the DL.

** When the sample result is > 4X the spike concentration there is no QC action limit.

Fortified Sample/Blank Recovery Report

Date:	February 19, 2016
Time:	15:36
Method:	6010C
Analyst:	KDT

Matrix	
Solid	X
Aqueous	

Run Log Reference Number
V-02192016-4

Work Order #: **E602D78**

QC Sample: E602D78-18

Units: mg/kg %Solids 82.3

Duplicate				Laboratory Fortified Matrix(LFM)/LFM Duplicate							LFB				LRB	
Element	Sample	Sample Duplicate	RPD	Spike Amount	LFM Result	% Recovery	LFMD Result	% Recovery	Recovery Limits	RPD	Spike Amount	Result	% Recovery	Recovery Limits	DL	Result
As	1.40	1.42	1.4	30.4	28.9	90.4	29.2	91.4	75-125	1.1	25	26.4	106	80-120	0.25	ND
Pb	32.2	41.4	25	30.4	95.9	210	80.3	158	PS = 68%	28	25	26.1	104	80-120	0.25	ND
Sb	0	0	0.0	30.4	14.3	47.0	14.3	47.2	PS = 74%	0.3	25	26.9	108	80-120	0.15	ND

Comments:

ND = Not Detected below DL

When the sample result or the duplicate result is < then 5X the DL the control limit becomes +/- the DL.

When the sample result is > 4X the spike concentration there is no QC action limit.

FORM 3

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Microbac Laboratories Date Analyzed: 02/18/2016

Project No.: E602D78 Project: 137857

Sample No.: E602D78-3 MS Location: 26 Canal Street LDI-15258.03

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC #	QC LIMITS REC
2-Methylnaphthalene	2058	0	1607	78	20- 95
Acenaphthene	2058	0	1595	78	20-115
Acenaphthylene	2058	0	1764	86	20-103
Anthracene	2058	0	2070	100	30-110
Benzo[a]anthracene	2058	240	3050	136	20-145
Benzo[a]pyrene	2058	270	3109	138	31-149
Benzo[b]fluoranthene	2058	410	3400	145	30-158
Benzo[g,h,i]perylene	2058	0	2034	99	20-125
Benzo[k]fluoranthene	2058	0	2472	120	33-154
Chrysene	2058	300	2926	128*	32-122
Dibenz[a,h]anthracene	2058	0	1420	69	20-114
Fluoranthene	2058	570	4790	205*	20-143
Fluorene	2058	0	1754	85	28-105
Indeno[1,2,3-cd]pyrene	2058	0	2150	104	32-119
Naphthalene	2058	0	1615	78	20- 99
Phenanthrene	2058	320	3984	178*	30-109
Pyrene	2058	560	4579	195*	20-127

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
2-Methylnaphthalene	2058	1592	77	1.29	37	20- 95
Acenaphthene	2058	1578	77	1.29	69	20-125
Acenaphthylene	2058	1691	82	4.76	41	20-103
Anthracene	2058	1776	86	15.0	40	30-110
Benzo[a]anthracene	2058	1891	80	51.9	67	20-145
Benzo[a]pyrene	2058	2049	86	46.4	59	31-149
Benzo[b]fluoranthene	2058	2392	96	40.7	64	30-158
Benzo[g,h,i]perylene	2058	1497	73	30.2	55	20-125
Benzo[k]fluoranthene	2058	1885	92	26.4	60	33-154
Chrysene	2058	1888	77	49.8*	45	32-122
Dibenz[a,h]anthracene	2058	1370	66	4.44	50	20-114
Fluoranthene	2058	2791	108	62.0	62	20-143
Fluorene	2058	1676	81	4.82	39	28-105
Indeno[1,2,3-cd]pyrene	2058	1497	73	35.0	44	32-119
Naphthalene	2058	1540	75	3.92	42	20- 99
Phenanthrene	2058	2494	106	50.7	72	30-109
Pyrene	2058	2652	102	62.6	71	20-127

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 17 outside limits
Spike Recovery: 4 out of 34 outside limits

MICROBAC®

Microbac Laboratories, Inc.
61 Louisa Viens Drive
Dayville, CT 06241

Chain of Custody

www.microbac.com
800-334-0103

Lab WO #: F602D78
Project Manager: [illegible]

Copy of Report To

CUSTOMER: EA Engineering, Science, + Technology Inc
ADDRESS: 301 Metro Center Blvd, Suite 102
Warwick, RI
DELIVERY: electronic (e-mail)
E-MAIL: cmejia@eaest.com; tdaley@eaest.com
PHONE: (401) ~~287-0379~~ FAX: 736-3440 x1803

Billing Information

BILL TO: [redacted] RIDEM Waste Management
ADDRESS: 235 Promenade Street
Providence, RI 02908
ATTN: Cindy Gianfrancesco
PHONE: 401-222-4700 x7126
E-MAIL: cindy.gianfrancesco@dem.ri.gov
PURCHASE ORDER #: 3442617

Project Information

Project: 26 Canal St LDI-15258.03
Location: 26 Canal St, Westerly, RI
Project Mgr: Tom Daley
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:
E-MAIL: tdaley@eaest.com
PHONE: (401) 287-0364
FAX:

Sample Identification	Date Collected	Time Collected	Sample Matrix	Sample Type: Composite	Sample Type: Grab	Bottle Qty	Analysis: PAH (8270D)	Analysis: Metals (Arsenic, Lead and Antimony) (6010C)							Preservatives: NON-PRES	HCL	HNO_3	H_2SO_4	OTHER
EA 1 (0-1)	2-15-16	08:35	S		X	2	X	X							X				
EA 1 (1-2)		08:35				2													
EA 2 (0-1) + MS/MSD		08:50				6													
EA 2 (1-2)		08:50				2													
EA 3 (0-1)		09:15																	
EA 3 (1-2)		09:20																	
EA 4 (0-1)		09:25																	
EA 4 (1-2)		09:30																	
EA 5 (0-1)		09:35																	
EA 5 (1-2)		09:40																	

CUSTODY TRANSFER		DATE	TIME
SAMPLER:	[illegible]	2-15-16	2:40 PM
RECEIVED:	EA Secure room	2-15-16	2:40PM
RELINQUISHED:	[illegible]	2-16-16	9:10
RECEIVED:	Molly Raynal	2-16-16	9:10
RELINQUISHED:	Molly Raynal	2-16-16	15:30
RECEIVED:	[illegible]	2/16/16	1530

TURNAROUND TIME REQUESTED (select): Standard | RUSH ____ Day

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

Circle Delivery Method: E-MAIL | HARD COPY | OTHER

COMMENTS:

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED ☐ | AMBIENT ☐ | 4.3 °C Upon receipt at lab

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Microbac Laboratories, Inc.
61 Louisa Viens Drive
Dayville, CT 06241

Chain of Custody

www.microbac.com
800-334-0103

Lab WO #: E602D78

Project Manager:

Copy of Report To

CUSTOMER: EA Engineering
ADDRESS: 301 Metro Center Blvd, Suite 102
Warwick, RI
DELIVERY: e-mail
E-MAIL: cmejia@eaest.com; tdaley@eaest.com
PHONE: 401-287-0379 FAX:

Billing Information

BILL TO: BID EM - OWM
ADDRESS: 235 Promenade St
Providence, RI 02908
ATTN: Cindy Gianfrancesco
PHONE: 401-222-4700 x7126
E-MAIL: cindy.gianfrancesco@dem.ri.gov
PURCHASE ORDER #: 344 2617

Project Information

Project: 26 Canal St - 15258.03
Location: 26 Canal St, Westerly, RI
Project Mgr: Tom Daley
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:
E-MAIL: tdaley@eaest.com
PHONE: (401) 287-0364
FAX:

Sample Identification	Date Collected	Time Collected	Sample Matrix	Sample Type: Composite	Sample Type: Grab	Bottle Qty	Analysis: PAH (8270D)	Analysis: Metals (Arsenic, Lead, + Antimony) (6010C)								Preservatives: NON-PRES	HCL	HNO_3	H_2SO_4	OTHER
EA 6 (0-1)	02-15-16	09:50	S		X	2	X	X								X				
EA 6 (1-2)		09:55																		
EA 7 (0-1)		10:05																		
EA 7 (1-2)		10:10																		
EA 8 (0-1)		10:15																		
EA 8 (1-2)		10:20																		
EA 9 (0-1)		10:25																		
EA 9 (1-2)		10:30																		
EA 10 (0-1)		10:50																		
EA 10 (1-2)		10:55																		

CUSTODY TRANSFER		DATE	TIME
SAMPLER:	[signature]	02-15-16	02:40
RECEIVED:	EA Sample Room	02-15-16	02:40
RELINQUISHED:	[signature]	2-16-16	9:10
RECEIVED:	Molly Reunch	2-16-16	9:10
RELINQUISHED:	Molly Reunch	2-16-16	15:30
RECEIVED:	[signature]	2/16/16	1530

TURNAROUND TIME REQUESTED (select): Standard | RUSH ____ Day

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

Circle Delivery Method: E-MAIL | HARD COPY | OTHER

COMMENTS:

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED ☐ | AMBIENT ☐ | 4.3 °C Upon receipt at lab

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BILL TO: RIDEM - OWM
ADDRESS: 235 Promenade St
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FAX:

Sample Identification	Date Collected	Time Collected	Sample Matrix	Sample Type: Composite	Sample Type: Grab	Bottle Qty	Analysis: PAH (8270D)	Analysis: Metals (Arsenic, Lead + Antimony) (6010C)								Preservatives: NON-PRES	HCL	HNO_3	H_2SO_4	OTHER
Duplicate	02-15-16	00:00	S		X	2	X	X								X				

CUSTODY TRANSFER	DATE	TIME
SAMPLER: [signature]	02-15-16	02:40
RECEIVED: EA Sewer Room	02-15-16	02:40
RELINQUISHED: [signature]	02-16-16	09:10
RECEIVED: Molly Rausch	2-16-16	9:10
RELINQUISHED: Molly Rausch	2-16-16	15:30
RECEIVED: [signature]	2/16/16	1530

TURNAROUND TIME REQUESTED (select): Standard | RUSH ____ Day

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

Circle Delivery Method: E-MAIL | HARD COPY | OTHER

COMMENTS:

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED ☐ AMBIENT ☐ 4.3 °C Upon receipt at lab

Appendix E

Soil Management Plan

SOIL MANAGEMENT PLAN
REMEDIAL ACTION WORK PLAN
22 CANAL STREET, WESTERLY, RI
RIDEM FILE NUMBERS: SR-38-1776

E.1 PURPOSE

The purpose of this Soil Management Plan (SMP) is to ensure proper management of soil during implementation of the Remedial Action Work Plan for the Targeted Brownfields Assessment at 22 Canal Street, Westerly, Rhode Island (site). A copy of this SMP shall be provided to the Remediation Contractor and General Contractor overseeing the proposed development activities.

This SMP also establishes procedures that will be followed should future construction or maintenance activities at the site require the need to manage soils excavated from the surface or alter the approved engineered cover systems across the site. This plan will be attached to the final Environmental Land Usage Restriction (ELUR) for the site. Any future soil disturbance and/or earthmoving activities conducted at the site subsequent to the Remedial Action shall also be subject to this SMP, as well as the procedures and requirements contained in the recorded ELUR.

It is required that all personnel responsible for working with soil on the site (including equipment operators) are familiar with this SMP and follow its procedures and requirements.

E.2 BACKGROUND

The subject site is located on two lots on the west side of Canal Street in a high density, mixed use and residential zone of Westerly, Rhode Island (Washington County). The site is identified by the Westerly Town Tax Assessor as Map No. 56, Lots 29 (22 Canal Street). The proposed use of the property is open space.

Site investigations conducted on the site by Fuss and O'Neill and EA Engineering, Science, and Technology, Inc., PBC (EA), revealed the presence of metals (antimony, arsenic and lead) and polynuclear aromatic hydrocarbons (PAHs) in the soils of the property at concentrations exceeding the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations) residential direct exposure criteria (RDEC), industrial/commercial direct exposure criteria (ICDEC) and lead in excess of the GA leachability (GA LC) criteria.

This SMP applies to the entire legal property boundaries of the five lots described above.

E.3 GOAL

The goal of this SMP is to ensure that all soil excavated, temporarily stockpiled, graded, moved, or otherwise managed or disturbed during and after construction activities is handled in a safe manner, and is properly managed consistent with applicable regulations and requirements .

E.4 EROSION AND SEDIMENTATION CONTROLS

Prior to any soil disturbance on the site, perimeter erosion/sedimentation controls should be installed as specified in the RIDEM approved Remedial Action Work Plan (RAWP). The erosion control measures will be inspected daily during site activities, and repairs will be made as necessary. The purpose of these erosion control measures is to protect the water quality of the adjacent Pawcatuck River.

E.5 SOIL EXCAVATION

All soils, including clean-fill, will be stockpiled on, and covered with, 10-mil polyethylene sheeting. Stockpiled soils shall be covered during periods of inactivity and at the end of every work day. Excavated material will be stockpiled close to the point of excavation. Soil shall not be stockpiled on the site for longer than a 24 hour period, or when there is a potential for flooding. All excavated soil shall be disposed of off-site.

No regulated soil shall be stockpiled on-site for greater than 60 days from the date of generation without prior written approval by RIDEM – Office of Waste Management, pursuant to solid waste regulations.

E.6 SITE SECURITY

At the end of each working day the site shall be secured to prevent any unauthorized access to stockpiled or exposed soils. This will include inspection of all stockpiles to confirm that they are covered securely with no potential exposure to impacted soils. This will also include the use of temporary chain link fencing or other suitable barrier to secure any open excavations, stockpiles, and/or other areas of temporarily exposed impacted soils. Site security procedures are to be recorded in the daily operating logs.

E.7 ENGINEERED CAP CONSTRUCTION

The cap construction will be conducted in accordance with the RIDEM approved RAWP. During this phase the certified clean fill shall be placed on polyethylene sheeting to prevent commingling with contaminated soils and shall be covered with polyethylene sheeting to prevent the generation and migration of dust, and shall incorporate appropriate controls around all stockpiles to prevent erosion and sedimentation. Except as to mitigate the generation and migration of dust and to avoid commingling with contaminated soils, the actual placement of the cap will require no special soil handing protocol other than Level D PPE.

E.8 DOCUMENTATION

During remedial activities, the site will be inspected on a daily basis and daily logs of the remedial activities, including photographs and field notes, will be maintained. Once remedial activities are complete, the daily inspection logs will be used to support the preparation of a Remedial Action Closure Report, as required by RIDEM.

If any sampling of site soils occurs following the Remedial Action, copies of the laboratory analysis results shall be maintained by the site owner and included in the annual inspection report for the site.

E.9 HEALTH AND SAFETY

Direct contact with any impacted material during implementation of the remedial activities will be minimized with the use of Level D PPE including gloves, steel toe boots, long sleeve shirts, and safety glasses. Best soil management practices will be employed at all times. Based on the limited size of the site it is not anticipated that dust will become an issue during construction; however, if dust generation becomes an issue, dust control measures including wetting of the soil will be kept available to prevent soils from becoming airborne.

During site work, the appropriate precautions will be taken to restrict unauthorized access to the property. 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

E.10 FUTURE DEVELOPMENT

The proposed future use of the site is open space. However if in the future any soil disturbance becomes necessary at the site, the integrity of the engineered cap must be maintained. Landscaping and regrading activities shall not disturb the cap in any manner without prior written approval from the RIDEM. Operations that require temporary disturbance of the cap may be permissible in accordance with prior Rhode Island Department of Environmental Management written approval of a work plan. This work plan must include a description of the anticipated site activity, the volume of soil proposed for excavation, anticipated contaminants of concern, a site figure identifying the proposed area to be excavated or disturbed, the expected duration of the project including reestablishment of engineered caps, and the proposed disposal location for excavated soil. This work plan must be submitted to RIDEM no later than 60 days prior to the proposed initiation of these activities. RIDEM will determine if the submittal of a Closure Report for this future development will be required, as well as if Public Notice is required prior to the initiation of soil disturbance. RIDEM will be subsequently notified, following the written approval of the work plan, at least 3 business days prior to the initiation of soil disturbance activities.

At the completion of site work, all exposed soils are required to be recapped with Department approved engineered controls consistent or better than the site surface conditions prior to the work that took place. These measures must also be consistent with the Department approved ELUR recorded on the property. Any clean fill material brought on site is required to meet the Department's Method 1 RDEC or be designated by an Environmental Professional as Non-Jurisdictional under the Remediation Regulations. The Annual Inspection Report for the site 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.

SOIL MANAGEMENT PLAN
REMEDIAL ACTION WORK PLAN
26 CANAL STREET, WESTERLY, RI
RIDEM FILE NUMBERS: SR-1777

E.1 PURPOSE

The purpose of this Soil Management Plan (SMP) is to ensure proper management of soil during implementation of the Remedial Action Work Plan for the Targeted Brownfields Assessment at 26 Canal Street, Westerly, Rhode Island (site). A copy of this SMP shall be provided to the Remediation Contractor and General Contractor overseeing the proposed development activities.

This SMP also establishes procedures that will be followed should future construction or maintenance activities at the site require the need to manage soils excavated from the surface or alter the approved engineered cover systems across the site. This plan will be attached to the final Environmental Land Usage Restriction (ELUR) for the site. Any future soil disturbance and/or earthmoving activities conducted at the site subsequent to the Remedial Action shall also be subject to this SMP, as well as the procedures and requirements contained in the recorded ELUR.

It is required that all personnel responsible for working with soil on the site (including equipment operators) are familiar with this SMP and follow its procedures and requirements.

E.2 BACKGROUND

The subject site is located on two lots on the west side of Canal Street in a high density, mixed use and residential zone of Westerly, Rhode Island (Washington County). The site is identified by the Westerly Town Tax Assessor as Map No. 56, Lots 31 (26 Canal Street). The proposed use of the property is open space.

Site investigations conducted on the site by Fuss and O'Neill and EA Engineering, Science, and Technology, Inc., PBC (EA), revealed the presence of metals (antimony, arsenic and lead) and polynuclear aromatic hydrocarbons (PAHs) in the soils of the property at concentrations exceeding the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations) residential direct exposure criteria (RDEC), industrial/commercial direct exposure criteria (ICDEC) and lead in excess of the GA leachability (GA LC) criteria.

This SMP applies to the entire legal property boundaries of the five lots described above.

E.3 GOAL

The goal of this SMP is to ensure that all soil excavated, temporarily stockpiled, graded, moved, or otherwise managed or disturbed during and after construction activities is handled in a safe manner, and is properly managed consistent with applicable regulations and requirements .

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Prior to any soil disturbance on the site, perimeter erosion/sedimentation controls should be installed as specified in the RIDEM approved Remedial Action Work Plan (RAWP). The erosion control measures will be inspected daily during site activities, and repairs will be made as necessary. The purpose of these erosion control measures is to protect the water quality of the adjacent Pawcatuck River.

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All soils, including clean-fill, will be stockpiled on, and covered with, 10-mil polyethylene sheeting. Stockpiled soils shall be covered during periods of inactivity and at the end of every work day. Excavated material will be stockpiled close to the point of excavation. Soil shall not be stockpiled on the site for longer than a 24 hour period, or when there is a potential for flooding. All excavated soil shall be disposed of off-site.

No regulated soil shall be stockpiled on-site for greater than 60 days from the date of generation without prior written approval by RIDEM – Office of Waste Management, pursuant to solid waste regulations.

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At the end of each working day the site shall be secured to prevent any unauthorized access to stockpiled or exposed soils. This will include inspection of all stockpiles to confirm that they are covered securely with no potential exposure to impacted soils. This will also include the use of temporary chain link fencing or other suitable barrier to secure any open excavations, stockpiles, and/or other areas of temporarily exposed impacted soils. Site security procedures are to be recorded in the daily operating logs.

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E.8 DOCUMENTATION

During remedial activities, the site will be inspected on a daily basis and daily logs of the remedial activities, including photographs and field notes, will be maintained. Once remedial activities are complete, the daily inspection logs will be used to support the preparation of a Remedial Action Closure Report, as required by RIDEM.

If any sampling of site soils occurs following the Remedial Action, copies of the laboratory analysis results shall be maintained by the site owner and included in the annual inspection report for the site.

E.9 HEALTH AND SAFETY

Direct contact with any impacted material during implementation of the remedial activities will be minimized with the use of Level D PPE including gloves, steel toe boots, long sleeve shirts, and safety glasses. Best soil management practices will be employed at all times. Based on the limited size of the site it is not anticipated that dust will become an issue during construction; however, if dust generation becomes an issue, dust control measures including wetting of the soil will be kept available to prevent soils from becoming airborne.

During site work, the appropriate precautions will be taken to restrict unauthorized access to the property. 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

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The proposed future use of the site is open space. However if in the future any soil disturbance becomes necessary at the site, the integrity of the engineered cap must be maintained. Landscaping and regrading activities shall not disturb the cap in any manner without prior written approval from the RIDEM. Operations that require temporary disturbance of the cap may be permissible in accordance with prior Rhode Island Department of Environmental Management written approval of a work plan. This work plan must include a description of the anticipated site activity, the volume of soil proposed for excavation, anticipated contaminants of concern, a site figure identifying the proposed area to be excavated or disturbed, the expected duration of the project including reestablishment of engineered caps, and the proposed disposal location for excavated soil. This work plan must be submitted to RIDEM no later than 60 days prior to the proposed initiation of these activities. RIDEM will determine if the submittal of a Closure Report for this future development will be required, as well as if Public Notice is required prior to the initiation of soil disturbance. RIDEM will be subsequently notified, following the written approval of the work plan, at least 3 business days prior to the initiation of soil disturbance activities.

At the completion of site work, all exposed soils are required to be recapped with Department approved engineered controls consistent or better than the site surface conditions prior to the work that took place. These measures must also be consistent with the Department approved ELUR recorded on the property. Any clean fill material brought on site is required to meet the Department's Method 1 RDEC or be designated by an Environmental Professional as Non-Jurisdictional under the Remediation Regulations. The Annual Inspection Report for the site 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 F

Product Specifications – Geotextile

product

Mirafi® N-Series Nonwoven Polypropylene Geotextiles

for Soil Separation, Filtration, and Protection

Mirafi® Construction Products offers a wide range of nonwoven geotextiles for soil separation, filtration and protection. These geotextiles are cost-effective reinforcement elements which improve and enhance modern construction techniques in a variety of civil engineering applications.

PRODUCT DESCRIPTION

Mirafi® N-Series products are nonwoven geotextiles comprised of polypropylene staple fibers. Mirafi® N-Series Nonwoven Polypropylene Geotextiles provide excellent physical and hydraulic properties in addition to high tensile strengths.

FEATURES AND BENEFITS

- **Construction.** Mirafi® N-Series geotextiles easily conform to the ground or trench surface for trouble-free installation.
- **Strength.** Mirafi® N-Series geotextiles withstand severe installation stresses with high puncture and burst resistance.
- **Filtration.** High permeability properties provide high water flow rates while providing excellent filtration properties.
- **Environmental.** Mirafi® N-Series geotextiles are chemically stable in a wide range of aggressive environments.
- **Cost effective.** Mirafi® N-Series geotextiles provide economical solutions to many civil engineering applications including a cost-effective alternative to graded-aggregate filters.

APPLICATIONS

Mirafi® N-Series Nonwovens are used in a wide variety of applications including separation, filtration, and protection applications.

Lightweight nonwovens are predominantly used for subsurface drainage applications along highways, within embankments, under airfields, and athletic fields. For these drainage structures to be effective, they must have a properly designed protective filter. Mirafi® N-Series Nonwoven Geotextiles eliminate the problems of determining the aggregate gradation required to match soil conditions, finding a convenient and economical source of a specific aggregate gradation, transporting and placing graded aggregate, and assuring that the in-place aggregate gradation provides effective filter performance.

Heavyweight nonwovens are use in critical subsurface drainage systems, soil separation, permanent erosion control, and geomembrane liner protection within landfills. These geotextiles provide the required strength and abrasion resistance to withstand installation and application stresses to create an effective, long-term solution.

Mirafi® N-Series heavyweight nonwoven used as a liner protection in landfill application.

Mirafi® N-Series lightweight nonwoven used as protective filter in subsurface drainage application.

Mirafi® N-Series light weight nonwoven used as protective filter in an athletic field.

Ten Cate Nicolon

product

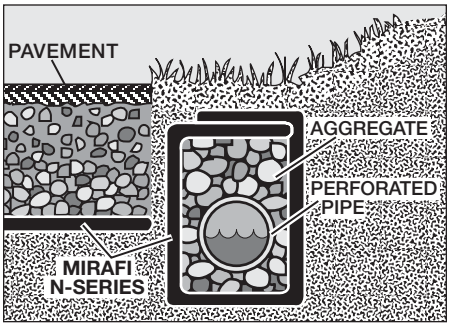
Mirafi® N-Series Nonwoven Polypropylene Geotextiles

for Soil Separation, Filtration, and Protection

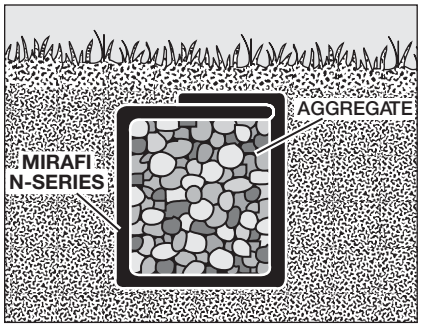
Property / Test Method	Units	140NL	140NC	140N	160N	170N	180N	1100N	1120N	1160N
MECHANICAL PROPERTIES										
Grab Tensile Strength ASTM D 4632										
Strength @ Ultimate	kN (lbs)	0.40 (90)	0.45 (100)	0.53 (120)	0.71 (160)	0.80 (180)	0.9 (205)	1.11(250)	1.34 (300)	1.69 (380)
Elongation @ Ultimate	%	50	60	50	50	50	50	50	50	50
Mullen Burst Strength	kPa	1205	1447	1550	2100	2273	2618	3445	4030	5098
ASTM D 3786	(psi)	(175)	(210)	(225)	(305)	(330)	(380)	(500)	(585)	(740)
Trapezoidal Tear Strength	kN	0.18	0.20	0.22	0.27	0.33	0.36	0.45	0.51	0.62
ASTM D 4533	(lbs)	(40)	(45)	(50)	(60)	(75)	(80)	(100)	(115)	(140)
Puncture Strength	kN	0.24	0.30	0.30	0.42	0.46	0.58	0.69	0.78	1.05
ASTM D 4833	(lbs)	(55)	(65)	(65)	(95)	(105)	(130)	(155)	(175)	(235)
UV Resistance after 500 hrs. ASTM D 4355	% strength	70	70	70	70	70	70	70	70	70
HYDRAULIC PROPERTIES										
Apparent Opening Size (AOS)	US Sieve	60	70	70	70	100	80	100	100	100
ASTM D 4751	mm	0.25	0.212	0.212	0.212	0.149	0.180	0.150	0.150	0.150
Permittivity ASTM D 4491	sec^{-1}	2.0	1.9	1.8	1.4	1.4	1.2	1.0	0.8	0.7
Flow Rate ASTM D 4491	$l/min/m^2$ ($gal/min/ft^2$)	5907 (145)	5704 (140)	5500 (135)	4477 (110)	4278 (105)	3866 (95)	3056 (75)	2648 (65)	2037 (50)
Packaging										
Roll Width	m(ft)	3.8 (12.5) 4.5 (15.0)	3.8 (12.5) 4.5 (15.0)	3.8 (12.5) 4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)
Roll Length	m(ft)	110 (360)	110 (360)	110 (360)	91 (300)	91 (300)	91 (300)	91 (300)	91 (300)	46 (150)
Est. Gross Weight	kg(lbs)	60 (133) 70 (160)	69 (152) 83(182)	74 (164) 89 (197)	99 (217)	110 (242)	124 (273)	154 (339)	175 (386)	110 (243)
Area	$m^2(yd^2)$	418 (500) 502 (600)	418 (500) 502 (600)	418 (500) 502(600)	418 (500)	418 (500)	418 (500)	418 (500)	418 (500)	209 (250)

NOTE: All Mechanical Properties and Hydraulic Properties shown are Minimum Average Roll Values (MARV).

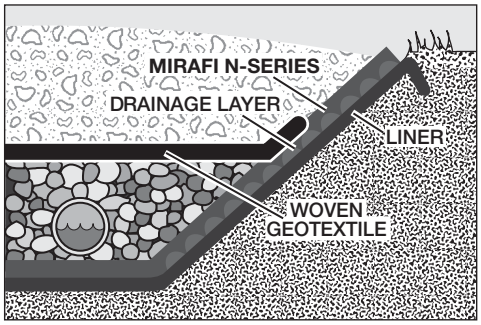
Cut-off/inceptor drain along a roadway or other critical structure



French drain without pipe



Liner protection within a landfill



For more information: www.mirafi.com

WARRANTY

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ABOUT US

Ten Cate Nicolon USA is a registered ISO9001:2000 company. MIRAFI® Construction Products is a division of Ten Cate Nicolon USA. MIRAFI® is a proud member of IFAI and GMA.

CORPORATE OFFICE

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(888) 795-0808 • (706) 693-2226 • Fax (706) 693-4400

Appendix G

Draft Environmental Land Use Restriction

~~**Appendix G**~~

ENVIRONMENTAL LAND USAGE RESTRICTION

This Declaration of Environmental Land Usage Restriction ("Restriction") is made on this _____ day of _____, 20___ by the Town of Westerly, Rhode Island~~[**property owner**],~~, and its successors and/or assigns (hereinafter, the "Grantor").

WITNESSETH:

WHEREAS, the Grantor _____ (name) is the Owner in fee simple of certain real property identified as Plat 56, Lot 29, located at 22 Canal Street, Westerly, Rhode Island ~~[**specify Plat, Lot(s), address and Town or City**] 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 Direct Exposure Criteria~~[**residential or industrial/commercial Direct Exposure Criteria, and/or applicable groundwater objective**] criteria~~ pursuant to the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases ("Remediation Regulations");

WHEREAS, the Grantor and the Department have determined that the environmental land use restrictions set forth below are consistent with the regulations adopted by the Rhode Island Department of Environmental Management ("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 Decision Letter File No. SR-38-1776, dated 12 May, 2016, ~~/ **Settlement Agreement/ Order of Approval/ 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 Decision Letter~~/ Remedial Agreement/ Order of Approval/ Remedial Approval Letter]~~, the Grantor desires to impose certain restrictions upon the use, occupancy, and activities of and at the ~~[P~~Property~~/Contaminated Site]~~;

WHEREAS, the Grantor believes that this Restriction will effectively protect public health and the environment from such contamination; and

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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/Contaminated Site]: In accordance with the [Remedial Decision Letter/ Remedial Agreement/ Order of Approval/ Remedial Approval Letter], the use, occupancy and activity of and at the [Property/ Contaminated Site] is restricted as follows:

i. No residential use of the [Property/Contaminated Site] shall be permitted that is contrary to Department approvals and restrictions contained herein;

ii. No groundwater at the [Property/Contaminated Site] shall be used as potable water;

iii. No soil at the Property **[Property/Contaminated Site]** shall be disturbed in any manner without written permission of the Department's Office of Waste Management, except as permitted in the Remedial Action Work Plan (RAWP) or Soil Management Plan (SMP) approved by the Department in a written approval letter dated _____(date) Exhibit B and attached hereto;

[iv. Humans engaged in activities at the Property **[Property/Contaminated Site]** 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; and

[iv.

[v.Water at the **[Property/Contaminated Site]** shall be prohibited from infiltrating soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved leachability criteria set forth in the Remediation Regulations;

[vi.No subsurface structures shall be constructed on the **[Property/Contaminated Site]** over groundwater containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved GA or GB Groundwater Objectives set forth in the Remediation Regulations;

[vii.[v. The engineered controls at the Property **[Property/ Contaminated Site]** described in the R[RAWP or SMP]contained in Exhibit B attached hereto shall not be disturbed and shall be properly maintained to prevent humans engaged in [residential or industrial/commercial] aactivity from being exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department-approved R[residential or industrial/commercial] Direct Exposure Criteria in accordance with the Remediation Regulations; and

[viii.The engineered controls at the **[Property/ Contaminated Site]** described in the [RAWP or Soil Management Plan SMP] contained in Exhibit B attached hereto shall not be

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~~disturbed and shall be properly maintained so that water does not infiltrate soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department-approved leachability criteria set forth in the Remediation Regulations.~~

B. No action shall be taken, allowed, suffered, or omitted at the ~~[~~**Property**~~/ Contaminated Site] ~~ **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, ~~**[Property/Contaminated Site],** ~~except as permitted in the Department-approved ~~[~~RAWP or SMP~~]~~ contained in Exhibit B.

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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 Waste 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/Contaminated Site]~~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/Contaminated Site]~~Property, emergency maintenance and repair of utility lines shall only require restoration of the ~~[Property/Contaminated Site]~~Property to its condition prior to the maintenance and repair of the utility lines; and

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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/Contaminated Site]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/Contaminated Site]Property from the provisions of this Restriction unless the Grantor demonstrates to the Department's satisfaction that Grantor has managed the [Property/Contaminated Site]Property in accordance with applicable regulations.

E. Notice of Lessees and Other Holders of Interests in the [Property/Contaminated Site]Property: The Grantor, or any future holder of any interest in the [Property/Contaminated Site]Property, shall cause any lease, grant, or other transfer of any interest in the [Property/Contaminated Site]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/Contaminated Site]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/Contaminated Site]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/Contaminated Site]Property, to provide for annual inspections of the [Property/Contaminated Site]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/Contaminated Site] (the "Company Representative"), or] A qualified environmental professional will, on behalf of the Grantor or future holder of any interest in the [Property/Contaminated Site]Property, evaluate the compliance status of the [Property/Contaminated Site]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/Contaminated Site]Property an evaluation report detailing the findings of the inspection , and noting any compliance violations at the [Property/Contaminated-

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~~Site]~~Property. If the ~~[Property/Contaminated Site]~~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/Contaminated Site]~~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/Contaminated Site]~~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/Contaminated Site]~~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.

Town of Westerly, Rhode Island~~[**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: _____

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~~**Appendix G**~~

ENVIRONMENTAL LAND USAGE RESTRICTION

This Declaration of Environmental Land Usage Restriction ("Restriction") is made on this _____ day of _____, 20___ by the Town of Westerly, Rhode Island~~[**property owner**],~~, and its successors and/or assigns (hereinafter, the "Grantor").

WITNESSETH:

WHEREAS, the Grantor _____ (name) is the Owner in fee simple of certain real property identified as Plat 56, Lot 31, located at 26 Canal Street, Westerly, Rhode Island ~~[**specify Plat, Lot(s), address and Town or City**] 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 Direct Exposure Criteria~~[**residential or industrial/commercial Direct Exposure Criteria, and/or applicable groundwater objective**] criteria~~ pursuant to the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases ("Remediation Regulations");

WHEREAS, the Grantor and the Department have determined that the environmental land use restrictions set forth below are consistent with the regulations adopted by the Rhode Island Department of Environmental Management ("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 Decision Letter File No. SR-1777, dated 12 May, 2016, ~~/ **Settlement Agreement/ Order of Approval/ Remedial Approval Letter**]~~ issued pursuant to the Remediation Regulations;

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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 Decision Letter~~/ Remedial Agreement/ Order of Approval/ Remedial Approval Letter]~~, the Grantor desires to impose certain restrictions upon the use, occupancy, and activities of and at the ~~[P~~Property~~/Contaminated Site]~~;

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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/Contaminated Site]: In accordance with the [Remedial Decision Letter/ Remedial Agreement/ Order of Approval/ Remedial Approval Letter], the use, occupancy and activity of and at the [Property/ Contaminated Site] is restricted as follows:

i. No residential use of the [Property/Contaminated Site] shall be permitted that is contrary to Department approvals and restrictions contained herein;

ii. No groundwater at the [Property/Contaminated Site] shall be used as potable water;

iii. No soil at the Property **[Property/Contaminated Site]** shall be disturbed in any manner without written permission of the Department's Office of Waste Management, except as permitted in the Remedial Action Work Plan (RAWP) or Soil Management Plan (SMP) approved by the Department in a written approval letter dated _____(date) Exhibit B and attached hereto;

[iv. Humans engaged in activities at the Property **[Property/Contaminated Site]** 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; and

[iv.

[v.Water at the **[Property/Contaminated Site]** shall be prohibited from infiltrating soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved leachability criteria set forth in the Remediation Regulations;

[vi.No subsurface structures shall be constructed on the **[Property/Contaminated Site]** over groundwater containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved GA or GB Groundwater Objectives set forth in the Remediation Regulations;

[vii.[v. The engineered controls at the Property **[Property/ Contaminated Site]** described in the R[RAWP or SMP]contained in Exhibit B attached hereto shall not be disturbed and shall be properly maintained to prevent humans engaged in [residential or industrial/commercial] aactivity from being exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department-approved R[residential or industrial/commercial] Direct Exposure Criteria in accordance with the Remediation Regulations; and

[viii.The engineered controls at the **[Property/ Contaminated Site]** described in the [RAWP or Soil Management Plan SMP] contained in Exhibit B attached hereto shall not be

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~~disturbed and shall be properly maintained so that water does not infiltrate soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department-approved leachability criteria set forth in the Remediation Regulations.~~

B. No action shall be taken, allowed, suffered, or omitted at the ~~[~~**Property**~~/ Contaminated Site] ~~ **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, ~~**[Property/Contaminated Site],** ~~except as permitted in the Department-approved ~~[~~RAWP or SMP~~]~~ contained in Exhibit B.

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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 Waste 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/Contaminated Site]~~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/Contaminated Site]~~Property, emergency maintenance and repair of utility lines shall only require restoration of the ~~[Property/Contaminated Site]~~Property to its condition prior to the maintenance and repair of the utility lines; and

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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/Contaminated Site]~~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/Contaminated Site]~~Property from the provisions of this Restriction unless the Grantor demonstrates to the Department's satisfaction that Grantor has managed the ~~[Property/Contaminated Site]~~Property in accordance with applicable regulations.

E. Notice of Lessees and Other Holders of Interests in the ~~[Property/Contaminated Site]~~Property: The Grantor, or any future holder of any interest in the ~~[Property/Contaminated Site]~~Property, shall cause any lease, grant, or other transfer of any interest in the ~~[Property/Contaminated Site]~~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/Contaminated Site]~~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/Contaminated Site]~~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/Contaminated Site]~~Property, to provide for annual inspections of the ~~[Property/Contaminated Site]~~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/Contaminated Site] (the "Company Representative"), or]~~ A qualified environmental professional will, on behalf of the Grantor or future holder of any interest in the ~~[Property/Contaminated Site]~~Property, evaluate the compliance status of the ~~[Property/Contaminated Site]~~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/Contaminated Site]~~Property an evaluation report detailing the findings of the inspection , and noting any compliance violations at the ~~[Property/Contaminated~~

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~~Site]~~Property. If the ~~[Property/Contaminated Site]~~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/Contaminated Site]~~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/Contaminated Site]~~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/Contaminated Site]~~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.

Town of Westerly, Rhode Island~~[**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: _____

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Appendix H

Operations Log Sheet

Site Operations Log

Remedial Action

22 & 26 Canal Street

Westerly, RI

Pg. of

Date:

Project Information					
Personnel:		Mob:		Depart site:	
Weather & Last Rain:		Dep. to site:		Arrive back:	
		Arrive site:		Demob:	

Site Information	
Subcontractors on Site (Company/Task):	
Visitors to Site:	
Equipment on Site:	
Description of Daily SOW:	

Daily Site Details		
Is soil being moved within the site or taken off-site?	yes no	If yes, describe soil origin, # trucks, volumes, disposal location.
Is soil being brought in to the site?	yes no	If yes, describe soil origin, # trucks, volumes, placement location.
Is cap work being conducted?	yes no	If yes, describe location and status.
Are any other RAWP tasks being conducted?	yes no	If yes, describe location and status.
Were any problems identified?	yes no	If yes, describe problem and corrective action.
Was the Contingency Plan implemented?	yes no	If yes, describe actions.
Weekly erosion/ sedimentation inspection?	yes no	Findings:

Notes:

Certifications

Signature of Inspector: X

Signature of Site Operator: X

Site Operations Log

Remedial Action

22 & 26 Canal Street

Westerly, RI

Pg. of

Date:

Photo #	Photo #
Photo #	**Photo #**
Photo #	**Photo #**

Appendix I

Contingency Plan

This document shall be maintained on site at all times during implementation and operation of remedial actions.

Client: Rhode Island Department of Environmental Management (RIDEM)

Project Name/Number: Remedial Action @ 22 and 26 Canal Street
Project No. 1525803

Site Location/Address: 22 and 26 Canal St, Westerly, RI 02891. Tax Assessors Plat 56, Lot 31 owned by the Town of Westerly.

Site Description/History: Two lots with existing impacted soil likely due to historic urban fill. PAHs and metals were detected on the lots in excess of RIDEM standards. The proposed remedial action includes demolition of the site building on lot 22, excavation of impacted soils and installation of various covers systems to prevent contact with the impacted media. The Town of Westerly intends to convert the site to open space for floodplain management purposes.

Work Description: Work to be completed is described in the Remedial Action Work Plan, dated May 2016 that has been prepared for the project.

EMERGENCY CONTACT INFORMATION:

Contacts	Name	Phone Number(s) work/cell
Emergency – Fire , Police, Ambulance	Emergency Number	911
EA Project Manager	Tom Daley	401-287-0364/401-255-9605
EA Health and Safety Manager	Peter Garger	410 527-2425/410 790-6338
EA Site Safety and Health Officer	Catherine Swanson	401-287-0371/843-696-9881
Client/Regulatory Contact	Cindy Gianfrancesco	401-222-2797 x7126
Poison Control		800-222-1222
National Response Center		800-424-8802
Other (as applicable)		
Town of Westerly	Amy Grizbowski	401-348-2604

MEDICAL EMERGENCY:

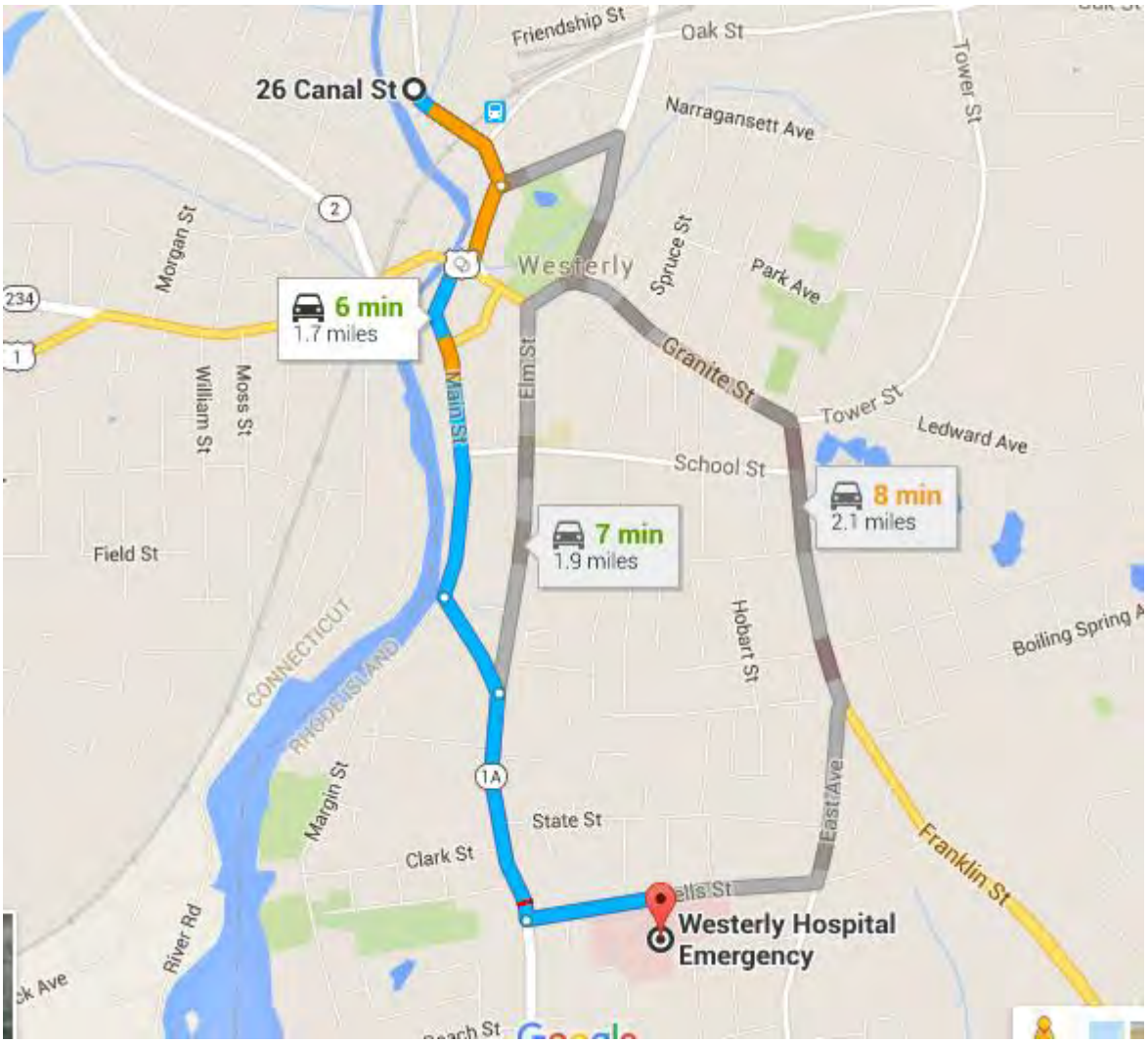
Distance to Nearest Hospital (with emergency room): Around 1.5 miles.

Hospital Name: Westerly Hospital Emergency

Hospital Phone: 401-596-6000

Hospital Address: 25 Wells St, Westerly, RI 02891

Route to Hospital: Head south on Canal St toward Industrial Dr. Turn right onto High St. Slight right onto Broad St. Turn left onto Main St. Proceed 0.6 miles. Turn left onto Beach St. Slight right to stay on Beach St. Proceed 0.4 miles. Turn left onto Wells St. Hospital will be on the right. (MAP OF ROUTE ON NEXT PAGE).



HAZARDS OF CONCERN: Check as many as are applicable.

( ) Heat Stress	( ) Reactive	( ) Oxygen Deficient	**(x) Insect Bite**
(x) Cold Stress	**(x) Noise**	( ) Corrosive	( ) Snake Bite
( ) Explosion/Fire	( ) Inorganic	**(x) Toxic**	( ) Excavations
(x) Biological	( ) Organic	( ) Inert	( ) Vegetation
( ) Radiological	( ) Utilities	( ) Excavations	**(x) Electrical**
( ) Volatile	( ) Lifting	**(x) General Physical**	

( ) Confined Space (see Section 9 of GHASP)
(x) Other, specify: stuck by/caught between, parking lot traffic concerns

CONTROLS OR PROTECTIVE MEASURES: Check as many as are applicable.
(x) Pre-entry Briefing/Safety Meetings (x) PPE (x) Site control
(x) Operator Training
(x) Permits Digsafe
(x) Engineering Controls Traffic management within site, utility location contractor
(x) Work Practices Buddy system, safety spotter.
( ) Other

EXPOSURE PATHWAYS: (x) Inhalation (x) Ingestion (x) Dermal (x) Injection

POTENTIALLY IMPACTED MEDIA:

( ) Air (x) Dust/Soil ( ) Surface Water (x) Sediment ( ) Groundwater ( ) Other
.

FIRE/EXPLOSION POTENTIAL: ( ) High ( ) Medium (x) Low

SURROUNDING POPULATION: (x) Residential (x) Industrial ( ) Rural ( ) Urban

ANTICIPATED LEVEL OF CHEMICAL EXPOSURE: (List potential contaminants of concern, media, and concentration levels if known. Include previous air sampling if any):

( ) High ( ) Medium (x) Low

COCs are PAHs and metals. Soil and groundwater were sampled and analyzed in 2015 for a wide range of possible contaminants. Only PAHs and metals were found to be in exceedance of RIDEM Method 1 regulatory criteria in samples collected from soil within the top three feet of the soil column. The primary risk posed by these compounds in soil is related to direct exposure via ingestion or inhalation of dust. There is no record of air sampling occurring previously.

OVERALL HAZARD RANKING: ( ) High ( ) Medium (x) Low

JUSTIFICATION OF HAZARD RANKING: (brief narrative of how work activities may encounter hazards and their controls):

The primary risk posed by the COCs in the soil is related to direct exposure via ingestion or inhalation of dust. Biological hazards may be present outdoors.

CHEMICAL HAZARDS

Compound	PEL or TLV/STEL	IDLH	Route of Exposure	Symptoms
Semivolatile Organic Compounds (PAH)				
Benzo[a]anthracene	0.2 mg/m^3 [a]	80 mg/m^3 [a] Ca	Inhalation, Skin/Eye Contact	Dermatitis, bronchitis; suspected human carcinogen.
Benzo[a]pyrene	0.2 mg/m^3 [a]	80 mg/m^3 [a] Ca	Inhalation, Skin/Eye Contact	Dermatitis, bronchitis; suspected human carcinogen.
Benzo[b]fluoranthene	0.2 mg/m^3 [a]	80 mg/m^3 [a] Ca	Inhalation, Skin/Eye Contact	Dermatitis, bronchitis; suspected human carcinogen.
Chrysene	0.2 mg/m^3 [a]	80 mg/m^3 [a] Ca	Inhalation, Skin/Eye Contact	Dermatitis, bronchitis; suspected human carcinogen.
Naphthalene	10 ppm/15 ppm	250 ppm	Inhalation, Ingestion, Absorption, Skin/Eye Contact	Eye irritation, headache, confusion, vomiting, profuse sweating, abdominal pain.
Metals				
Antimony (Sb)	0.5 mg/m^3	50 mg/m^3	Inhalation and Ingestion via particulates, Skin/Eye Contact	Irritated eyes, skin, nose, throat, mouth; coughing, dizziness, headache, nausea, vomiting, diarrhea, stomach cramps, insomnia, loss of smell.
Arsenic (inorganic compounds as As)	0.01 mg/m^3 0.005 mg/m^3 AL	Ca 5 mg/m^3 (as As)	Inhalation and Ingestion via particulates, Skin/Eye Contact	Ulceration of nasal septum, dermatitis, gastrointestinal bleeding.
Lead (and inorganic compounds as Pb)	0.050 mg/m^3 0.030 mg/m^3 AL	100 mg/m^3 (as Pb)	Inhalation and Ingestion via particulates, Skin/Eye Contact	Lassitude, insomnia, pallor, anoxia, weight loss, constipation, abdominal pain, colic, anemia, wrist paralysis.

IDLH	*Immediately Dangerous to Life and Health*
PEL	*Permissible* Exposure Limit
TLV	Threshold Limit Value

UTILITY CLEARANCE:

One-Call Utility Services ( ) Not Required (x) Required, explain To be called in at least 3 business days prior to breaking ground.

Facility-Provided Clearance or Permit (x) Not Required ( ) Required, explain Notification of property owner prior to start of work

Geophysical, Pipe Locator, or Other Contractor (x) Not Required () Required, explain _____

CONTINGENCY PLANS: Summarize below (Evacuation, assembly point, contingency leader)

Assembly point will be on the west side of Canal Street on the sidewalk adjacent to the road. grassy area

In case of emergency, work will be stopped and 911 will be called. On site personnel will then notify project manager of site conditions and other stakeholders will be called.

TRAINING REQUIRED:

(x) HAZWOPER WORKER ( ) HAZWOPER SUPERVISOR (x) FIRST/CPR

( ) CONFINED SPACE ( ) OTHER, explain _____

PROTECTIVE EQUIPMENT: Protective equipment should be specified by the type of task and site (e.g., soil boring and sampling at landfill). Indicate type and/or material, as necessary. Use additional pages as necessary.

TASK 1: Building Demolition and Remedial Activities

PPP LEVEL - D

Respiratory: (x) Not needed
( ) SCBA, Airline: _____
( ) APR: _____
( ) Cartridge: _____
( ) Escape Mask: _____
( ) Other: _____

Head and Eye: ( ) Not needed
(x) Safety Glasses: _____
( ) Face Shield: _____
( ) Goggles: _____
(x) Hard Hat: Near heavy equipment

Hearing Protection: ( ) Not needed
(x) Plugs: As needed
( ) Muffs: _____

Boots: ( ) Not needed
(x) Safety Boots: _____
( ) Overboots: _____

Protective Clothing: ( ) Not needed
( ) Encapsulating Suit: _____
( ) Splash Suit: _____
( ) Apron: _____
( ) Tyvek Coverall
( ) Saranex Coverall
( ) Coverall: _____
(x) Other: Safety vest

Gloves: ( ) Not needed
( ) Undergloves: _____
(x) Gloves: For soil contact
( ) Overgloves: _____
( ) Other: _____

MONITORING EQUIPMENT: Monitoring equipment should be specified by task and type of site. Indicate type, as necessary. Attach additional sheets, as necessary.

Monitoring Equipment not required

CONTINGENCY PLAN REVIEW RECORD

SITE: _____

Project No._____

I have read the Contingency Plan (s) and have been briefed on the nature, level, and degree of exposure likely as a result of participation of field activities. I agree to conform to all the requirements of this Plan.

Name	Signature	Affiliation	Date

Appendix J

Project Cost Estimate

Canal Street Remediation Project Quantity Calculation Sheet

	Surface Area (SF)		Depth of Excavation (ft)	Excavation Volume (CY)		Depth of Base (ft)	Type of Base	Base Volume (CY)	
	22 Canal Street	26 Canal Street		22 Canal Street	26 Canal Street			22 Canal Street	26 Canal Street
Tree Protective Cap	0	2072	0.5	0	39	0.5	Crushed Stone	0	39
Sand Area Protective Cap	2354	0	0.5	44	0	0.5	Riprap	44	0
Engineered Cap	5193	4976	1	193	185	0.67	Clean Fill	129	124
Dissuasive Vegetation Cap	725	1072	-	-	-	-	-	-	-
Totals	8272	8120		237	224			173	163

Dissuassive Vegetation Cap Planting Quantities		
Washington Hawthorn Density (1 Tree per SF Area)	**Washington Hawthorn Quantity**	
	22 Canal Street	**26 Canal Street**
115	7	10
Virginia Rose Density (1 Shrub per SF Area)	**Washington Hawthorn Quantity**	
	22 Canal Street	**26 Canal Street**
39	19	28

EA Engineering, Science, and Technology, Inc.

Canal Street Remediation Project Cost Estimate

	Item Description	Unit Cost	22 Canal Street Quantities	26 Canal Street Quantities	Units	22 Canal Street Total	26 Canal Street Total	Total	Source	Cost Reference	Criteria	Quantity Notes
1	Hay Bale Erosion Protection	$5.00	233	145	LF	$1,165	$725	$1,890	RI WAUP 2016 206.0201	1	Baled hay erosion check standard 9.1.0	Inlcudes hay bale erosion control as depicted on plans
2	Soil Excavation and Loading	$21.60	237	224	BCY	$5,119	$4,838	$9,958	RSMeans 31 23 16.16.6035	2	Structural excavation, common earth, hydraulic backhoe 3/4 CY bucket	See quantities calculation sheet
3	Soil Transportation	$13.99	296	280	LCY	$4,143	$3,916	$8,059	RSMeans 31 23 23.20.3512	2	16.5 CY truck, 25 minute wait/ld/uld, 50 mph, cycle 40 miles	Assumes soil volume expansion by 25%
4	Soil Tipping Fee	$3.00	17	16	Truck	$51	$48	$99	RIRRC Price Sheet	3	-	Assumes 18 CY capacity trucks
5	Soil Disposal	$25.00	296	280	Ton	$7,406	$7,000	$14,406	RIRRC Price Sheet	3	-	Assumes 1.25 ton/CY soil density
6	Disposal Soil Sampling	$425.00	1	1	EA	$425	$425	$850	Microbac Lab Quote for similar project	4	VOCs, SVOCs, TPH, PCB, pH, Flash Point, TCLP Metals	Includes single sample per lot for disposal soil
7	Subgrade Finish Grading	$0.23	919	902	SY	$208	$205	$413	RSMeans 31 22 16.10.3300	2	Finish grading slopes, gentle	See quantities calculation sheet - tree protection cap, sand area protection cap, and engineered cap
8	Snow Fence Furnish	$0.20	2354	2072	SF	$471	$414	$885	Gempler's Quote	5	4' by 100' Length of Snow Fence	See quantities calculation sheet - tree protection cap, and sand area protection cap
9	Snow Fence Install	$0.26	262	230	SY	$68	$60	$127	RSMeans 31 32 19.16.1550 - Labor Only	2	Geotextile soil stabilization, non-woven, 120 lb	Assumes installation of snow fence is similar to geotextile installation, used RSMeans labor cost only
10	Geotextile Furnish and Install	$1.72	577	553	SY	$991	$949	$1,940	RSMeans 31 32 19.16.1550	2	Geotextile soil stabilization, non-woven, 120 lb	See quantities calculation sheet - engineered cap only
11	Crushed Stone Furnish and Install	$55.00	0	39	CY	$0	$2,145	$2,145	RI WAUP 2016 301.0300	1	Crushed stone or crushed stone gravel base modified	See quantities calculation sheet - tree protection cap only
12	Riprap Furnish and Install	$75.00	44	0	CY	$3,300	$0	$3,300	RI WAUP 2016 920.0050	1	Placed stone riprap R-1, R-2 Standard 8.3.0	See quantities calculation sheet - sand area protection cap only
13	Clean Fill Furnish and Install	$19.79	129	124	CY	$2,553	$2,454	$5,007	RI WAUP 2016 302.0100	1	Gravel borrow subbase course	See quantities calculation sheet - engineered cap only
14	Clean Fill Sampling	$425.00	1	1	EA	$425	$425	$850	Microbac Lab Quote for similar project	4	VOCs, SVOCs, TPH, PCB, pH, Flash Point, TCLP Metals	Includes single sample per lot for clean fill
15	Topsoil Furnish and Install	$5.52	577	553	SY	$3,185	$3,052	$6,237	RI WAUP 2016 L01.0102	1	Loam borrow 4 inches deep	See quantities calculation sheet - engineered cap only
16	Top Soil Grading and Seeding	$4.14	577	553	SY	$2,387	$2,287	$4,674	RSMeans 32 91 19.13.1000	2	Fine grading and seeding, incl. lime, fetrilizer & seed, with equipment	See quantities calculation sheet - engineered cap only
17	Washington Hawthorn Furnish	$160.92	7	10	EA	$1,126	$1,609	$2,736	RSMeans 32 93 43.30.2610	2	Crataegus phaenopyrum, (Washington Hawthorn), Z5, B&B, 5' to 6'	See quantities calculation sheet - disuassive vegetation cap only
18	Washington Hawthorn Install	$76.68	7	10	EA	$537	$767	$1,304	RSMeans 32 93 43.10.0600	2	Planting, medium soil, bagged and burlapped, 12" diameter ball, by hand	See quantities calculation sheet - disuassive vegetation cap only
19	Virginian Rose Furnish	$22.14	19	28	EA	$421	$620	$1,041	RSMeans 32 93 33.40.6151	2	Rosa meidiland hybrids, Z6, 9" to 12"	See quantities calculation sheet - disuassive vegetation cap only, uses cost from similar species
20	Virginia Rose Install	$27.54	19	28	EA	$523	$771	$1,294	RSMeans 32 93 43.10.0592	2	Planting, medium soil, container, 2 gallon	See quantities calculation sheet - disuassive vegetation cap only
21	Split Rail Fence Furnish and Install	$22.14	175	80	LF	$3,875	$1,771	$5,646	RSMeans 32 31 29.10.1200	2	Rustic picket, molded pine, 2 rail, 3' high	As indicated on drawings
Subtotal						*$38,379*	*$34,482*	*$72,861*				
22	Mobilization/Demobilization	8%	-		-	$3,070	$2,759	$5,829	-	-	-	-
23	Construction Oversight	10%	-		-	$3,838	$3,448	$7,286	-	-	-	-
24	Insurance	0.6%	-		-	$230	$207	$437	RSMeans 01 31 13.30.0050	2	-	-
25	Performance Bond	2.5%	-		-	$959	$862	$1,822	RSMeans 01 31 13.90.0100	2	-	-
26	Contingency	20%	-		-	$7,676	$6,896	$14,572	-	-	-	-
Total						***$54,153***	***$48,654***	***$102,806***				

Cost References:

1. Rhode Island Department of Transportation. 2016. *Weighted Average Unit Prices.* Providence, RI.
2. RSMeans. 2015. *Site Work & Landscape Cost Data.* Norwell, MA. *Incrased unit costs by 8% for location.*
3. Price list from Rhode Island Resource Recovery Corporation.
4. Quote for testing services from Microbac.
5. Price from Gempler's online website on 29 June 2016.

Abbreviations:

BCY - Bank Cubic Yard
CY - Cubic Yard
EA - Each
LCY - Loose Cubic Yard
LF - Linear Foot
SF - Square Foot
SY - Square Yard

Exhibit B

Remedial Approval Letter

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WASTE MANAGEMENT
235 Promenade Street
Providence, Rhode Island 02908

REMEDIAL APPROVAL LETTER
File No. SR-38-1776
File No. SR-38-1777

August 29, 2016

Marilyn Shellman
Town Planner
Town of Westerly
45 Broad Street
Westerly, RI 02891

RE: 22 CANAL STREET - MICELI-TUDISCO PROPERTY
22 Canal Street
Westerly, Rhode Island
Plat Map 56 / Lot 29
File No. SR-38-1776

26 CANAL STREET – TOWN PROPERTY
26 Canal Street
Westerly, Rhode Island
Plat Map 56 / Lot 31
SR-38-1777

Dear Ms. Shellman:

On November 9, 2011, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management (OWM) amended the 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 in a timely and cost-effective manner. A Remedial Approval Letter (RAL) is a document used by the Department to approve remedial actions at contaminated sites that do not involve the use of complex engineered systems or techniques (e.g. groundwater pump and treat systems, soil vapor extraction systems, etc.).

In the matter of the above-referenced property (the Site), the Department's OWM is in receipt of the following documentation submitted pursuant to the Remediation Regulations in response to the reported release at the Site:

1. Site-Specific Work Plan and Quality Assurance Project Plan, 26 Canal Street, received by the Department on January 12, 2016, and prepared by EA Engineering, Science and Technology, Inc., PBC (EA); and

2. Remedial Action Work Plan, received by the Department on August 16, 2016, and prepared by EA.

Together these documents fulfill the requirements of Section 8.00 (Risk Management) and Section 9.00 (Remedial Action Work Plan (RAWP)) of the Remediation Regulations.

The preferred remedial alternative involves removal of the top 1 foot of impacted soil and replacement with a geotextile fabric and clean soil cap, combined with fencing and dissuasive vegetation to restrict access and an Environmental Land Usage Restriction and Soil Management Plan.

Based upon review and consideration of the above referenced documents, the Department approves the Remedial Action Work Plan (RAWP) through this RAL provided that:

1. All work must be performed in accordance with all applicable regulations and the Department approved RAWP.

2. Start of the work described in the Department approved RAWP must be initiated within ninety (90) days of issuance of this RAL.

3. Provide monthly status reports of the remedial action progress to the Department via email beginning 30 days from the date of this approval and continuing until the Letter of Compliance is issued.

4. Prior to initiating any remedial activities, the Department shall be provided with a list of all contractors, and their respective contact information, that will be used on Site to complete the remedial work described in the Department approved RAWP. The Department shall be notified, when feasible, a minimum of five (5) working days in advance of any changes in contractors and/or consultants involved with the remedial work on this Site. The notification must be promptly supplied in writing with complete contact information for each new contractor or consultant (including but not limited to company name and address, contact name and address, contact telephone number and e-mail address).

5. All excavated regulated soil, if not approved for encapsulation onsite, shall be disposed of off-site at an appropriately licensed disposal facility in accordance with all local, State, and Federal laws. Copies of the material shipping records and manifests associated with the disposal of the material shall be included along with the Closure Report.

6. Areas of the site where contaminated soils are to be excavated must be staged and temporarily stored in a designated area, as proposed in the RAWP, of the site with proper

polyethylene covers. Any stockpiled materials, including clean fill, must be underlain and covered with polyethylene sheeting and be secured at the end of each day with all appropriate erosion and sediment controls to limit the loss of the cover and protect against storm-water and wind erosion (i.e. hay bales, rocks, silt fencing). These appropriate sedimentation and erosion controls must be in place and in proper working order at all times until all disturbed areas are stabilized and capped as proposed. Within reason, the storage location will be selected to limit the unauthorized access to the materials (i.e. away from public roadways/walkways). No regulated soil will be stockpiled on-site for greater than thirty (30) days. In the event that stockpiled soils pose a risk or threat of leaching hazardous materials, a proper leak-proof container (i.e. drum or lined roll-off) or secondary containment will be required and utilized.

7. The OWM no longer requires the submittal of analytical data prior to clean fill being brought to a Site. It is the sole responsibility of the Performing Party and their consultant to analyze the material, certify that the material meets the Department's Residential Direct Exposure Criteria (RDEC), as defined by the Remediation Regulations, for all constituents, and is suitable for use on the Site. The OWM strongly suggests that enough representative samples of the clean fill are collected prior to moving the material to the Site to satisfy the Performing Party and their consultant that the material meets the RDEC. Please note that the OWM reserves its rights to sample the fill, if suspect, to confirm compliance with the RDEC.

8. All regulated soil remaining onsite shall be encapsulated by an engineered control consistent with those described in the Department approved RAWP.

9. Dust suppression techniques (i.e. watering) must be employed at all times during all soil disturbing/handling activities at the site in order to minimize the generation of fugitive dust.

10. Within sixty (60) days of completion of the work described in the Department approved RAWP, a Closure Report detailing the remedial action and including any disposal documentation shall be submitted to the OWM.

11. Within sixty (60) days of completion of the work described in the Department approved RAWP, the final Department approved ELUR shall be recorded in the Town of Westerly Land Evidence Records for the property and a stamped, certified copy returned to the Department within fifteen (15) days of recording. Upon receipt of a copy of the recorded (stamped) ELUR, the OWM will issue a Letter of Compliance.

12. Following recording of the ELUR, the site shall be maintained and annually inspected to evaluate the compliance status of the site with the ELUR. Within thirty (30) days of each annual inspection, an evaluation report shall be prepared and submitted to the OWM detailing the findings of the inspection and noting any compliance violations at the site.

13. Any changes in the activities detailed in the RAWP shall be reported to the OWM by telephone within one (1) working day and in writing within five (5) business days.

14. The OWM shall be notified forty-eight (48) hours prior to initiating the remedial activities at the site associated with the Department approved RAWP.

15. The OWM shall be immediately notified of any site or operation condition that results in non-compliance with this RAL.

At this time, the OWM offers its concurrence with the proposed remedial action for the property. The Department approves the RAWP provided that all activities and procedures detailed in the RAWP are strictly adhered to. Furthermore, this letter continues to place primary responsibility for the construction, operation, maintenance, and monitoring of the approved RAWP and its associated implementation on the Town of Westerly. As the Responsible Party for 26 Canal Street and the Voluntary Party for 22 Canal Street, the Town of Westerly is expected to implement the RAWP in an expeditious and professional manner that prevents non-compliance with this RAL and said RAWP, and is protective of human health and the environment.

Based upon our review, the Department approves the ELUR and SMP submitted with the RAWP. The ELUR shall be recorded in the Land Evidence Records for the Town of Westerly for the abovementioned property and a recorded, stamped copy forwarded back to the Department within fifteen (15) days or recording in accordance with Rule 8.09 of the Remediation Regulations.

This RAL does not remove your obligation to obtain any other necessary permits from other local, State, or Federal agencies.

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. 7126, or by E-mail at cindy.gianfrancesco@dem.ri.gov .

Sincerely,

Cynthia M. Gianfrancesco

Cynthia M. Gianfrancesco, CHMM, CPG
Principal Environmental Scientist
Office of Waste Management

Authorized by,

Kelly J. Owens

Kelly J. Owens
Associate Supervising Engineer
Office of Waste Management

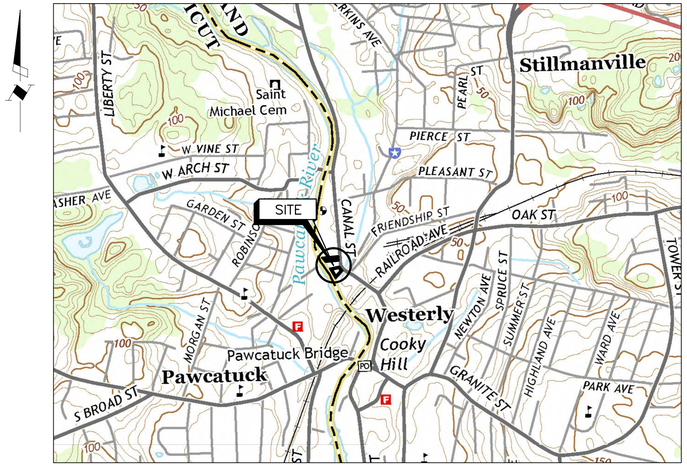
cc: Amy Grzybowski, Town of Westerly
Jim Byrne, EPA
Jessica Dominguez, EPA
Amy Grzybowski, Town of Westerly
Mary Miceli, 19 High Street, Westerly, RI 02891

22 & 26 CANAL STREET

PLAT 56, LOTS 29 & 31
WESTERLY, RHODE ISLAND

PREPARED FOR:
TOWN OF WESTERLY

45 Broad Street
Westerly, Rhode Island 02891
(401) 348-2625



VICINITY MAP

NOT TO SCALE

INDEX OF SHEETS

DRAWING NUMBER	SHEET NUMBER	DRAWING TITLE
G-001	1 OF 6	TITLE SHEET
G-100	2 OF 6	GENERAL NOTES AND LEGEND
C-101	3 OF 6	EXISTING CONDITIONS PLAN
C-102	4 OF 6	PROPOSED CONDITIONS PLAN
C-103	5 OF 6	EROSION AND SEDIMENTATION CONTROL PLAN
C-501	6 OF 6	DETAILS

PREPARED BY

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Boulevard, Suite 102
Warwick, Rhode Island 02886
(401) 736-3440

NO.	DATE	BY	REVISIONS DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: AMT
DRAWN BY: DPA
CHECKED BY: AEH
PROJECT MANAGER: TLD

SEAL
RONALD MACK No. 9823 REGISTERED PROFESSIONAL ENGINEER CIVIL

TOWN OF WESTERLY
PLAT 56, LOTS 29 & 31
22 & 26 CANAL STREET
WESTERLY, RHODE ISLAND

TITLE SHEET

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
(401) 736-3440

DATE: SEPTEMBER 2016
PROJECT NUMBER: 62166.03
G-001
SHEET: 1 OF 6

FOR CONSTRUCTION

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\22 & 26 CANAL STREET\CAD\WORKING\PRNDC-22AND26CANALSTREET-FLANSET.DWG [TITLE] ALLEN, DANIEL 9/14/2016 3:40 PM

LEGEND

PL	SITE PROPERTY LINE
PL	OFF-SITE PROPERTY LINE
	100 YEAR FLOODPLAIN
LOD	LIMIT OF DISTUBANCE
	FLOW ARROW
	ROCK-LINED OPEN CHANNEL
W W	EXISTING ABANDONED WATER LINE
X X X X	CHAIN-LINK FENCE
	TIMBER RAIL FENCE
SB	STAKED STRAW BALES
	CONSTRUCTION FENCE
	EXISTING TREE
	EXISTING SMALL TREE
	COVER SYSTEM 1 – TREE PROTECTIVE CAP
	COVER SYSTEM 2 – SAND AREA PROTECTIVE CAP
	COVER SYSTEM 3 – ENGINEERED CAP
	COVER SYSTEM 4 – DISSUASIVE VEGETATION

M.18.10.2 Park Seed Mix

	Percent by Weight	Percent by Volume (Pure Live Seed)
Creeping Red Fescue Improved varieties	70	78
Kentucky Bluegrass Improved varieties	15	68
Perennial Ryegrass Improved varieties	15	85

Seeding rate: 150 lbs. per acre

M.18.10.5 Temporary Seed Mix.

	Percent by Weight	Percent by Volume (Pure Live Seed)
Annual Ryegrass	40	85
Perennial Ryegrass	60	90

Seeding Rate: 75 lbs. per acre

MAP NOTES AND REFERENCES:

1. 100-YEAR WATER SURFACE ELEVATIONS (AND FLOOD PLAIN BOUNDARIES) WITHIN THE PROJECT LIMITS ARE BASED ON FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) LIMITS; MAP NUMBER 44009C0139, DATED OCTOBER 16, 2013.
2. THE LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE A UTILITY SURVEY, BOTH OVERHEAD AND UNDERGROUND, PRIOR TO THE START OF CONSTRUCTION, AND "DIG-SAFE" MUST BE NOTIFIED AT 1-888-DIG-SAFE (344-7233) OR 811, AT LEAST 3 DAYS PRIOR TO PERFORMING ANY EXCAVATION WORK. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN ENTITIES WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.
3. PROPERTY BOUNDARIES ARE APPROXIMATE AND PHYSICAL FEATURES, DISTANCES, PROPERTY LINES, WETLAND EDGES, AND OTHER BASELINE DATA WERE OBTAINED THROUGH THE DIGITALIZATION OF AERIAL PHOTOGRAPHY, AERIAL PHOTOGRAMMETRY, AND TOWN OF WESTERLY ON-LINE GIS DATABASE. AN ESTIMATE OF THE MAXIMUM POSSIBLE HORIZONTAL AND VERTICAL ERROR BETWEEN THE INFORMATION PROVIDED AND THE ACTUAL ON-SITE CONDITIONS IS UNKNOWN.
4. A PROPERTY BOUNDARY SURVEY (CLASS I SURVEY) SHALL BE COMPLETED TO DEFINE PROPERTY LINE LOCATIONS AND SITE FEATURES PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL PROPERTY LINE MARKERS DURING PERIOD OF CONSTRUCTION AND UNTIL RESTORATION IS COMPLETE.
5. SITES ARE LOCATED ON TWO LOTS ON THE WEST SIDE OF CANAL STREET AND ARE IDENTIFIED BY THE WESTERLY TOWN TAX ASSESSOR AS MAP NO. 56, LOTS 29 (22 CANAL STREET) AND 31 (26 CANAL STREET) IN WESTERLY, RHODE ISLAND.
6. BUILDING DEMOLITION AND ASBESTOS REMEDIATION ON LOT 22 WILL BE COMPLETED BEFORE SITE REMEDIATION ACTIVITIES OCCUR AND WILL NOT BE ADDRESSED IN THE CONSTRUCTION; ALL BUILDING FOUNDATIONS AND FOOTINGS WILL BE REMOVED TO A MINIMUM OF 1-FOOT BELOW THE EXITING GRADE.
7. ALL PROVISIONS OF THE DAVIS-BACON ACT APPLY TO ALL CONSTRUCTION, ALTERATION, AND SITE RESTORATION ACTIVITIES.

GENERAL CONSTRUCTION REQUIREMENTS:

1. THE CONTRACTOR SHALL VERIFY THE PROPOSED REMEDIATION ACTIVITIES WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK.
2. IF THE RELOCATION OF ANY UTILITIES IS REQUIRED, THE OWNER SHALL BE NOTIFIED IMMEDIATELY.
3. DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE OWNER'S REPRESENTATIVE.
4. IT IS NOT ANTICIPATED THAT BLASTING WILL BE REQUIRED FOR THIS PROJECT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY PAVEMENT, WALKS, CURBS, ETC., THAT ARE DAMAGED DURING CONSTRUCTION.
6. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE SITE THROUGH ENTIRE PERIOD OF CONSTRUCTION.
7. CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE TOWN OF WESTERLY, THE ENGINEER AND OWNER'S REPRESENTATIVE HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM "THE SOLE NEGLIGENCE OF THE OWNER, ENGINEER, OR OWNER'S REPRESENTATIVE."
8. PHOTOGRAPHS, VIDEOTAPING, AND SKETCHES (AS NECESSARY) MUST BE TAKEN OF ADJOINING CONSTRUCTION AND SITE IMPROVEMENTS WITHIN 200 FEET OF EXCAVATION LIMITS ASSOCIATED WITH THE REMEDIATION ACTIVITIES. SUCH DOCUMENTATION SHALL ILLUSTRATE FINISH SURFACES THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY EARTH MOVING OPERATIONS. PREEXCAVATION PHOTOGRAPHS OR VIDEOTAPE MUST INCLUDE, BUT NOT BE LIMITED TO, EXISTING TREES AND BUILDINGS WITHIN 200 FEET OF EXCAVATION LIMITS.
9. EXISTING SITE GRADES SHALL BE MAINTAINED; ALL PROPOSED GRADE CHANGES ASSOCIATED WITH THE REMEDIATION ACTIVITIES SHALL RESULT IN A ZERO NET LOSS OF FLOOD STORAGE CAPACITY. THE VOLUME OF ANY MATERIALS BROUGHT TO THE SITES SHALL BE COMPENSATED FOR BY REMOVAL OF EQUAL VOLUME OF MATERIAL TO BE DISPOSED OF OFFSITE.

CONTAMINATED SOIL EARTHWORK NOTES:

1. ALL SOIL EXCAVATION AND REMOVAL WILL BE COMPLETED IN COMPLIANCE WITH THE SOIL MANAGEMENT PLAN (SMP).
2. LEVEL "D" PERSONAL PROTECTIVE EQUIPMENT WILL BE SUFFICIENT FOR ALL SITE REMEDIATION ACTIVITIES.
3. TEMPORARY ON-SITE STOCKPILES ARE TO BE LOCATED AS DISTANT AS POSSIBLE FROM THE PAWCATUCK RIVER AND PROTECTED IN ACCORDANCE WITH THE RAWP SOIL MANAGEMENT PLAN.
4. ANY EXCAVATED SOIL REMOVED FROM THE SITES WILL BE PRE-CHARACTERIZED FOR DISPOSAL AT AN APPROPRIATELY LICENSED DISPOSAL FACILITY AND SHIPPED OFFSITE BY A QUALIFIED HAULER, IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
5. SOIL SHALL NOT BE STOCKPILED ON THE SITE WHEN THERE IS A POTENTIAL FOR FLOODING.
6. THE SITES WILL BE SECURED AS NEEDED TO PREVENT ACCESS BY THE GENERAL PUBLIC TO ANY EXPOSED IMPACTED SOILS ON THE SITES. AT THE END OF EACH WORKING DAY THE SITE SHALL BE SECURED TO PREVENT ANY UNAUTHORIZED ACCESS TO STOCKPILED OR EXPOSED SOILS. THIS WILL INCLUDE INSPECTION OF ALL STOCKPILES TO CONFIRM THAT THEY ARE COVERED SECURELY WITH NO POTENTIAL EXPOSURE TO IMPACTED SOILS. THIS WILL ALSO INCLUDE THE USE OF TEMPORARY CHAIN LINK FENCING OR OTHER SUITABLE BARRIER TO SECURE ANY OPEN EXCAVATIONS, STOCKPILES, AND/OR OTHER AREAS OF TEMPORARILY EXPOSED IMPACTED SOILS. SITE SECURITY PROCEDURES ARE TO BE RECORDED IN THE DAILY OPERATING LOGS.
7. 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.

EROSION CONTROL NOTES:

1. ANY STOCKPILED MATERIALS, INCLUDING CLEAN FILL, MUST BE UNDERLAIN AND COVERED WITH 10-MIL POLYETHYLENE SHEETING AND BE SECURED AT THE END OF EACH DAY WITH ALL APPROPRIATE EROSION AND SEDIMENT CONTROLS TO LIMIT THE LOSS OF THE COVER AND PROTECT AGAINST STORMWATER AND WIND EROSION (I.E. STRAW BALES, ROCKS, SILT FENCING).
2. TO THE DEGREE PRACTICABLE, THE STORAGE LOCATION SHALL BE SELECTED TO LIMIT THE UNAUTHORIZED ACCESS TO THE MATERIALS (I.E. AWAY FROM PUBLIC ROADWAYS/WALKWAYS).
3. NO REGULATED SOIL SHALL BE STOCKPILED ON-SITE FOR GREATER THAN THIRTY (30) DAYS.
4. IN THE EVENT THAT STOCKPILED SOILS POSE A RISK OR THREAT OF LEACHING HAZARDOUS MATERIALS, A PROPER LEAK-PROOF CONTAINER (I.E. DRUM OR LINED ROLL-OFF) OR SECONDARY CONTAINMENT SHALL BE REQUIRED AND UTILIZED.
5. DISTURBANCE OF SOIL SURFACES IS REGULATED BY STATE LAW AND LOCAL ORDINANCE. ALL WORK SHALL COMPLY WITH THE STATE LAW AND LOCAL ORDINANCE AND ISSUED PERMIT CONDITIONS TO PREVENT OR MINIMIZE SOIL EROSION.
6. THE INSTALLATION AND MAINTENANCE OR EROSION CONTROL DEVICES IS THE RESPONSIBILITY OF THE CONTRACTOR. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLAN, OR AS DICTATED BY THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AND THE TOWN OF WESTERLY. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED IN EFFECTIVE CONDITION DURING CONSTRUCTION AND UNTIL COMPLETION OF THE PROJECT.
7. THE CONTRACTOR SHALL USE THE LATEST EDITION OF THE "STATE OF RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" AS A GUIDE IN CONSTRUCTION AND INSTALLATION OF THE EROSION AND SEDIMENT CONTROLS INDICATED ON THE PLANS. ALL EROSION AND SEDIMENT CONTROL MEASURES OR WORKS AND REHABILITATION MEASURES MUST CONFORM TO OR EXCEED THE SPECIFICATIONS OR STANDARDS SET OUT IN THIS HANDBOOK.
8. THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL DEVICES AT THE END OF EACH WORKING DAY, AFTER EACH STORM EVENT, AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CLEAN ROADS, CONTROL DUST, AND TAKE ALL NECESSARY MEASURES TO ENSURE THAT THE SITE AND ALL ADJACENT ROADS BE MAINTAINED IN A MUD- AND DUST-FREE CONDITION AT ALL TIMES THROUGHOUT THE LIFE OF THE CONTRACT. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO, WATER AND/OR CRUSHED STONE OR COARSE GRAVEL. DUST SUPPRESSION TECHNIQUES (I.E. WATERING) MUST BE EMPLOYED AT ALL TIMES DURING ALL SOIL DISTURBING/HANDLING ACTIVITIES AT THE SITE IN ORDER TO MINIMIZE THE GENERATION OF FUGITIVE DUST.
10. AT THE END OF EACH WORKING DAY THE ADJOINING ROADWAY SHALL BE SWEPT CLEAN OF SOIL AND DEBRIS.
11. THE CONTRACTOR SHALL INSTALL ALL PERIMETER SEDIMENT CONTROL BARRIERS (I.E. STRAW BALES AND SILT FENCE) AS SHOWN ON THE PLANS. A ROW OF STAKED STRAW BALES OR A SILT FENCE SHALL ALSO BE INSTALLED AROUND ANY SOIL STOCKPILE AREAS.
12. THE CONTRACTOR SHALL RESTORE DISTURBED AREAS AS INDICATED ON THE PLANS. OTHER AREAS DAMAGED DURING CONSTRUCTION SHALL BE RESEEDED OR OTHERWISE RESTORED TO THEIR ORIGINAL STATE AS CLOSELY AS POSSIBLE. TREES AND OTHER EXISTING VEGETATION NOT PROPOSED TO BE DEMOLISHED SHALL BE RETAINED AS INDICATED ON THE PLANS.
13. PERMANENT VEGETATIVE COVER SHALL BE APPLIED TO ALL DISTURBED AREAS THAT HAVE REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS PERMANENTLY CEASED. THE PERMANENT SEEDING DATES ARE APRIL 1 TO MAY 31 AND AUGUST 15 TO OCTOBER 15. PERMANENT VEGETATIVE COVER WILL CONSIST OF A SEED MIX IN THE ON-SITE LOCATIONS SPECIFIED ON THE "PROPOSED CONDITIONS PLAN" IN ADDITION TO DISSUASIVE TREE AND SHRUBS ALSO SPECIFIED ON THAT PLAN. REFER TO THIS SHEET FOR PARK SEED MIXTURE COMPOSITION; APPLICATION RATE; AND DISSUASIVE TREE AND SHRUB SPACING REQUIREMENTS.
14. IF SEEDING CANNOT BE COMPLETED WITHIN THE RECOMMENDED SEEDING DATES, INSTALL TEMPORARY SEEDING. TEMPORARY SEEDING MAY BE INSTALLED FROM MARCH 15 TO NOVEMBER 15 UPON APPROVAL BY OWNER'S REPRESENTATIVE. REFER TO THIS PLAN FOR TEMPORARY SEED MIXTURE COMPOSITION AND APPLICATION RATE. IF NEITHER PERMANENT NOR TEMPORARY SEEDING CAN BE INSTALLED WITHIN THE RECOMMENDED SEEDING PERIODS, USE TEMPORARY MULCHING TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
15. STRAW OR HAY MULCH, WOOD FIBER MULCH, AND HYDROMULCH ARE RECOMMENDED. STRAW OR HAY MULCH SHOULD BE APPLIED AT A RATE OF 2 TONS PER ACRE. WOOD FIBER MULCH SHOULD BE APPLIED AT A RATE OF 1,500-2,000 POUNDS PER ACRE, OR HYDROMULCH APPLIED AT A RATE OF 1,500 POUNDS PER ACRE. WOOD FIBER MULCH SHOULD NOT BE USED ALONE IN THE WINTER OR DURING HOT, DRY WEATHER. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER SPREADING TO PREVENT WINDBLOWING. MULCH ANCHORING SHOULD ALSO BE USED ON SLOPES GREATER THAN THREE (3) PERCENT AND CONCENTRATED FLOW AREAS SUCH AS DIVERSION AND WATERWAY CHANNELS. TEMPORARY MULCHING SHOULD BE PERFORMED AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS. ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. WHERE EROSION IS OBSERVED, ADDITIONAL MULCH MUST BE APPLIED. IF NETTING IS USED, THE NET SHALL BE INSPECTED AFTER RAINSTORMS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, THE NET MUST BE REINSTALLED AS NECESSARY AFTER REPAIRING DAMAGE TO SLOPE. INSPECTIONS SHALL TAKE PLACE UNTIL GRASSES ARE FIRMLY ESTABLISHED. GRASS IS CONSIDERED TO BE FIRMLY ESTABLISHED AT A MINIMUM HEIGHT OF THREE (3) INCHES.
16. WASTE DISPOSAL: MATERIALS WHICH COULD BE A POTENTIAL SOURCE OF STORMWATER POLLUTION SUCH AS GASOLINE, DIESEL FUEL, HYDRAULIC OIL, ETC., SHALL BE STORED AT THE END OF EACH DAY IN A STORAGE TRAILER OR COVERED LOCATION OR TAKEN OFF-SITE AND PROPERLY DISPOSED OF. ALL TYPES OF WASTE GENERATED AT THIS SITE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH FEDERAL AND STATE LAW AND/OR REGULATIONS.
17. CONTROL OF ALLOWABLE NON-STORMWATER DISCHARGES: IF ALLOWABLE NON-STORM WATER DISCHARGES ARE OCCURRING AT THE SITE, SUCH DISCHARGES SHALL BE VISUALLY OBSERVED AND RECORDED AS OUTLINED BELOW AND IN ACCORDANCE WITH PART II OF THE RIPDES GENERAL PERMIT. THE LIST OF EXPECTED SOURCES OF ALLOWABLE NON-STORMWATER DISCHARGES FOR THIS PROJECT ARE AS FOLLOWS: (1) DISCHARGE FROM VEHICLE WASHDOWN WHERE NO DETERGENTS ARE USED, (2) EXTERNAL BUILDING WASHDOWN WHERE NO DETERGENTS ARE USED, (3) THE USE OF WATER TO CONTROL DUST, (4) FIRE HYDRANT FLUSHINGS, (5) LAWN WATERING, (6) POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS, (7) IRRIGATION DRAINAGE, (8) PAVEMENT WASHWATERS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED (UNLESS ALL SPILLED MATERIALS HAVE BEEN REMOVED) AND WHERE NO DETERGENTS ARE USED, AND (9) FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED BY CONTACT WITH SOILS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAS OCCURRED.
18. GOOD HOUSEKEEPING: THE PROJECT SITE SHALL PROVIDE FOR THE MINIMIZATION OF EXPOSURE OF CONSTRUCTION DEBRIS (INCLUDING, BUT NOT LIMITED TO, INSULATION, WIRING, PAINTS AND PAINT CANS, SOLVENTS, WALL BOARD, ETC.) TO PRECIPITATION BY MEANS OF DISPOSAL AND/OR PROPER SHELTER OR COVER. CONSTRUCTION WASTE MUST BE COVERED OR PROPERLY DISPOSED OF IN ORDER TO AVOID EXPOSURE TO PRECIPITATION AT THE END OF EACH WORKING DAY.
19. GOOD HOUSEKEEING: A FINAL CLEANING OF THE ADJACENT ROADWAY SHALL OCCUR AFTER WORK IS COMPLETE TO ENSURE THAT NO SEDIMENT IS TRACKED OFF-SITE.
20. CLEANOUT OF ACCUMULATED SEDIMENT BEHIND THE STRAW BALES OR SILT FENCE IS NECESSARY IF ONE-THIRD OF THE ORIGINAL HEIGHT OF THE STRAW BALES OR SILT FENCE BECOMES FILLED WITH SEDIMENT.

NO.	DATE	BY	REVISIONS DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: AMT
DRAWN BY: DPA
CHECKED BY: AEH
PROJECT MANAGER: TLD

SEAL
RONALD MACK 9823 REGISTERED PROFESSIONAL ENGINEER CIVIL

TOWN OF WESTERLY
PLAT 56, LOTS 29 & 31
22 & 26 CANAL STREET
WESTERLY, RHODE ISLAND

GENERAL NOTES AND LEGEND

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
(401) 736-3440

DATE: SEPTEMBER 2016
PROJECT NUMBER: 62166.03
G-100
SHEET: 2 OF 6

FOR CONSTRUCTION

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\22 & 26 CANAL STREET\CAD\WORKING\PRNO-22ND26CANALSTREET-PLANSET.DWG [NOTES] ALLEN, DANIEL 9/14/2016 3:40 PM

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: AMT
DRAWN BY: DPA
CHECKED BY: AEH
PROJECT MANAGER: TLD

SEAL
RONALD MACK No. 9623 REGISTERED PROFESSIONAL ENGINEER CIVIL

TOWN OF WESTERLY
PLAT 56, LOTS 29 & 31
22 & 26 CANAL STREET
WESTERLY, RHODE ISLAND

EXISTING CONDITIONS PLAN

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
(401) 736-3440

DATE: SEPTEMBER 2016
PROJECT NUMBER: 62166.03
C-101
SHEET: 3 OF 6

FOR CONSTRUCTION

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\22 & 26 CANAL STREET\CAD\WORKING\PRNO-22AND26CANALSTREET-PLANSETDWG [EXISTING] ALLEN, DANIEL 9/14/2016 3:40 PM

NOTES:

1. COVER SYSTEM 1, TREE PROTECTION CAP: REMOVE TOP 6 INCHES OF IMPACTED SURFACE SOIL USING LOW IMPACT TECHNIQUES (AIR SPADE OR EQUIVALENT APPROVED METHOD) IN THE VICINITY OF EXISTING TREES. INSTALL SNOW FENCE LAYER AT INTERFACE OF EXISTING SOIL AND A 6-INCH LAYER OF 1.5-INCH CRUSHED STONE, FREE OF FINES. OVERLAP SEAMS OF SNOW FENCE A MINIMUM OF 12 INCHES TO ENSURE FULL COVERAGE.
2. COVER SYSTEM 2, SAND AREA PROTECTION CAP: REMOVE TOP 6 INCHES OF IMPACTED SURFACE SOIL, INCLUDING ANY GLASS BOTTLES OR OTHER DEBRIS ENCOUNTERED. INSTALL SNOW FENCE LAYER OVERLAIN BY A 6-INCH LAYER OF 4-INCH RIPRAP, FREE OF FINES.
3. COVER SYSTEM 3, ENGINEERED CAP: REMOVE TOP 12 INCHES OF IMPACTED SURFACE SOIL. INSTALL GEOTEXTILE LAYER AT INTERFACE OF EXISTING SOIL AND CLEAN SOIL CAP. OVERLAP SEAMS OF GEOTEXTILE A MINIMUM OF 12-INCHES TO ENSURE FULL COVERAGE. CLEAN SOIL CAP SHALL BE COMPRISED OF 8 INCHES OF CLEAN SOIL FILL OVERLAID BY 4 INCHES OF TOPSOIL. THE FINISHED CAP IS TO BE HYDROSEEDED WITH PARK SEED MIX.
4. COVER SYSTEM 4, DISSUASIVE VEGETATION: EXISTING VEGETATION TO REMAIN. DISSUASIVE VEGETATION TO BE PLANTED IN ACCORDANCE WITH PLANTING NOTES ON DETAILS DRAWING.

LEGEND:

1. COVER SYSTEM 1 – TREE PROTECTIVE CAP
2. COVER SYSTEM 2 – SAND AREA PROTECTIVE CAP
3. COVER SYSTEM 3 – ENGINEERED CAP
4. COVER SYSTEM 4 – DISSUASIVE VEGETATION

SB — PROPOSED STAKED STRAW BALES

PROPOSED TIMBER RAIL FENCE

N

20 10 0 20 40

GRAPHIC SCALE IN FEET

SCALE: 1" = 20'

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: AMT
DRAWN BY: DPA
CHECKED BY: AEH
PROJECT MANAGER: TLD

SEAL

RONALD MACK No. 9823 REGISTERED PROFESSIONAL ENGINEER CIVIL

TOWN OF WESTERLY
PLAT 56, LOTS 29 & 31
22 & 26 CANAL STREET
WESTERLY, RHODE ISLAND

PROPOSED CONDITIONS PLAN

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
(401) 736-3440

DATE: SEPTEMBER 2016

PROJECT NUMBER: 62166.03

C-102

SHEET: 4 OF 6

FOR CONSTRUCTION

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\22 & 26 CANAL STREET\CAD\WORKING\PRNO-22NO26CANALSTREET-FLANGET.DWG [PROPOSED] ALLEN, DANIEL 9/14/2016 3:41 PM

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: AMT
DRAWN BY: DPA
CHECKED BY: AEH
PROJECT MANAGER: TLD

SEAL
RONALD HACK No. 9623 REGISTERED PROFESSIONAL ENGINEER CIVIL

TOWN OF WESTERLY
PLAT 56, LOTS 29 & 31
22 & 26 CANAL STREET
WESTERLY, RHODE ISLAND

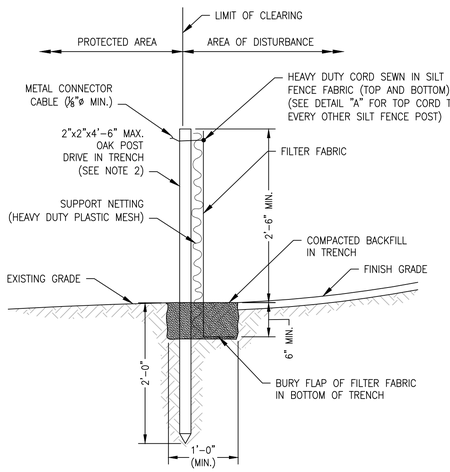
EROSION AND SEDIMENT CONTROL PLAN

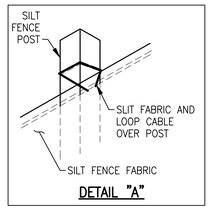
EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
(401) 736-3440

DATE: SEPTEMBER 2016
PROJECT NUMBER: 62166.03
C-103
SHEET: 5 OF 6

FOR CONSTRUCTION

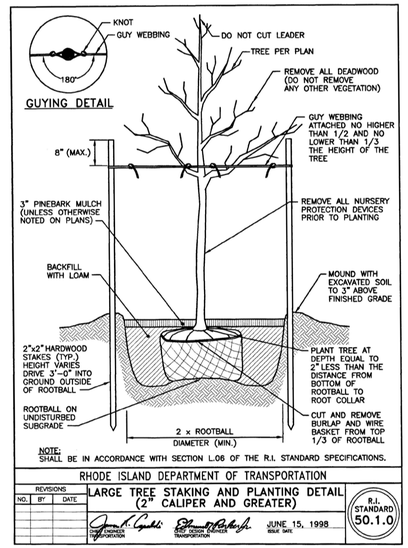
FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\22 & 26 CANAL STREET\CAD\WORKING\PRNO-22AND26CANALSTREET-PLANSET.DWG (DRIGGIO) ALLEN, DANIEL 9/14/2016 3:41 PM





NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. 2" x 2" x 4'-6" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY, OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1" x 1" x 4'-6" (MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

SILT FENCE DETAIL
RIDOT STD. 9.2.0



NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

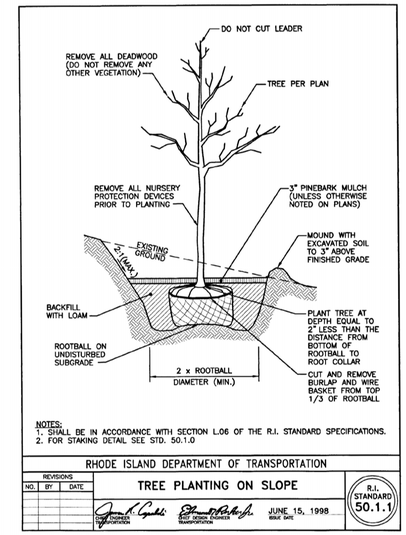
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE

LARGE TREE STAKING AND PLANTING DETAIL (2" CALIPER AND GREATER)

JUNE 15, 1998 — ISSUE DATE

R.I. STANDARD 50.1.0



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR STAKING DETAIL SEE STD. 50.1.0

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
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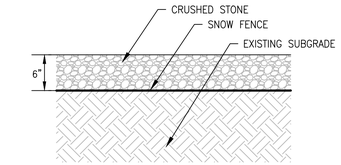
TREE PLANTING ON SLOPE

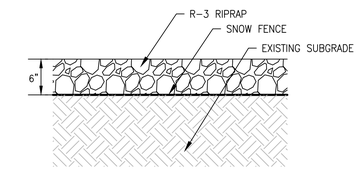
JUNE 15, 1998 — ISSUE DATE

R.I. STANDARD 50.1.1



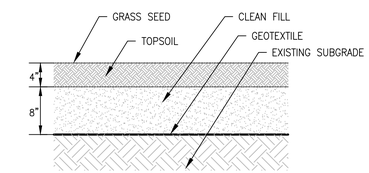
NOTES:
1. EXCAVATE 6 INCHES OF IMPACTED SURFACE SOIL USING LOW IMPACT TECHNIQUE (AIR SPADE OR EQUIVALENT APPORVED METHOD).
2. INSTALL SNOW FENCE AND CLEAN CRUSHED, WASHED STONE.
3. SET FINISHED GRADE TO MATCH EXISTING GRADE. NO NET INCREASE OF FILL.

COVER SYSTEM #1 TREE PROTECTIVE CAP



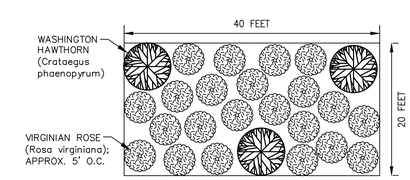
NOTES:
1. EXCAVATE 6 INCHES OF SURFACE SAND AND GLASS DEBRIS.
2. INSTALL SNOW FENCE AND R-3 WASHED RIPRAP.
3. SET FINISHED GRADE TO MATCH EXISTING GRADE. NO NET INCREASE OF FILL.

COVER SYSTEM #2 SAND AREA PROTECTIVE CAP



NOTES:
1. EXCAVATE 12 INCHES OF IMPACTED SURFACE SOIL.
2. INSTALL GEOTEXTILE LAYER.
3. COVER WITH 8 INCHES CLEAN FILL AND 4 INCHES TOPSOIL.
4. PLANT PARK SEED MIX.
5. SET FINISHED GRADE TO MATCH EXISTING GRADE. NO NET INCREASE OF FILL.

COVER SYSTEM #3 ENGINEERED CAP

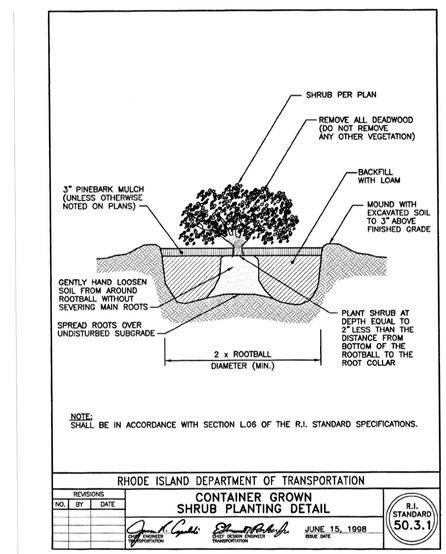


TYPICAL PLANTING PLAN

COVER SYSTEM #4 DISSUASIVE VEGETATION

PLANTING NOTES:

1. EXISTING WOODY VEGETATION SHALL REMAIN IN PLACE EXCEPT WHERE SUPPLEMENTAL PLANTINGS ARE PROPOSED.
2. PLANTING DENSITY FOR TREES (WASHINGTON HAWTHORN) SHALL BE 15' O.C., OR TO THE MAXIMUM DENSITY PRACTICAL GIVEN PRESENCE OF EXISTING WOODY VEGETATION.
3. PLANTING DENSITY FOR SHRUBS (VIRGINIAN ROSE) SHALL BE 5' O.C., OR TO THE MAXIMUM DENSITY PRACTICAL GIVEN PRESENCE OF EXISTING WOODY VEGETATION.
4. TREES SHALL BE PROVIDED WITH A 2"/2.5"CALIPER TRUNK OR GREATER AT TIME OF PLANTING.
5. SHRUBS SHALL BE PROVIDED IN 3 GALLON CONTAINERS AT THE TIME OF PLANTING.
6. SUBSOIL AND TOPSOIL REMOVED FROM EXCAVATIONS MAY NOT BE REUSED AS PLANTABLE SOIL OR BACKFILL AROUND PLANTING EXCAVATIONS AND SHALL BE HANDLED AS IMPACTED SURFACE SOIL.



NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

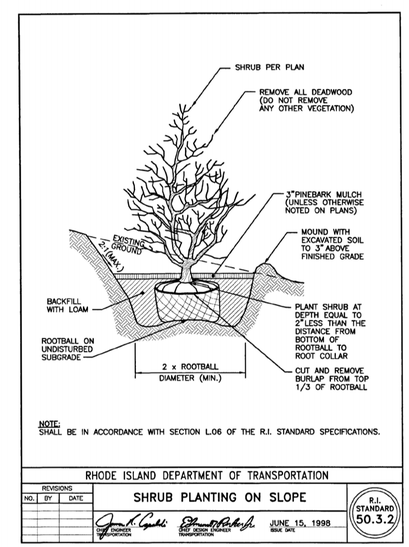
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE

CONTAINER GROWN SHRUB PLANTING DETAIL

JUNE 15, 1998 — ISSUE DATE

R.I. STANDARD 50.3.1



NOTE:
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RHODE ISLAND DEPARTMENT OF TRANSPORTATION

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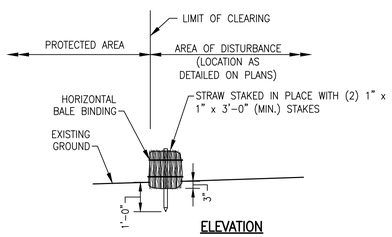
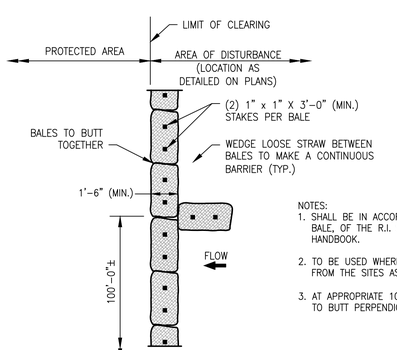
SHRUB PLANTING ON SLOPE

JUNE 15, 1998 — ISSUE DATE

R.I. STANDARD 50.3.2



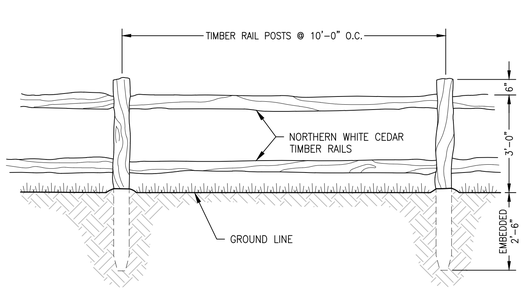
ELEVATION



PLAN

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 6 – STRAW BALE, OF THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK.
2. TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE SITES AS CALLED FOR ON PLANS.
3. AT APPROPRIATE 100'-0" INTERVALS A BALE OF HAY IS TO BUTT PERPENDICULARLY.

STRAW BALE EROSION CHECK



TIMBER RAIL FENCE DETAIL

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION

DESIGNED BY:	AMT
DRAWN BY:	DPA
CHECKED BY:	AEH
PROJECT MANAGER:	TLD

SEAL

RONALD MACK 9823 REGISTERED PROFESSIONAL ENGINEER CIVIL

TOWN OF WESTERLY
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22 & 26 CANAL STREET
WESTERLY, RHODE ISLAND

DETAILS

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DATE: SEPTEMBER 2016

PROJECT NUMBER: 62166.03

C-501

SHEET: 6 OF 6

FOR CONSTRUCTION

FILE PATH: \\WARWICK\WARWICKFP\PROJECTS\22 & 26 CANAL STREET\CAD\WORKING\PRNO-22ANDSCANALSTREET-PLANSETLDNG [DETAILS] ALLEN, DANIEL 9/14/2016 3:41 PM