REQUEST FOR BID

Contract No. 17-10

Town of Holliston
Board of Selectmen

Environmental Remediation and Demolition of
The Former Flagg School Building
Holliston, Massachusetts

ISSUE DATE: March 24, 2017

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PROCUREMENT AND CONTRACTING

SECTION 00 10 10
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FLAGG SCHOOL – HOLLISTON, MA

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SECTION 00 03 00
INVITATION TO BID

TOWN OF HOLLISTON

Board of Selectmen

Invitation for Bids
March 27, 2017

The Town of Holliston requests that bids be submitted for the Flagg School Building Demolition and Environmental Services (Contract 17-10).

Bids must be received by April 21, 2017 at 2:00 PM at the Holliston Selectman's Office, Town Hall, 703 Washington Street, Holliston, MA, at which time they will be opened and read aloud.

The project will take place at the Former Flagg School, 100 Linden Street, Holliston, MA and consists of:

- The demolition and disposal of the entire building, concrete slab, footing (24" below finish grade), and the buildings contents.
- Total build area is approximately 44,000 square feet. The majority of the building is a one story on a concrete slab. The floor for a portion of the building is a supported structural concrete slab. The former Auditorium/Gym was converted into a two story space.
- The contractor shall preform all hazardous material removal and disposal including: asbestos, lead, PCBs, universal wastes any other materials that require special removal and disposal procedures.

A pre-bid conference will be held on April 3, 2017 at 11:00 AM at the site. The building will be open for prospective bidder's inspection during the pre-bid conference.

Contract documents will be available after Noon on March 27, 2017

- Hard Copy – no hard copies will be provided for pickup.
- Electronic Copy (PDF) – email a request to ritterj@holliston.k12.ma.us
- There is no deposit for bid documents.
- Hard copies will be mailed to prospective bidders for a prepaid fee of $25.00.

A 5% bid bond is required for submittal of bids. Contractors selected to perform work will be required to submit 100% payment and performance bond for the estimated total value of the bid.

Firms must be able to supply insurance certificates indicating coverage with general liability, and automobile limits of $1,000,000.00 for each occurrence and $3,000,000 aggregate and mandatory worker's compensation insurance with a $500,000 limit of employer's liability.

All employees performing work under this contract must be paid in accordance with the, commonwealth of Massachusetts approved wage scales. Certified payrolls must be provided to the town for all work performed.

Firms submitting prices must be equal opportunity and affirmative action employers. Women and minority businesses are encouraged to submit prices.

The town reserves the right to reject any and all bids. The Board of Selectmen is the awarding authority on this contract.

Contact the Holliston Town Hall for further information.

SECTION 00 10 00
INSTRUCTIONS TO BIDDERS

INSTRUCTION TO BIDDERS

TOWN OF HOLLISTON

Board of Selectmen

GENERAL

1. Description and Location of Work:

The project will take place at the Former Flagg School, 100 Linden Street, Holliston, MA and consists of:

- The demolition and disposal of the entire building, concrete slab, footing (24" below finish grade), and the buildings contents.
- Total building area is approximately 44,000 square feet. The majority of the building is a one story on a concrete slab. The floor for a portion of the building is a supported structural concrete slab. The former Auditorium/Gym was converted into a two story space.
- The contractor shall preform all hazardous material removal and disposal including: asbestos, lead, PCBs, universal wastes any other materials that require special removal and disposal procedures.
- Work includes final grading and complete site restoration

Bid Submittal:

Bids must be received by April 21, 2017 at 2:00 PM at the Holliston Selectman's Office, Town Hall, 703 Washington Street, Holliston, MA, at which time they will be opened and read aloud.

Bids must be in sealed envelope and clearly labeled "Flagg School Building Demolition and Environmental Services (Contract 17-10)".

Required Permits:

The contractor is responsible for obtaining and paying the associated fees for all required permits required by the Town and any other agencies.

A copy of the required permits shall be submitted to the owner in accordance with Contract Documents or within 24 hours of obtaining such permits whichever occurs first. Permits shall be displayed and visible for inspection on the project site.

Prosecution of Work and Schedule

The Contractor shall provide the Owner with a proposed schedule of operations for the Engineer's acceptance before any work is started.

Contractor must start work within seven (7) days of receipt of the Notice To Proceed. Contractor is to begin interior environmental work by May 1, 2017 with the entire project

completed by August 31, 2017.

Contractor understands that time is of the essence in completion of the Work and all parties agree that the date for Substantial Completion is August 31, 2017. Unless the failure to meet the schedule is due to (1) an occurrence beyond the control of the Contractor or (ii) changes ordered by the Owner, Owner shall be entitled to deduct from payments due Contractor (or if the remaining payments to Contractor are insufficient, to recover from Contractor), as Liquidated Damages and not as a penalty, an amount equal to Five Hundred Dollars ($500) per day.

Right to Reject:

The Town reserves the right to reject any or all Bids in part, or in whole, as it deems necessary.

Equal Opportunity:

Contractors submitting Bids must be equal opportunity and affirmative action employers. Women and Minority businesses are encouraged to submit Bids.

Insurance:

Firms must be able to supply insurance certificates indicating coverage as noted in Section 005200

General Conditions.

Firms must sign and return the Contractors Indemnification Form prior to the contract being awarded. This form is not needed with the submitted bids.

Prevailing Wage Rate Requirements:

Commonwealth of Massachusetts approved wage rates must be paid to all Contractors' employees performing labor under this Bid. Firms supplying such labor will be required to submit certified weekly payroll reports. Wage rate information and payroll report forms are included in Appendix C of the Contract Documents.

Bid Security and Payment and Performance Bonds:

A five percent (5%) bid security is required with this bid. A bidder's bonding company can provide the bond on their typical form.

The successful bidder will be required to execute and deliver to the Town a 100% Payment and a 100% Performance bond, prior to being issued a notice to proceed. Payment and performance bond forms are attached.

If a bidder has been issued a notice of intent to award and fails to execute the agreement and

provide payment and performance bonds within 14 days of the notice, the Town may collect the bid security and may then award to the second or subsequent bidder.

The attorneys-in-fact that sign the bonds must file a certified and effective dated copy of their power of attorney with each bond.

Insurance/Bonding Companies must be approved to operate in the Commonwealth of Massachusetts.

Award:

Bids will be awarded on the basis of the low bid on the Total Lump Sum Bid submitted by an eligible and responsive bidder to perform all work noted on the Plan and these contract documents.

A pre-bid conference will be held on **April 3, 2017 at 11 AM** at the site. The building will be open for prospective bidder's inspection during the pre-bid conference. **Bidders who have not attended this session shall be considered ineligible to submit bids.**

In order to be eligible for award, bidders must be able to provide proof of their experience with similar work and ability to perform the work on this project. MassDOT and/or DCAMM prequalification for demolition shall be considered sufficient proof of the bidder's ability.

Bidders who cannot provide materials confirming that they are MassDOT or DCAMM prequalified for a project of this scope and type, will be required to submit detailed qualifications information prior to the award of the contract.

Bidders should appear on the Town Bid Distribution List. All firms that obtain bid documents from the Town will be on the Bid Distribution List. Failure on the part of a bidder to insure that they are on the Bid Distribution List may be grounds for rejection of their bid. The Bid Distribution List will be emailed to all firms and individuals that have received bid documents upon request.

Contract Duration:

All Bids shall be considered good for a period of 30 calendar days from the date of the bid opening. The
Contractor is expected to complete the project within the time noted in the Agreement.

Payment to Contractor:

The Contractor and Engineer will determine what percentage of the lump sum bid for the project has been completed with a mutually accepted time period. The Engineer will prepare payment request forms for signature by all parties.

Payment requests will be process no more the twice a month.

Hours of Work

No heavy construction machinery may be operated on any part of this project earlier than 7:00 AM or after 6:00 PM on any day of the week. Only emergency repair work will be allowed outside of these hours of operation.

No heavy construction machinery may be operated on any part of this project on Sundays or Holidays without the advance written permission from the Engineer. This prohibition of work extends to Saturdays during any holiday weekend observed by the Town of Holliston.

Protection of Underground Facilities:

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etc., will occur.

The Contractor shall contact the Massachusetts 'DIG SAFE' call center at 1-888-344-7233 (1-888-DIG- SAFE) and procure a DIG SAFE number for each location prior to disturbing the existing ground in any way.

The Contractor shall notify Dig Safe 72 hours prior to start of an excavation work on this project.

Environmental Controls:

All construction equipment shall be fitted with suitable muffling devices so that the noise from construction operation shall be properly controlled.

The Contractor shall control all dirt, dust, erosion and other related construction emissions from the project to the satisfaction of the Engineer.

Inspection of Work:

For the purpose of observing work that affects their respective properties, the Engineer, any public agencies, and the utility companies shall be permitted access to the work, but all official orders and directives to the Contractor will be issued by the Engineer.

Disposal of Surplus Excavation Material:

Surplus materials obtained from any type of excavation and not needed for further use as determined by the Engineer shall become the property of the Contractor and shall be disposed by the Contractor outside the location subject to the regulations and requirements of local authorities governing the disposal of such materials, at no additional compensation.

Construction Safety:

It shall also be a requirement of this contract that the Contractor shall supply to his personnel and require that they wear safety vests while working in or near the roadways of this project. The cost of furnishing such vests shall be included in the prices bid for the various items, and all such vests shall remain the property of the Contractor.

The contractor shall secure the work area during construction to prevent public access to stockpiles, excavations, etc.

Property Access:

The Contractor should note that the work is located in a public and residential area. As such, the Contractor shall provide and maintain access at all times to abutting properties, ball fields, and playgrounds. Safe and ready means of ingress and egress to all residential properties and the ball field, both day and night, shall be provided for the duration of the project.

Reference Materials:

All chapters and sections of the General Laws of the Commonwealth of Massachusetts deemed to be included as part of these bid documents are considered a part hereof. All other materials noted or referenced are considered a part of these bid documents.

Commonwealth of Massachusetts Prevailing Wage Schedules and Payroll Report Forms, attached as
Appendix C

Plans Available for Review:

The Town will make original construction plans of the existing buildings available for review during the pre-bid conference.

END OF SECTION

SECTION 00 41 02
BID FORMS

INSTRUCTION TO BIDDERS

TOWN OF HOLLISTON

Board of Selectmen

INSTRUCTIONS: Submit THREE SIGNED COPIES OF THIS BID FORM and associated documents provided in the Project Manual in strict compliance with the Instructions to Bidders. Fill in all blanks; if not providing a bid on a specific package, enter "No Bid". The Town of Holliston reserves the right to reject any and all incomplete bid forms.

BID PROPOSAL FROM:

Bidder's Name: _____

Bidder's Address: _____

_____

_____

Bidder's Telephone Number: _____

By (Printed Name and Title): _____

Signature: _____

Date: _____

The Bidder, having familiarized ourselves with the existing conditions on the project area affecting the cost of the Work and with the Contract Documents (which include Specifications and Drawings), herby purpose to furnish all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment and service, including utility and transportation services, required to construct and complete the Scope of Work all in accordance with the above listed documents.

The Bidder proposes to perform the Work for the following costs as listed in the Form of Bid, which includes unit prices for possible changes to quantities of certain work items.

The following Enclosures are required to be provided by the Bidder with the completed Form of Bid and other required forms provided in this bid which may not be identified below:

Preliminary Schedule	Rates for All Project Personnel and Equipment
Team Members and Subcontractors	Proof of Insurance
Bid Bond	Company Background and Qualifications.

In signing this Bid, I agree that I have received all of the Bid Documents entitled **Demolition and Environmental Services at the Former Flagg School Building** dated in the published Invitation to Bid listed in the Project Table of Contents and List of Drawings and Addenda numbered and dated as follows:

Addendum No.: _____ Dated: _____

Addendum No.: _____ Dated: _____

Addendum No.: _____ Dated: _____

Addendum No.: _____ Dated: _____

I have included the provisions of the above Bid Documents and Addenda in my bid. I have received and reviewed the Bid Documents entitled "**Demolition and Environmental Services of the Former Flagg School Building**", Holliston, MA, including the construction document with attached Town of Holliston (Town) Standard Terms and Conditions. I have also examined the project site.
BASE BID:

Work Item Description and Unit	**Unit Price**		**Amount**	
	Dollars	**Cents**	**Dollars**	**Cents**
Performance and Payment Bond				
Work Plans and Submittals				
Mobilization				
Temporary facilities and Controls				
Asbestos and Hazardous Material Removals				
Building Demolition				
Site Restoration				
Final Site Cleaning and Demobilization				
	Total Bid			

Contractor will furnish all labor, material, equipment and services necessary to perform the work required for the Base Bid package in accordance with the bid documents, inclusive of the cost of Performance and payment Bonds, and will take full payment based on the sum price calculated based on units and unit rates provided on the following table, summarized as follows:

_____Dollars ($_____)
(BIDDER: Fill in the amount in words and numbers. In cases of conflicts between words and numbers, words shall control.)

ALTERNATE PRICES:

ITEM NUMBER	**WORK ITEM DESCRIPTION**	**BID PRICE (LUMP SUM)**
1	Complete 100% removal of all foundations, slabs and footings.	

UNIT PRICES:

Unit Prices shall include the cost of materials, labor and equipment, including overhead and profit necessary to complete the work to the Owner's satisfaction. This includes, but is not limited to, temporary work, submittals, subcontractors, and other efforts required to affect the work to be performed. It also includes all materials, labor, and equipment for incidental work associated with the installation of the item, such as hardware, welding, curing and protection, and any other item implicit to the proper installation of the item subject to the acceptance by the Owner.

ITEM NUMBER	**WORK ITEM DESCRIPTION**	**BID PRICE (UNIT PRICE)**
1	Pipe and asbestos containing Pipe Fitting insulation removal and disposal within/under concrete floor slab – Per Linear Foot	

In submitting this bid, I agree as follows:

1. To hold open bid for 120 days after bid opening.

2. To enter into and execute a contract, if awarded on the basis of this bid, according to the Agreement listed in the Bidding Documents with no exceptions.

3. To deliver properly executed Performance and Payment Bonds as described in the Instruction to Bidders at the time of execution of the contract.

4. For unit cost items actual units may vary and it is understood that quantities are not guaranteed.

5. To accomplish the work in accordance with the contract documents.

6. To begin work within five (5) calendar days of receipt of Notice to Proceed.

7. To substantially complete the Work within the Contract Time. The contract time is (5) consecutive calendar months starting in May 2017

8. That the Bid Bond or Bid Security submitted with this bid may be forfeited to the Town of Holliston as fair and reasonable compensation for failure to execute the Contract, if awarded.

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

1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder or with any competitor.

2. Unless otherwise required by law the prices which have been quoted in this bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to opening, directly or indirectly, to any other Bidder or to any competitor; and

3. No attempt has been made or will be made by the Bidder to induce any other person, partnership, or corporation to submit or not submit a bid for the purpose of restricting competition.

AFFIDAVIT WHERE CONTRACTOR IS A CORPORATION

STATE OF CONNECTICUT, COUNTY OF _____ ss:

_____ being duly sworn says:

I am the _____ of the above named corporation whose name is subscribed to and which executed the foregoing bid. I reside at _____
_____

I have knowledge of several matters therein stated, and they are in all respects true and correct.

_____
(Signature of Corporate Officer Who Signed the Bid)

Subscribed and sworn to before me this

_____ day of _____, 20___.

_____ My Commission Expires:
Notary Public

END OF SECTION

SECTION 00 52 00
GENERAL CONDITIONS

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 Owner 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.

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. Note: GZA will coordate demolition activities and PMEC will provide asbestos abatement and hazardous building material remediation review and compliance monitoring.

20. Field Order—A written order issued by Ownerwhich 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, 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.

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.

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 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.

52. "Working Day" shall be any day which is not a Saturday, Sunday, Holiday for the Town of Holliston staff.

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).

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.

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 5 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 to be submitted with Bid; 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.

4. Before any Work whatsoever is started, CONTRACTOR shall deliver to OWNER certificates of insurance (and other evidence requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of ARTICLE 5."

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 Owner and Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Owner / 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 Owner and 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.

2.08 Project Schedule and Liquidated Damages

1. Contractor must start work within seven (7) days of receipt of the Notice To Proceed. Contractor is to begin interior environmental work by May 1, 2017 with the entire project completed by August 31, 2017.

2. Contractor understands that time is of the essence in completion of the Work and all parties agree that the date for Substantial Completion is August 31, 2017. Unless the failure to meet the schedule is due to (1) an occurrence beyond the control of the Contractor or (ii) changes ordered by the Owner, Owner shall be entitled to deduct from payments due Contractor (or if the remaining payments to Contractor are insufficient, to recover from Contractor), as Liquidated Damages and not as a penalty, an amount equal to Five Hundred Dollars ($500) per day.

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. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it where included herein, and if through mistake or otherwise, any such provision is

not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

C. 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.

D. 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.

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 the Owner and Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Owner / 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 the Owner and 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:

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.

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.

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 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 written notice to the Owner and Engineer within ten days after becoming aware of a differing subsurface of physical condition as defined in and as required by paragraph 4.03."

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 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 the Owner 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. 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 Owner or 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," should be considered for Reference only. 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.

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.

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. A five percent (5%) bid security is required with this bid. A bidder's bonding company can provide the bond on their typical form.

The successful bidder will be required to execute and deliver to the Town a 100% Payment and a 100% Performance bond, prior to being issued a notice to proceed. Payment and performance bond forms are attached.

If a bidder has been issued a notice of intent to award and fails to execute the agreement and provide payment and performance bonds within 14 days of the notice, the Town may collect the bid security and may then award to the second or subsequent bidder.

The attorneys-in-fact that sign the bonds must file a certified and effective dated copy of their power of attorney with each bond.

Insurance/Bonding Companies must be approved to operate in the Commonwealth of Massachusetts.

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 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 Liability Insurance

A. INSURANCE GENERAL

1. The CONTRACTOR shall procure and maintain at their sole expense and until final acceptance of the work by the OWNER insurance as hereinafter enumerated in policies written by insurance companies admitted in the State of Massachusetts, and acceptable to the OWNER. All insurance companies must carry an "A. M. Best's" Policyholders rating of "A"; and all insurance policies shall be subject to the Town of Holliston's final approval as to policy form.

2. All insurance companies must carry an "A. M. Best's" Policyholders rating of "A"; and all insurance policies shall be subject to the Town of Holliston's final approval as to policy form.

3. The CONTRACTOR shall not begin any work until the insurance as required by this agreement has been obtained and until copies of policies and/or original insurance certificates have been submitted to OWNER.

4. OWNER shall be given at least 30 days written notice of cancellation, non-renewal, or material change of the required insurance coverage. Copies of policies, certificates and required written notice shall be sent to:

Town of Holliston, MA
703 Washington Street
Holliston, MA 02081

B INSURANCE DETAILS AND LIMITS

1. WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

The CONTRACTOR agrees to comply with the Workers' Compensation laws of the Commonwealth of Massachusetts. If required by law, the CONTRACTOR agrees to maintain a MA Workers' Compensation" policy.

The limits shall be:

Workers' Compensation
Statutory MA Benefits
Employer's Liability
$500,000 each accident
$500,000 Disease Policy Limit
$500,000 Disease each employee Limit

2. COMMERCIAL GENERAL LIABILITY INSURANCE and/or COMPREHENSIVE GENERAL LIABILITY INSURANCE

The CONTRACTOR shall provide Commercial General Liability Insurance that includes "products completed operations insurance". "Blasting" operations coverage will also be provided if, the exposure exists or arises during the work.

The Commercial General liability limits shall be:

Annual Aggregate	$3,000,000
Products-Comp/Op	$3,000,000
Bodily Injury and Property	$1,000,000
Each Occurrence	$1,000,000

The OWNER shall be named as "Additional Insured". Product and Completed Operations shall be maintained for up to three (3) years after completion of the project.

3. OWNERS PROTECTIVE LIABILITY INSURANCE

The CONTRACTOR shall purchase "Owner's Protective" Liability Insurance in the name of the OWNER (and its elected and appointed officials, employees, and agents) which shall provide liability insurance for the OWNER for any claims arising out of any operations performed by or the responsibility of the CONTRACTOR.

The OWNER's Protective Liability limits shall be:

Each Occurrence - $1,000,000

4. BUSINESS AUTOMOBILE POLICY

The CONTRACTOR shall provide a Business Automobile Policy that includes coverage for: All owned, non-owned, leased, and hired vehicles.5

The Business Automobile Liability "Combined Occurrence" limit shall be: Bodily Injury and Property Damage-$1,000,000 per accident

The OWNER shall be named as "Additional Insured".

5. BUILDERS' RISK PROPERTY COVERAGE

Builders' Risk Property Coverage shall be for the full insurable value (completed value) of the portion of any building under construction. It shall be "All Risk" insurance for physical loss or damage including theft.

6. UMBRELLA LIABILITY

Umbrella Liability of at least $2,000,000 per occurrence, and $2,000.000 aggregate must be maintained. The OWNER shall be named as "Additional Insured".

7. ASBESTOS ABATEMENT POLLUTION OCCURRENCE COVERAGE

Asbestos Abatement Pollution Occurrence Coverage of at least $3,000,000 with the Owner named as additionally insured.

8. INSURANCE SUMMARY

All responsibility for payment of any sums resulting from any policy deductible provisions, and/or policy premium audit provisions shall remain with the CONTRACTOR.

It is expressly understood that the OWNER does not in any way represent that the specified limits of liability or coverage of policy forms are sufficient or adequate to protect the interest or liabilities of the CONTRACTOR.

Approval of any insurance by the OWNER shall not in any way relieve or decrease the liability of the CONTRACTOR under these insurance requirements.

9. CONTRACTOR'S INDEMNITY

The CONTRACTOR shall agree to and execute the "Contractor's Indemnity Form" attached to the end of the Supplementary Conditions.

5.05 Owner's Liability Insurance (Intentionally Omitted)

5.06 Property Insurance

Owner shall not be responsible for purchasing and maintaining any property insurance 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.

5.07 Waiver of Rights (Intentionally Omitted)

5.08 Receipt and Application of Insurance Proceeds (Intentionally Omitted)

5.09 Acceptance of Bonds and Insurance; Option to Replace

A. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with this Article 5 on the basis of its not complying with the Contract Documents, OWNER will notify CONTRACTOR in writing thereof within ten days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.7. CONTRACTOR will provide such additional information in respect of insurance provided by him as OWNER may reasonably request."

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 the site of the Work the CONTRACTOR shall employ a construction superintendent or foreman who shall have full authority to act for the CONTRACTOR. It is understood that such representative shall be acceptable to the OWNER and shall be one who will be continued in the capacity for the particular job involved unless the representative ceases to be on CONTRACTOR's payroll. If at any time during the Work the representative is deemed by the OWNER or ENGINEER to be no longer acceptable, the representative shall be promptly replaced by the CONTRACTOR. All communications to the superintendent shall be as binding as if given to the CONTRACTOR.

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 the Owner and 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.

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 Owner and 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;

      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) b e 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

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 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 the Owner and 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, 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.

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 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 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 Owner and 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 Owner determines that a change in the Contract Documents is 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.

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 s eparates 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.

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 Owner and 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 law, The CONTRACTOR shall indemnify and hold harmless to OWNER, the ENGINEER, OWNER'S consultants, and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from the performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by acts or omissions of the CONTRACTOR, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall apply to any such claims, damages, losses and expenses which arise and/or are incurred by any person or entity either during the performance of the Work and/or after completion of construction. Nothing in this paragraph shall be construed to negate, abridge, or reduce other rights or obligations of indemnity or contribution which would otherwise exist as to a party or person indemnified hereunder. CONTRACTOR's employees, and for any and all damage to property caused by, resulting from, or arising out of any act, omission or neglect on the part of the CONTRACTOR, or of any Subcontractor or of anyone directly or indirectly employed by any of them or of anyone for whose acts, any of them may be liable.

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.

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.

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.

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 Change Orders

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

8.07 Inspections, Tests, and Approvals

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

8.08 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.

8.09 Undisclosed Hazardous Environmental Condition

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

8.10 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.

8.11 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 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 the 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.

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 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.

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 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:

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 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 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 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).

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 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.

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. at 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 Owner or Engineer, it must, if requested by Owner or Engineer, be uncovered for Owner and Engineer's observation and replaced at Contractor's expense.

B. If the Owner or Engineer considers it necessary or advisable that covered Work be observed by the Owner or 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.

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 Owner or 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 three years after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such defective, work, or, if it has been rejected by OWNER, remove it from the site and replace it with work that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other work or the work of others therefrom. If CONTRACTOR does not begin the repairs within ten (10) days of receipt of written notification and promptly comply with the terms of OWNER's written instructions, or in an emergency where delay would cause serious risk, loss or damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR."

B. 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.

C. 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.

D. 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.

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 Owner. 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 Owner and Engineer for review an 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 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:

6. 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. D. Reduction in Payment:

7. 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 material and equipment covered by any Application for Payment whether incorporated in the Project or not, will pass to OWNER no later than at the time of Application for Payment free and clear of all liens. CONTRACTOR shall provide written transfer of title and a certified paid invoice provided by the supplier."

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 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.

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 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.

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.

5. If the Work to be done under this Contract shall be abandoned, or if this Contract or any part thereof shall be sublet, without the previous written consent of OWNER, or if the contract or any claim thereunder shall be assigned by CONTRACTOR otherwise than as herein specified;

6. If the CONTRACTOR fails to start work or deliver materials within 30 days of receipt of a written notice to proceed, or fails to deliver materials, 20 days from receipt of a purchase order:"

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 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 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 – (INTENTIONALLY OMIITED)

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:

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 Assignment:

The CONTRACTOR shall not assign the whole or any part of this Contract or any moneys due or to become due hereunder until thirty (30) days prior notice in writing has been given to the OWNER of the intention to assign, which notice shall state the identify and address of the prospective assignee. No assignment shall be made without the OWNER's prior written consent. Such consent shall not be reasonably withheld. In case the CONTRACTOR assigns all or any part of the moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the CONTRACTOR shall be subject to prior claims of all claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this Contract.

17.07 Liability:

It is understood and agreed that members of the OWNERS or the ENGINEER or any agent or employees of the OWNER signing this Agreement shall not be personally liable hereunder for any action incurred in connection with this contract.

17.08 Severability:

If any provision of this Agreement shall be invalid or unenforceable to any extent or in any application, then the remainder of this Agreement and of such application, shall not be affected thereby, and each and every term and condition of this Agreement shall be valid and enforced to the fullest extent and in the broadcast application permitted by law."

17.09 Minimum Wages:

Minimum wages determined by the Commonwealth of Massachusetts Department of Labor and Industries under the provisions of the Massachusetts General Laws Chapter 149, Section 26-27D, inclusive as amended, apply to all work on this project.

17.10 Time of Completion and Working Days:

If the CONTRACTOR feels the weather conditions are not conducive to good construction on a day otherwise defined as a working day. He must submit the reason in writing to the ENGINEER. The ENGINEER will file all such requests and shall submit them to the OWNER with any written request for a time extension.

The CONTRACTOR will not be allowed to work on Saturdays, Sundays or any day which is a Holiday for the Town of Holliston Department of Public Works shop staff, without submitting a

written request for permission to perform work on said days and without receipt of written permission from the ENGINEER for said work. Any such day approve for work shall be counted off of the time of completion for the contract.

17.11 Protection of Private and Public Property

The CONTRACTOR shall be responsible for protecting his own work and all nearby abutting properties form damage resulting from his performance of the contract. He shall pay particular attention to trees, shrubs, lawns, steps, walks, etc., abutting the work and shall save them from damage and harm. If, through negligence or carelessness, the CONTRACTOR damages such trees, scrubs, etc., an amount equal to the damage done will be deducted from payment due to contractor. Said deduction shall be determined by the ENGINEER and shall be binding and final.

17.12 Executive Clause:

This contract is executed in Massachusetts, is a Massachusetts obligation, is to be construed and enforces according to the laws of the Commonwealth of Massachusetts and the CONTRACTOR agrees to be bound under the contract in accordance with the laws of the Commonwealth of Massachusetts and any and all disputes and problems concerning or arising out of or under the contract shall be litigated or otherwise resolved in Massachusetts and in accordance with the laws of the Commonwealth of Massachusetts.

17.13 Safety:

All work on any item of this contract or work related to deliver of any item related to this contract will be done in strict compliance with all federal OSHA Safety Standard as they are at the time of the bid and as the may be amended.

END OF SECTION

DIVISION 01
GENERAL REQUIREMENTS

SECTION 01 11 00 - SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Site Description

C. Scope of Work

D. Contractor's Use of Site

E. Work Sequence

F. Schedule of Work

1.2 RELATED SECTIONS

A. Section 00 41 00 – Bid Form

B. Section 00 52 00 – General Conditions

C. Section 01 11 13 – Work Covered by Contract Documents

D. Section 01 12 19 – Contract Interface

E. Section 01 31 19 – Project Meetings

F. Section 01 33 00 – Submittal Procedures

G. Section 01 35 29 – Health, Safety, and Emergency Response Procedures for Contaminated Sites

H. Section 01 35 43 – Environmental Procedures

I. Section 01 35 53 – Security Procedures

J. Section 01 50 00 – Temporary Facilities and Control

K. Section 01 55 26 – Traffic Control

L. Section 01 57 13 – Temporary Erosion and Sediment Control

M. Section 01 57 16 – Temporary Project Controls

N. Section 01 66 00 – Product Storage and Handling Requirements

O. Section 01 70 00 – Execution and Project Closeout

P. Section 01 74 00 – Final Cleaning

Q. Section 01 78 00– Project Record Documents

R. Section 02 41 00 – Demolition

S. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

T. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

U. Section 02 84 00 – Waste Management and Disposal

V. Section 31 00 00 – Earthwork

W. Section 32 31 13 – Fencing

X. Section 32 90 00 – Landscape Work

1.3 SITE DESCRIPTION

A. LOCATION OF WORK

The Work includes demolition and environmental services related to one approximately 44,000-square-foot building formerly utilized by the Town of Holliston as an elementary school (Flagg Elementary) and Town Offices and storage.

SCOPE OF WORK

B. The scope of Work will include complete building demolition and removal and treatment or disposal of various hazardous materials to include but not limited to oils, lubricants, asbestos containing materials (ACM), lead-based paint (LBP) polychlorinated biphenyls (PCBs) and other miscellaneous hazardous materials. Restoration will include Site grading and Site stabilization.

Contractor will be responsible for all utility disconnect and termination.

C. The Contractor shall furnish all labor, materials, services, insurance, tools, equipment, temporary facilities, decontamination facilities, and incidentals to perform Work in accordance with the Contract Documents, including the Drawings and Specifications and applicable laws, permits, regulations, codes, ordinances and standards. The Work consists of, but is not limited to the following:

1. Preparation of Work Plans and Submittals as listed in Table A attached to Section 01 33 00 – Submittal Procedures and as described in these Specifications.

2. Unless otherwise indicated in contract documents obtain (including paying all fees) and maintain all local, State, and federal permits required to perform the Work. Required permits include, but are not necessarily limited to the following:

a. Local Demolition permit including all utility termination sign-offs.
b. State of Massachusetts Department of Environmental Protection (MassDEP) Asbestos Start Work Notification ten (10) working days prior to the commencement of asbestos abatement activities.
c. Notifications and approvals for all site activities including as required for on-site crushing activities. MassDEP Application for Alternative Work Practices (if needed).
d. Submission of required post-abatement documentation to MassDEP.
e. Dig Safe notifications.

3. Mobilization of all required personnel, equipment, and materials to the Site.

4. Prepare a Site-specific Health and Safety Plan (HASP), provide documentation of required Occupational Safety and Health Administration (OSHA) training and medical monitoring for all employees, and conduct health and safety monitoring for the duration of the Work in accordance with Section 01 35 29 – Health, Safety, and Emergency Response Procedures for Contaminated Sites and other relevant portions of the Contract Documents.

5. Attendance at, preparation for and participation in all required meetings consistent with Section 01 31 19 – Project Meetings.

6. Site preparation, including, but not limited to, construction of material staging areas; clearing vegetation and debris; construction of temporary Work platforms, temporary scale, access roads, and construction entrances; protection of adjacent structures and other features; protection of existing asphalt and monitoring wells; and utility clearance/protection/guarding in accordance with Section 01 35 29 – Health, Safety, and Emergency Response Procedures for Contaminated Sites, Section 02 41 00 – Demolition, and Section 31 00 00 – Earthwork.

7. Staging, installation, set-up, maintenance, and removal of temporary facilities and controls in accordance with Section 01 35 43 – Environmental Procedures, Section 01 35 43.13 – Environmental Procedures for Hazardous Materials, Section 01 35 53 – Security Procedures, Section 01 50 00 – Temporary Facilities and Controls, Section 01 55 26 – Traffic Control, and Section 01 57 16 – Temporary Project Controls.

8. Installation, maintenance, and removal of erosion and sedimentation controls as shown on the Drawings and in accordance with Section 01 57 13 – Temporary Erosion and Sediment Control, and all permits and approvals to complete the Work.

9. Removal, characterization, containerization, on-Site management, transportation, and off Site disposal/recycling of ACM and hazardous materials in accordance with Section 02 81 00 – Waste Management and

Disposal, Section 02 82 00 – Asbestos Remediation, and Section 02 84 00 – Hazardous Materials Remediation.

10. Removal, characterization, containerization, on-Site management, transportation, and off Site disposal/recycling Removal, characterization, containerization of water, liquids and solids present in in piping or tank systems.

11. Termination and/or removal/abandonment of utilities and associated appurtenances associated with the building and Site features to be demolished in accordance with Section 02 41 00 – Demolition. Restoration of all required utility abandonment areas in accordance with applicable Town of Holliston and Massachusetts Department of Transportation (MassDOT) standards.

12. Demolition of the former Flagg School Building and other miscellaneous Site features within the Limits of Work including, but not limited to, utility poles and support structures, concrete slabs, concrete staged by others within limits of work, concrete foundations, asphalt, retaining walls, concrete site stairs, landscaping, certain utilities (overhead and underground), ramps, bollards, and fencing in accordance with Section 02 41 00 – Demolition and as shown on the Drawings

13. Removal, management, segregation, loading, transportation and off-Site disposal of PCB Bulk Product Wastes from the Flagg School Building in accordance with Section 02 41 00 – Demolition, Section 02 81 00 – Waste Management and Disposal, and Section 02 84 00 – Hazardous Material Remediation.

14. Processing of certain buildings materials generated during demolition to 3 inch minus for reuse as on-Site backfill in accordance with Section 02 41 00 – Demolition.

15. Backfilling, compaction and grading of foundations, basements, pits, trenches, and vaults as detailed in specifications and as shown on the Drawings

16. Site restoration and grading as detailed on contract drawings.

17. Demobilization including, but not limited to removal of all personnel, equipment, and materials from the Site, final cleaning, and project closeout in accordance with Section 01 50 00 – Temporary Facilities and Controls, Section 01 74 00– Final Cleaning, Section 01 70 00 – Execution and Project Closeout, and Section 01 78 00 – Project Record Documents.

18. Provide any other miscellaneous items or work required to complete the Work in accordance with the Contract Documents.

D. Work shall include replacement, repair, and/or re-installation, as necessary and appropriate, of any items which do not comply with the Contract Drawings and/or Specifications at no additional cost to the Owner.

E. If additional data becomes available during the execution of the Contract, the Owner has the right to reevaluate the requirements of the Contract and modify the work to be performed, as necessary.

F. All material transported off-Site for disposal or recycling in connection with the Work shall be shipped to an Owner-approved disposal/recycling facility. All Contractor proposed disposal and recycling facilities shall be approved by the Owner prior to transport of the wastes.

G. Contractor shall visit the Site and inspect the nature and condition of the facilities prior to Bid submission. No increase in price or extension of time will be considered for failure to fully understand the conditions of the Site and structures.

1.4 CONTRACTOR'S USE OF SITE

A. Limits of Work shall be confined to the smallest reasonable and practicable area to perform Work in a safe and efficient manner within the Limits of Work shown on the Drawings. Equipment staging areas, material storage areas, and decontamination stations shall be within the Contractor's Limit of Work. Access to and from the Work Site shall only be by the means designated by the Owner. Under no circumstances shall the Contractor perform any Work or conduct any activities at the Site outside of the Contractor's Limit of Work. Any disturbed area(s) shall be restored to original conditions by the Contractor at no additional cost to the Owner.

B. Contractor shall:

1. Assume responsibility for Site security within the Limits of Work. Prevent entry by non-project personnel during Work hours. Provide sufficient security to prevent trespassing and vandalism during non-working hours. Confine operations to within Limits of Work shown on the Drawings and shall not encumber adjacent properties.

2. Protect adjacent properties, utilities, and all existing Site features to remain, including but not limited to, buildings, utilities, fencing, monitoring wells, and asphalt and concrete surfaces.

3. Conform to all applicable laws, regulations, codes, ordinances and standards and Contract Documents.

4. Assume full responsibility for health and safety of the Contractor's employees and subcontractor employees while at the Work Site and for implementation of the Contractor’s HASP for the Work.

5. Work harmoniously with Site personnel, the Engineer, the Owner and his representatives, Contractors, and all other entities engaged by the Owner necessary to complete the Work.

C. Contractor shall plan and schedule Work activities to be performed Monday through Friday between the hours of 7:00 a.m. and 6:00 p.m. unless otherwise requested in advance by the Contractor (minimum two (2) business days) and approved in writing by the Owner. No construction equipment shall be permitted to operate prior to 7:00 a.m. or past 6:00 p.m. without prior approval by the Owner.

D. The Contractor shall plan and schedule Work activities to be limited to weekdays, unless otherwise requested in advance (minimum two (2) business days) and approved in writing by the Owner.

1.5 WORK SEQUENCE

A. Contractor shall submit a Preliminary Progress Schedule with their Bid outlining all major Work activities associated with the Contract described in these Specifications and shown on the Drawings. This schedule shall address all major Site activities from the submission of project submittals through demobilization. The schedule shall describe Contractor's sequence and schedule for each component of Work organized by building number, the length of time required to complete each component of the Work, and shall take into account the project sequencing and permitting restrictions. This Preliminary Progress Schedule shall be in the form of a Gantt Chart.

B. In accordance with the Agreement between Owner and the Contractor, within five (5) days after commencement of the Contract Times, a final version of the Preliminary Progress Schedule, designated as the Progress Schedule, shall be submitted electronically by Contractor as specified in Section 01 33 00 – Submittals Procedures.

C. Contractor shall prepare a Progress Schedule based on the Preliminary Progress Schedule. This schedule shall identify all task items in sufficient detail to demonstrate how Contractor will execute and sequence the Work.

D. The Progress Schedule shall be in the form of a Gantt chart and shall consist of horizontal lines, or bars, plotted along a daily time scale. The schedule shall have a separate line for each section of Work, and shall identify the first work day of each week. It shall show the complete sequence of work activities, identifying Work of separate stages and other logically grouped activities, and shall indicate early and late start, early and late finish, float dates, and duration. The time-scale shall indicate all required Milestone and Completion Dates as set forth in the Contract Documents. The horizontal bar(s) shall indicate the start and finish dates as well as the total time period of performance for each activity. Contractor shall arrange the chart so as to show the activities which are necessary to fulfill each and every Milestone and Completion Date requirement.

E. If Owner finds that the submitted schedule does not comply with project requirements, the corrective revisions will be noted on the submittal copy and returned to Contractor. Contractor shall resubmit revised schedule within five days.

F. The Contractor shall perform all work consistent with the approved Progress Schedule. Hazardous material and ACM removal shall be performed prior to building demolition work.

G. The Contractor shall perform Work in a manner that will allow the Site and adjacent property owners to maintain normal activities on their sites. The Contractor must ensure that neighboring operations or activities are not disturbed, interrupted, or prohibited as a result of Work.

H. Work sequencing shall be conducted in a manner that prevents contamination or recontamination of areas not contaminated or already decontaminated, and in accordance with the Contract Documents. Any contamination or recontamination of materials that occurs as a result of the Contractor's activities shall be restored by the Contractor at no additional cost to the Owner.

I. Work sequencing shall be conducted in a manner to coordinate staging and loading of materials to be transported and disposed/recycled off the Site.

J. The Progress Schedule shall be updated by the Contractor at least weekly. Contractor shall notify Engineer and submit an updated project schedule with any modifications to the sequence of Work.

1.6 SCHEDULE OF WORK

A. All Work must be substantially completed within timeframe stipulated in contract documents.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 11 13 - WORK COVERED BY CONTRACT DOCUMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Work Covered by Contract Documents

1.2 RELATED SECTIONS

A. Section 00 52 00 – General Conditions

B. Section 01 11 00 – Summary of Work

C. Section 01 12 19 – Contract Interface

D. Section 01 31 19 – Project Meetings

E. Section 01 33 00 – Submittal Procedures

F. Section 01 35 29 – Health, Safety, and Emergency Response Procedures for Contaminated Sites

G. Section 01 35 43 – Environmental Procedures

H. Section 01 35 53 – Security Procedures

I. Section 01 50 00 – Temporary Facilities and Controls

J. Section 01 55 26 – Traffic Control

K. Section 01 57 13 – Temporary Erosion and Sediment Control

L. Section 01 57 16 – Temporary Project Controls

M. Section 01 66 00 – Product Storage and Handling Requirements

N. Section 01 70 00 – Execution and Project Closeout Requirements

O. Section 01 74 23 - Final Cleaning

P. Section 01 78 39 - Project Record Documents

Q. Section 02 41 00 - Demolition

R. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

S. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

T. Section 02 84 00 – Waste Management and Disposal

U. Section 07 10 00 – Weather Proofing

V. Section 31 00 00 – Earthwork

W. Section 32 31 13 – Fencing

X. Section 32 90 00 – Landscape Work

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Contractor shall comply with all requirements set forth in the Contract Documents.

B. FAMILIARIZATION - Contractor is responsible for becoming familiar with all aspects of the Work and the Site prior to performing the Work.

C. COOPERATION - Contractor shall cooperate with all other parties engaged in project related activities as well as Owner's employees, representatives, and contractors to the greatest extent possible. The Contractor shall confine operations at the Site to within the Limits of Work shown on the Drawings. Disputes or problems should be submitted in writing by the Contractor to the Owner for resolution.

D. PERSONNEL SIGN-IN – Contractor shall furnish and maintain a daily sign-in/sign-out log for all personnel on-Site. The log shall meet, at a minimum, the requirements of Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites.

E. CONSTRUCTION ACCESS – The Limits of Work are shown on the Drawings and described in these Specifications. The Limits of Work include the locations of staging areas, on-Site access roads, stockpile areas, and lay-down areas. Areas of the Site beyond the Limits of Work are not to be accessed or disturbed. Contractor shall conform to Site rules and regulations affecting the Work while engaged in construction. The Contractor, including all personnel and subcontractors, shall be familiar with security requirements and shall comply with all security requirements. Refer to Section 01 50 00 - Temporary Facilities and Controls, Section 01 35 53 - Security Procedures, Section 01 55 26 - Traffic Control, and Section 01 57 13 - Temporary Erosion and Sediment Control.

F. CONSTRUCTION PERSONNEL PARKING – Contractor is responsible for coordination of personnel parking in accordance with Section 01 55 26 - Traffic Control.

G. TEMPORARY CONTRACTOR OFFICES – Contractor shall furnish temporary construction offices with services for the Contractor and Owner The temporary

construction office shall be located in area shown on the Drawings. See Section 01 50 00 - Temporary Facilities and Controls for additional requirements.

H. TEMPORARY ROADS, WORK PLATFORMS, AND MATERIAL LAYDOWN AREAS - Contractor shall be responsible for constructing and maintaining all temporary roads, work platforms, and material lay-down areas that may be required in the execution of the Work. Material lay-down areas, work platforms, and temporary access roads shall be designed, constructed, maintained, and removed as described in these Specifications by the Contractor. Locations and details of the temporary roads and material lay-down areas shall be submitted to the Engineer for approval in accordance with the Specifications. At the completion of the Work, the temporary roads, work platforms, and material lay-down areas shall be removed in accordance with the Specifications.

I. CONSTRUCTION WATER – Contractor is responsible for obtaining water for construction, dust control, and decontamination. Contractor shall coordinate with the Owner to use designated hydrants located around perimeter of work area or obtain water from an alternative approved off-Site source.

J. TEMPORARY ELECTRICAL SERVICE – Contractor is responsible for providing a temporary electrical service. The Contractor is responsible for coordination and all costs associated with conveyance of temporary electrical service to the Work areas including all necessary permits, temporary supports, panel boards, meters, connections for utility wiring, outlets, switched, circuit protection devices, controls, and accessories. Contractor may utilize generators for temporary power throughout the Work. All generators shall operate within noise limits set forth in the Specifications. Generators required to operate overnight shall be enclosed or equipped with sufficient noise reduction devices so that the generators are not audible from the Limits of Work.

K. STORM WATER AND GROUNDWATER- Contractor is responsible for control, and management of any stormwater or groundwater encountered or requiring management during all Site activities. Contractor is responsible for maintaining and protecting stormwater collection structures within the Limits of Work, on access roads outside the Limits of Work, and public roads from untreated stormwater, construction water, soil, and debris.

L. WORK HOURS AND DAYS – On weekdays (Monday through Friday), Work shall only be performed during the hours between 7:00 a.m. to 6:00 p.m. Work shall abide by local regulations for noise. The Contractor may alter Work hours for the Work only after receiving written permission from the Owner. After receiving the appropriate approvals, the Owner must be notified 48 hours before each Work day where the Work will be conducted outside the 7:00 a.m. to 6:00 p.m. Monday through Friday window. If complaints are received by the Owner regarding noise due to Work activities, then no further Work shall be performed until noise reduction measures are implemented and approved by the Owner. No Work will be permitted on Saturdays and Sundays unless otherwise approved by the Owner.

M. DELIVERY AND MATERIAL TRANSPORTATION SCHEDULING – Contractor shall coordinate material delivery and off-Site transportation to prevent disruption of traffic on public roadways. Contractor is responsible for coordinating all deliveries and off-Site transportation with subcontractors and vendors.

N. SURVEYING – Contractor shall furnish Owner with "As-Built Record Drawings" (also referred to as "As-Built" Drawings) of the Work. All surveying shall be performed under the direction of a registered Land Surveyor licensed to perform such Work in the State of Massachusetts. All As-Built Record Drawings shall be signed and sealed by the licensed surveyor who directed the survey Work. All surveys shall use the grid system and datum of the Site, unless otherwise directed, in writing, by the Engineer.

O. WORK LIMITS – All Work activities shall be confined to the Limits of Work shown on the Drawings and completed to the lines, grades, and dimensions called for on the Drawings and Specifications unless directed otherwise by the Owner or Engineer. All Work performed beyond designated limits without prior approval shall be corrected to the Owner's satisfaction, at no additional cost to the Owner.

P. CONSTRUCTION TOLERANCES - Construction tolerances shall be consistent with the Drawings and Specifications. All surfaces shall be reasonably free from irregularities. Slopes or grades shall not be less than specified minimums or greater than specified maximums as shown on the Drawings.

Q. PERMITS - The Contractor shall be held responsible for understanding, obtaining, paying all fees and complying with all permits and notifications required for asbestos and hazardous material removal and demolition activities. The Contractor is responsible for complying with all conditions of all applicable permits throughout the Work.

R. ENVIRONMENTAL PROTECTION – Contractor shall comply with all requirements for protecting the environment, including, but not limited to, controlling erosion, water pollution, spill control, dust emissions, vapors, odors noise, and vermin resulting from construction activities without exception. Refer to Section 01 35 43 - Environmental Procedures, Section 01 57 13 - Temporary Erosion and Sediment Control, and Section 01 57 16 - Temporary Project Controls.

S. PROTECTION OF STRUCTURES TO REMAIN – The Contractor shall exercise care and provide protection to avoid disturbing or damaging adjacent structures not scheduled for demolition. Any damage to existing features to remain should be repaired to the satisfaction of the Owner at no additional cost.

T. PROTECTION OF EXISTING SERVICES – Contractor shall exercise care to avoid disturbing or damaging any existing utilities and structures which exist at the Site. Contractor shall be responsible for repairing any utility damaged as a result of the Work. If Contractor encounters any unexpected utilities during the course of

the Work, Contractor shall inform the Owner and Engineer immediately. The locations of any utilities shown on the Drawings are approximate and shall be verified in the field by the Contractor prior to initiation of Work.

U. SAFEGUARDS - Contractor shall provide and use all personnel safety equipment, barricades, guardrails, road plates, signs, lights, flares, and flagmen/details as required by Occupational Health and Safety Administration, State, or local codes and ordinances. Contractor shall be solely responsible for any fines imposed due to violation of any laws and regulations relating to the safety of the Contractor's personnel. Contractor shall ensure all subcontractors comply with this requirement. See Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites, for further HASP requirements.

V. HEALTH AND SAFETY TRAINING - Contractor shall prepare a Site-specific HASP and provide necessary health and safety training for all of the Contractor's and subcontractor's on-Site personnel in accordance with applicable local, State, and federal regulations. Owner shall require evidence of health and safety training prior to the commencement of Work and may request evidence at any time for any of the Contractor's or subcontractor's personnel working on the Site. Training certifications shall be maintained on the Site at all times. See Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites for further HASP requirements.

W. SECURITY – Contractor is responsible for security on the Site throughout completion of Work activities. The Contractor is responsible for the safety and condition of all of Contractor's tools and equipment. Owner, Engineer and Owner's agents shall not be responsible for lost or stolen materials or equipment. See Section 01 35 53 - Security Procedures.

X. NUISANCE CONDITIONS - Contractor shall be responsible for controlling noise/vibration, dust, vapor, vermin, and odors so as to not create a nuisance condition.

Y. HOT WORK – Hot Work shall be minimized and will not be performed without prior notification to the Engineer and Owner. Any Hot Work shall be in accordance with all Owner, local, regional, state and federal requirements and as specified in the Contract Documents.

Z. EXPLOSIVES - Use of explosives at the Site are not permitted.

AA. BURNING - Burning of any materials at the Site is not permitted.

BB. ACCEPTANCE OF WORK - The Contractor shall retain ownership and responsibility for all Work until accepted by the Owner. The Owner will accept ownership of the Work in accordance with Section 00 52 00 – General Conditions.

CC. CLEAN-UP – The Contractor shall be responsible for general housekeeping during the Work in accordance with the Contract Documents. Upon completion of the

Work, the Contractor shall remove all of his/her equipment, facilities, construction materials, and trash. All disturbed areas shall be restored, or otherwise put into a condition satisfactory to the Owner. See Section 01 74 23 - Final Cleaning.

DD. PERSONNEL RESPONSIBILITIES – Contractor is responsible to inform their employees and employees of subcontractors and distributors that any lewd actions, verbal and any racial or sexual comments directed toward any individual on the Project Site is strictly prohibited. Incidents of this type may result in immediate and permanent dismissal of the employee(s) involved. Repeat offenses by a Contractor's employees may lead to the dismissal of the Contractor and/or removal of the Contractor from future bid considerations. Smoking by Contractor personnel is not allowed in buildings, around occupied buildings, or any place where it causes a hazard or inconvenience to non-smokers.

EE. INCIDENT REPORTING – All incidents involving personnel, equipment, or affecting the environment must be reported to the Owner as soon as possible and, at a minimum, within 2 hours of the incident. Each of these incidents must be accompanied by a follow-up investigation report in accordance with Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 12 19 – CONTRACT INTERFACE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Responsibilities of Parties

C. Interpretation of Contract Drawings and Specifications

D. Temporary Suspension of the Work

1.2 RELATED SECTIONS

A. Section 00 52 00 – General Conditions

B. Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites

C. Section 01 57 16 - Temporary Project Controls

1.3 RESPONSIBILITIES OF PARTIES

A. OWNER

1. The Town of Holliston is the Owner responsible for facility administration, accounting, purchasing, project Execution etc. On-site construction activities are monitored for the Owner by the Engineer.

B. ENGINEER CONSULTANTS

1. GZA GeoEnvironmental, Inc. (GZA) is the Engineer retained by the Town to manage and address demolition and Site Restoration activities

2. PMEC is the Consultant (Engineer) retained by the Town to managing and address asbestos, lead paint, PCB and other hazardous materials.

3. The Engineer has prepared the Contract Drawings and Specifications and is responsible for the interpretation of the Contract Drawings and Specifications. The Owner will decide all questions that arise regarding the interpretation of the Contract Drawings and Specifications.

4. The Owner may conduct perimeter ambient air monitoring throughout on-Site activities. This work will be independent of air monitoring requirements that are the responsibility of the Contractor as specified in

Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites and Section 01 57 16 – Temporary Project Controls. The Owner and the Engineer reserve the right to suspend or modify Work at the Site if perimeter air monitoring threshold levels as identified in Section 01 57 16 – Temporary Project Controls are exceeded. In the event these threshold levels are exceeded, resulting suspensions and/or modifications of Work shall be performed by the Contractor at no additional cost to the Owner. The Engineer is responsible for preparing a final inspection report documenting demolition activities in accordance with the requirements of the Drawings and Specifications.

C. CONTRACTOR

1. The Contractor is responsible for implementing and ensuring the completion of the Work and for producing As-Built Record Drawings documenting the Work performed. The Contractor is responsible for procuring permits and completing notifications to these Specifications, procuring the services of subcontractors as necessary to complete the Work as needed, and is responsible for the Work of his subcontractors as he is for his own Work. The Contractor reports to the Owner, but shall communicate directly with the Engineer.

2. The Contractor is subject to requirements of local, State, and federal agencies for implementation of the Work. Details pertaining to jurisdictional requirements governing the Work that are not specifically mentioned in the Contract Documents shall not relieve the Contractor's obligation to be in compliance with applicable requirements.

1.4 INTERPRETATION OF CONTRACT DRAWINGS AND SPECIFICATIONS

A. Should it appear that the Work to be done or any matters relative thereto are not sufficiently detailed or explained in the Contract Drawings and Specifications, upon written request, the Engineer will further explain, clarify, or interpret, as may be necessary. In the event of any questions arising with respect to pay items resulting from the Engineer's interpretation of the Contract Drawings and Specifications, the matter shall be referred to the Owner for resolution, whose decision thereon shall be final.

Contract Drawings are intended to be illustrative and may not be an exact or a complete representation of actual field conditions or the actual finished Work. For the finished Work, Contractor shall include all necessary extra material required to make each installation satisfactory and operable for its intended purpose, even though some items may not be specifically depicted on the Contract Drawings.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 13 19 - PROJECT MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Pre-Construction Meeting/Initial Conference

C. Weekly Construction Period Meetings

D. Construction Progress Reporting

E. Close-Out Meeting

F. Contact Information

1.2 RELATED SECTIONS

A. Section 01 11 13 – Work Covered by Contract Documents

1.3 PRE-CONSTRUCTION MEETING/INITIAL CONFERENCE

A. Owner will schedule and conduct one pre-construction meeting prior to the commencement of any Work at the Site. At a minimum, Contractor and all key subcontractors shall attend the meeting, which will be held at the Site. The Engineer will prepare and distribute an agenda for this Pre-Construction Meeting/Initial Conference and will also prepare the meeting summary/minutes.

B. Anticipated Agenda:

1. Distribution of Contract Documents.
2. Submission of list of subcontractors, list of products, schedule of values, progress schedule, example of weekly progress meeting agenda and minutes, and example of daily reports.
3. Designation of personnel representing parties in Contract and Engineer.
4. Procedures and processing of field decisions, Submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
5. Permits and approval status.
6. Sequence of work and schedule.
7. Health and safety requirements.
8. Use of premises by Owner and Contractor.
9. Construction facilities and controls.

10. Temporary utilities.

11. Application for payment procedures.

12. Communications.

13. Interactions with Media, Regulators and the Public.

C. Engineer will record minutes and distribute copies to participants within five (5) business days after meeting.

1.4 WEEKLY CONSTRUCTION PERIOD MEETINGS

A. On-Site representatives of the Contractor, key subcontractors and the Engineer/Consultant shall attend weekly meetings during the Work. The Contractor shall be responsible for developing the weekly meeting agenda submitted to the Owner and Engineer at least twenty-four hours prior to the meeting, which at a minimum shall include, project status, scope of work, health and safety items, outstanding issues, project implementation issues, overall schedule in Gantt format, work completed during the previous week, upcoming work for the following week, and general status of the project. These weekly meetings shall be attended by, at a minimum, the Contractor, the Contractor's SSHO, and key subcontractors.

B. Contractor shall provide the Engineer and Owner with a draft of the weekly meeting minutes by 10:00 a.m. the following work day. Owner and Engineer will review the draft and provide comments/edits to the Contractor. Contractor shall modify and distribute a final version of the meeting minutes to the Owner and Engineer prior to the subsequent weekly meeting.

1.5 CONSTRUCTION PROGRESS REPORTING

A. Contractor shall review the progress and quality of the Work on a daily basis and shall prepare and submit to Owner each day a Daily Activity Report described herein. In addition, within three (3) days from the end of each month, Contractor shall prepare and submit to Engineer and Owner a Monthly Progress Summation Form prepared based on these Daily Activity Reports. Daily Activity Reports are to be submitted to the Owner and Engineer by 10:00 a.m. the next work day.

B. At a minimum, these Daily Activity Reports shall include the following information and shall be submitted to Engineer by the end of the following workday:

1. Project name.

2. Date.

3. Author of report.

4. Weather conditions including wind, precipitation and temperature.

5. Personnel and equipment on-Site including a listing of all subcontractors and suppliers, and sign-in logs for employees, subcontractors, and visitors, including regulatory agencies and/or testing and inspection entities.

6. Documentation of daily Health and Safety briefings, daily health and safety toolbox topics and applicable Job Site Analyses, and summary of all Health and Safety monitoring data.

7. Materials and equipment delivered, utilized and/or stored on-Site, and demobilized.

8. Summary of Work performed.

9. Types of wastes, transporter, disposal facility, number of transport vehicles, and estimated quantities of waste transported off-Site for disposal/ recycling.

10. All quantities of Work performed. For those requiring subsequent measurement or survey, these quantities shall be estimated for the purposes of these reports.

1.6 CLOSE-OUT MEETING

A. Owner will schedule and conduct one project close-out meeting with the Contractor prior to the demobilization of the Contractor from the Site. Contractor and all key subcontractors shall attend.

1.7 CONTACT INFORMATION

A. Contractor shall establish and maintain contact information including email addresses and cell phone numbers for the Contractor's Project managers and Project Site superintendents. The Contractor's Project manager and Site superintendent shall have available and maintain phone, email and internet access at the Site.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Summary

B. Submittal Requirements

C. Submittal Review

D. Work Plans

E. Shop Drawing Samples

F. Test Results and Certification

G. Submittal Register

1.2 RELATED SECTIONS

A. Section 00 52 00 – General Conditions

B. Section 01 11 13 – Work Covered by Contract Documents

C. Section 01 12 19 – Contract Interface

D. Section 01 31 19 – Project Meetings

E. Section 01 35 29 – Health, Safety, and Emergency Response Procedures for Contaminated Sites

F. Section 01 35 43 – Environmental Procedures

G. Section 01 35 53 – Security Procedures

H. Section 01 50 00 – Temporary Facilities and Control

I. Section 01 55 26 – Traffic Control

J. Section 01 57 13 – Temporary Erosion and Sediment Control

K. Section 01 57 16 – Temporary Project Controls

L. Section 01 66 00 – Product Storage and Handling Requirements

M. Section 01 70 00 – Execution and Project Closeout

N. Section 01 74 00 – Final Cleaning

O. Section 01 78 00– Project Record Documents

P. Section 02 41 00 – Demolition

Q. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

R. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

S. Section 02 84 00 – Waste Management and Disposal

T. Section 31 00 00 – Earthwork

U. Section 32 31 13 – Fencing

V. Section 32 90 00 – Landscape Work

1.3 SUMMARY

A. This Section includes requirements for administrative and Work related submittals such as progress schedules, work plans, shop drawings, test results, construction photographs, waste disposal documentation, and other submittals required by the Contract Documents.

B. Contractor shall submit required materials for the Engineer's review in accordance with the Agreement and Section 00 52 00 – General Conditions. The Submittal List (Table A) includes a Schedule of Submittals that is required to be submitted following issuance of the Notice to Proceed.

1.4 SUBMITTAL REQUIREMENTS

A. Required submittals are listed in Table A - Submittal List at the end of this Section.

B. Deliver the required copies of the submittals to the Owner and Engineer within the required time frames.

C. Contractor shall submit by electronic mail, or if not possible, deliver paper copies of the required submittals to the Owner and Engineer in accordance with the following:

1. Provide a separate submittal for each Specification requiring submittals. Where multiple Specifications relate to the same system or element and are being provided from the same source, a single combined submittal is acceptable.

2. Coordinate submission of related items. Group submittals of related products in a single transmission.

3. Include all submittal material requested for each Specification.

4. Identify variations from requirements of Contract Documents. State product and system limitations which may adversely affect Work.

5. Mark or show dimensions and values in same units as specified.

D. The Engineer's and Owners review will only be for compliance with the design concept of the project and for compliance with the information given in the Contract Documents, not extending to means, methods, techniques, sequences, or procedures of construction (except where a specific means, method, technique, sequence, or procedure of construction is indicated in or required by the Contract Documents), or to standards, codes, or regulations, or to safety precautions or programs incident thereto.

E. The Contractor shall plan a submittal schedule to include an Engineer review period of five (5) days for each pre-construction submittal or revision thereof, and two days for all other submittals of revision thereof. All pre-construction submittals shall be submitted in one package. Revisions shall be submitted in redline/strikeout.

F. The Contractor must adhere to approved submittals; deviation from the approved submittals must be pre-approved by the Engineer in writing.

G. Contractor responsibilities:

1. Review submittals prior to transmittal. Verify compatibility with field conditions and dimensions, product selections and designations, quantities, and conformance of submittal with requirements of the Contract Documents. Return non-conforming submittals to the preparer for revision rather than submitting for review by the Engineer.

2. Coordinate submittals to avoid conflicts between various items of Work.

3. Submittal transmittal form: Include with each submittal a transmittal form which clearly identifies the submittal name, Specification section name and number, preparer, and date submitted. Each submittal form shall also include a unique tracking number.

4. Incomplete, improperly packaged, and submittals from sources other than Contractor will not be accepted and returned as non-compliant.

5. For each submittal, Contractor must clearly identify any proposed substitutions for materials or modifications to the procedures specified in the Contract Documents.

H. Transmittal: Where possible, transmit all submittals electronically via electronic mail. Where electronic submittal is not possible, submit 3 paper copies for Engineer review.

I. Re-submission:

1. Revise and re-submit submittals as required within five (5) days of return from initial review.

2. Make re-submittals under procedures specified for initial submittals.

3. Identify all changes made since previous submittal.

4. Re-submittals shall include the original tracking number with a letter designation such as “A” for the first re-submittal or “B” for a second re-submittal.

1.4 SUBMITTAL REVIEW

A. Engineer/Owner will review submittals for sole purpose of verifying general conformance with design intent and compliance with Contract Documents. Approval of submittal by Engineer does not relieve Contractor of responsibility for correcting errors which may exist in a submittal or from meeting the requirements of the Contract Documents.

B. Review time: Initial review will be performed within five (5) days of receipt. Engineer/Owner reserves right to withhold action on a submittal that requires review of related submittals before said submittal can be approved until related submittals are received. Additional time will be required if processing must be delayed to permit review of related subsequent submittals.

C. Review actions: After review, Engineer will return submittals marked as follows to indicate action taken:

1.Reviewed: Part of Work covered by submittal may proceed provided it complies with requirements of Contract Documents. Final acceptance will depend upon that compliance. The term Reviewed” shall only indicate that there is no exception taken to the submittal.

2. Exception Noted: Part of Work covered by submittal may proceed provided it complies with notations and corrections on submittal

and requirements of Contract Documents. Final acceptance will depend upon that compliance.

3. Revise and Resubmit: Do not proceed with part of Work covered by submittal including purchasing, fabricating, and delivering. Revise or prepare new submittal in accordance with notations and resubmit.

D. The Contractor must adhere to approved submittals; deviations from the approved submittals must be pre-approved by the Engineer in writing. After submittals have been approved by the Engineer, no re-submittal for the purpose of substituting materials or equipment will be given consideration unless accompanied by an explanation as to why a substitution is necessary.

E. Submittals processed by the Engineer/Owner do not become Contract Documents and are not to be considered Change Orders; the purpose of a submittal review is to establish a reporting procedure and is intended for the Contractor's convenience in organizing the work and to permit the Engineer to monitor the Contractor's progress and understanding of the design. Review, acceptance, or approval of submittals shall not add to the Contract amount and additional costs which may result shall be solely the obligation of the Contractor.

F. The Engineer/Owner may request submittals in addition to those listed when deemed necessary to adequately describe the work covered in the respective sections.

G. The Contractor shall direct inquiries to the Engineer/Owner regarding the procedure, purpose, or extent of any submittal if clarifications are required prior to submittal to avoid delays in approval.

H. Submittals requiring approval shall be scheduled and made prior to acquisition of the material or equipment covered thereby or before any work described is initiated. No delays, damages, or time extensions will be allowed for time lost in late submittals.

1.5 WORK PLANS

A. The Contractor shall prepare and submit an electronic copy of the required plans as listed in Table A– Submittal List to the Owner and Engineer for review within the timeframe indicated on Table A– Submittal List.

B. Work relevant to the individual plans shall not be performed until the plan has been approved by the Engineer.

C. Each section of each plan shall be indexed separately and referenced by a Table of Contents and all pages shall be numbered.

1.6 SHOP DRAWINGS AND SAMPLES

A. Shop Drawings, product data, and samples shall be submitted by the Contractor as required in individual specification sections and summarized in Table A – Submittal List included at the end of this Specification.

B. Where required by Specifications or otherwise needed, the Contractor shall prepare drawings illustrating the portion of Work for use in fabricating, interfacing with other work, and installing products. Drawings shall not be reproduced and submitted as Shop Drawings.

C. Electronic Format:

1. Size printable to: 8-1/2 by 11 inches minimum and 24 by 36 inches maximum.
2. Present in a clear and thorough manner. Title each drawing with Project name. Identify each element of drawing with reference number.

D. The Contractor's Responsibilities:

1. Review Shop Drawings, product data, and samples prior to submittal.
2. Determine and verify:
   a. Field measurements
   b. Field construction criteria
   c. Catalog numbers and similar data
   d. Conformance with Specifications
3. Coordinate each submittal with requirements of the Work and Contract Documents
4. Notify the Engineer in writing, at the time of the submittal, of deviations from requirements of Contract Documents
5. Begin no fabrication or Work requiring the submittals until return of the submittals with the Engineer's approval/comments

6. Designate in the construction progress schedule, dates for submittal and receipt of reviewed Shop Drawings and samples

E. Submittals shall contain:

1. Date of submittal and dates of previous submittals

2. Project title and number

3. Contract identification

4. Names of:

   a. The Contractor(s)

   b. Supplier

   c. Manufacturer

5. Summary of items contained in the submittal

6. Identification of the product with identification numbers, and the Drawing and Specification section numbers

7. Clearly identified field dimensions

8. Details required on the Drawings and in the Specifications

9. Manufacturer, model number, dimensions, and clearances, where applicable

10. Relation to adjacent or critical features of the Work or materials

11. Applicable standards, such as ASTM or Federal Specification numbers

12. Identification of deviations from Contract Documents

13. Identification of revisions on re-submittals

14. The Contractor's stamp, signed, certifying to review of the submittal, verification of the products, field measurements, field construction criteria, and coordination of information within the submittal with requirements of Work and Contract Documents.

F. Re-submittal Requirements:

1. Corrections or changes in submittals required by the Owner or Engineer. Re-submittals are required until all comments by the Owner or Engineer are addressed. All changes made in the re-submittal must

be documented and must also indicate any changes made other than those requested by the Owner or Engineer.

a. Revisions will be submitted in redline/strikeout for review. Final approved submittals shall be provided without redline/strikeout.

2. Shop Drawings and Product Data:

a. Revise initial drawings or data and resubmit as specified for initial submittal

b. Indicate changes made other than those requested by the Owner or Engineer

G. Distribute reproductions of Shop Drawings and copies of product data which have been accepted by the Owner to the following files:

1. Job site file

2. Record documents file

1.7 TEST RESULTS AND CERTIFICATION

A. Disposal material characterization sampling results shall be submitted along with proposed disposal/recycling facility acceptance criteria prior to transport of material off Site in accordance with Section 02 81 00 – Waste Management and Disposal.

B. Dust, odor, organic vapor, and noise/vibration monitoring results in accordance with Section 01 57 16 – Temporary Project Controls.

C. Asbestos perimeter air and work area clearance results in accordance with Section 02 82 00 – Asbestos Remediation.

D. Certification test results and certification of products shall be submitted for review so they may be included in the project record.

1.8 SUBMITTAL REGISTER

A. The Contractor shall provide a submittal register outlining required submittals as listed in Table A – Submittal List. The submittal register shall include dates of submittals and re-submittals as well as a corresponding identification number for each submittal. An updated submittal register shall be submitted with each submittal and re-submittal document.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00 - SUBMITTAL PROCEDURES
TABLE A - SUBMITTAL LIST

The following represents the list of project submittals. If additional submittals are identified in the Contract Bid Documents, they should be brought to the attention of Owner and Engineer.

Submittal	Submittal Timeframe	Reference Section(s)
Schedule of Submittals	Within five (5) days after NTP	Section 00 52 00 – General Conditions
Schedule of Values	Within five (5) days after NTP	Section 00 52 00 – General Conditions
Certificates of Insurance	Within five (5) days after NTP	Section 00 52 00 – General Conditions
Preliminary Progress Schedule	With Bid	00 21 13
Progress Schedule	Within five (5) days after NTP	Section 00 52 00 – General Conditions
Listing of Contractor Team Members	With Bid	Section 00 52 00 – General Conditions
Listing of Contractor Consultants and Subcontractors	With Bid	Section 00 52 00 – General Conditions
Health and Safety Plan	Within five (5) days after NTP	01 35 29
MassDEP Application for Non-Traditional Asbestos Abetment Work Practices Approval Application (if needed) and 10 Day Asbestos Start Work Notification	Within five (5) days after NTP	01 11 00 02 81 00

Submittal	Submittal Timeframe	Reference Section(s)
Project Work Plan that includes at a minimum the following written detailed sections: • Environmental and Decontamination Procedures • Installation of Project Controls • Traffic Control • Installation and Maintenance of Erosion and Sedimentation Controls • Hazardous Materials/Universal Waste Removal Procedures • Asbestos Removal Procedures • PCB Management Plan • Demolition Activities • Waste Management and Disposal • Excavation and Backfill Activities • Site Restoration Procedures	Within five (5) days after NTP	01 35 43 01 35 53 01 50 00 01 55 26 01 57 13 01 57 16 01 66 00 01 74 00 02 41 00 02 82 00 02 81 00 02 84 00 07 10 00 32 31 13 02 84 00 32 90 00
Identification of Hot Work	Within seven (7) days after NTP	02 41 00 02 81 00
Permits and proof of notifications	Ten (10) days prior to commencement of related work	02 41 00 02 81 00
List of Anticipated Wastes	With Bid	00 52 00
List of All Proposed Waste Haulers	With Bid	00 52 00
Names of All Proposed Disposal/Recycling Facilities	With Bid	00 52 00
Training Certificates	Prior to Work	00 52 00
Disposal Characterization Results	At least five (5) days prior to preparation of disposal profiles	02 82 00
Weekly Construction Period Meeting Agenda	At least twenty-four (24) hours prior to weekly meeting	01 31 19
Draft Meeting Minutes	10 a.m. the following Workday	01 31 19
Finalized Meeting Minutes	At least twenty-four (24) hours prior to the subsequent weekly meeting	01 31 19
Daily Activity Reports	Daily, by 10:00 a.m. the next work day	01 31 19
Documentation of regulatory inspections	10:00 a.m. the next work day	01 11 13
Safety Data Sheets	Prior to mobilization	00 52 00

Submittal	Submittal Timeframe	Reference Section(s)
Results of air monitoring	Results of direct read instruments daily. Within forty-eight (48) hours after completing monitoring activities for all other monitoring.	01 57 16
Proposed sources of materials, results of analytical and physical testing, samples of materials, certification of clean materials	At least ten (10) days prior to material delivery	31 00 00
Incident Reports	Within twenty-four (24) hours	01 35 29
Disposal Certificates	Prior to progress payments	02 41 00 02 81 00 02 82 00 02 84 00
Copy of all paperwork associated with material transport and disposal	Daily, by 10:00 a.m. the next work day	02 41 00 02 81 00 02 82 00 02 84 00
Notice of Substantial Completion of Work	When Contractor considers work substantially complete	00 52 00
As-Built Record Drawings	With Notice of Substantial Completion of Work	01 11 13 01 78 00
Closeout Submittals: 1. Evidence of compliance with requirements of governing authorities 2. As-Built Drawings 3. Project Record Documents 4. Evidence of Payment and Release of Liens 5. Certificate of Insurance for Products and Completed Operations 6. Guarantees and Warranties	Within ten (10) days of receiving request from Engineer to make closeout submittals unless otherwise agreed to by Owner	01 70 00

Notes: NTP – Notice to Proceed.

SECTION 01 35 29 – HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Description of Section

C. References and Standards

D. Health and Safety Requirements

E. Health and Safety Plan (HASP) Requirements

F. Responsibilities of the Contractor and Additional Subcontractors

G. Stop Work Authority

H. Employee Training

I. Hazard Communication

J. Site Access and Controls

K. Air Monitoring - General Requirements

L. Noise Monitoring

M. Perimeter Monitoring

N. Submittals

1.2 RELATED SECTIONS

A. Section 01 33 00 - Submittal Procedures

B. Section 01 35 43 - Environmental Procedures

C. Section 01 35 53 - Security Procedures

D. Section 01 50 00 - Temporary Facilities and Controls

E. Section 01 55 26 - Traffic Control

F. Section 01 57 13 - Temporary Erosion and Sediment Control

G. Section 02 41 00 - Demolition

H. Section 02 81 00 - Asbestos Remediation – Prepared by PMEC

I. Section 02 82 00 - Hazardous Building Materials Remediation – Prepared by PMEC

J. Section 02 84 00 - Waste Management and Disposal

K. Section 31 00 00 – Earthwork

L. Section 32 31 13 – Fencing

M. Section 32 90 00 – Landscape Work

1.3 DESCRIPTION OF SECTION

The on-Site Work will include, but is not limited to, mobilization; Site preparation; traffic control; Site security; dust, noise, odor, and vapor control; health and safety measures; implementation of temporary facilities and controls; asbestos removal; hazardous materials removal; demolition activities; on-Site processing of building materials; placement and compaction of backfill materials; off-Site waste transportation and disposal; final Site cleaning; and demobilization.

A. Contractor shall be prepared to encounter asbestos, lead, fuel oils, PCBs, and other hazardous materials and universal wastes within all the building during the work.

B. The Work covered by this Section includes furnishing all equipment, labor, materials and services to perform the operations associated with determining worker health and safety requirements, monitoring, providing worker health and safety protection for all Contractor and subcontractor personnel during the implementation of the Work.

C. This Section describes the minimum health and safety requirements and contingency measures required as part of the Work.

1.4 REFERENCES AND STANDARDS

A. Section 00 52 00 – General Conditions

B. OSHA Standards.

1. Air Contaminants - Permissible Exposure Limits; OSHA 3112; 1989.

2. General Industry Standards and Interpretations; Volumes 1 - 3- OSHA 2077; U.S. Department of Labor, Occupational Safety and Health Administration; Specifically Sections: 29 CFR 1910.1000-1050 (air contaminants), 1910.120 (Hazardous Waste Operations and Emergency

Response), 1910.1200 (Hazard Communication), 1910.301 Subpart S (Electrical), 1910.146 (Permit Required Confined Space) 1910.147 (Control of Hazardous Energy (Lockout/Tagout)), 1904 (Recordkeeping and Reporting Occupational Injuries and Illnesses), 1990 (Identification, Classification and Regulation of Potential Occupational Carcinogens), and 1926 (Safety and Health Regulations for Construction).

3. Hazardous Waste Inspections Reference Manual; U.S. Department of Labor; Occupational Safety and Health Administration; 1986.

4. OSHA Field Operations Manual; 2nd Edition; U.S. Department of Labor; Occupational Safety and Health Administration; 1987.

C. MDEP Standards for Asbestos Abatement.

1.5 HEALTH AND SAFETY REQUIREMENTS

A. The Contractor shall be responsible for monitoring working conditions and determining and providing appropriate health and safety protection for all workers engaged in the Work.

B. The Contractor shall be responsible for the development and implementation of a Site-specific Health and Safety Plan (HASP) specifying the Contractor's policies and procedures to adequately protect Site workers, on-Site personnel, Site visitors and trespassers. The HASP shall be written in compliance with applicable sections of OSHA 29 Code of Federal Regulations (CFR) 1926 and 1910. The HASP must establish in detail the protocols necessary for protecting workers, on-Site personnel, visitors and the trespassers from potential physical and chemical hazards encountered during the work.

C. The Site Safety and Health Officer (described herein) shall conduct Daily Health and Safety briefings prior to each day’s work and document completion of the briefings.

D. Site workers that are not in compliance with health and safety training requirements and medical monitoring will not be allowed to conduct Work at this Site.

E. The Contractor shall designate a Site Safety and Health Officer (SSHO), who shall be responsible in the continuous, day to day, implementation and enforcement of the HASP. The SSHO shall be assigned to the Site on a full-time basis when Work is occurring. The SSHO may be an employee of the Contractor. The SSHO shall be responsible for preparing and maintaining daily health and safety Site logs and reports. The SSHO cannot be utilized for fire watch activities. The qualifications of the SSHO shall include:

1. A minimum of one (1) year working experience at demolition and hazardous materials or waste sites where Level C PPE was required;

2. Working knowledge of applicable state and federal occupational safety and health regulations;

3. Specialized training in personal and respiratory equipment program implementation and in the proper use of air monitoring instruments, and air sampling methods and procedures;

4. Current certification in first aid and CPR by a recognized approved organization such as the American Red Cross; and

5. In addition to 40 Hour OSHA training, annual refresher training, and medical monitoring, the SSHO shall also be Supervisory trained in accordance with 29 CFR 1926.65 and 1910.120.

1.6 HEALTH AND SAFETY PLAN (HASP) REQUIREMENTS

A. The Contractor's HASP shall address all excavation, earthwork, asbestos removal, hazardous material removal, demolition, clearance procedures and other relevant general construction hazards, and shall include provisions for intended methods of sloping and shoring, as required by OSHA 29 CFR 1926.650-652.

B. The Contractor shall be responsible for all notifications to utility companies or other parties regarding any intrusive Site work in compliance with OSHA 29 CFR 1926.650-652 and all applicable local and State requirements.

C. At a minimum the HASP shall include:

1. A Site Control Plan to establish Work Zones including but not limited to the exclusion zone and contamination reduction zone on the Site, based on the Drawings and requirements specified in this Section. The Contractor shall also develop operational procedures in order to properly implement the plan.

2. Site Description and Hazard Evaluation for each element of the Work.

3. Names of key Contractor and subcontractor personnel and alternate responsible for Site safety and health (responsibilities and chain of command).

4. Safety and health hazard assessment and risk analysis for each Site task and operation, including physical, chemical and biological hazards.

5. Identification of the SSHO as well as additional key personnel and alternates responsible for Site safety.

6. Education and Training in accordance with applicable federal, State, and local regulations.

7. Personal Protective Equipment in accordance with applicable federal, state, and local regulations.

8. Medical Surveillance in accordance with applicable federal, state, and local regulations

9. Air Monitoring in accordance with applicable federal, state, and local regulations.

10. The Work Zone and Work Zone boundary dust, odor, asbestos, lead, PCBs, vapor, noise and other contaminant action levels in accordance with applicable federal, State, and local regulations.

11. Standard Operating Procedures for Engineering Controls for dust, odors, asbestos, lead, PCBs, vapors, noise, and other contaminants and work practices.

12. Standard Operating Procedures for clearance of identified and unidentified pipe, conduit, and exposed wires, present within the Limits of Work, including but not limited to identification of pipe, conduit, and exposed wire marking/tagging, and communication protocol.

13. Site Control Measures (Work Zones, Communications and Security) including a map indicating route to hospital for emergency medical care.

14. Personnel Hygiene and Decontamination.

15. Equipment Decontamination.

16. Logs, Reports and Recordkeeping.

17. Emergency Response Plan.

18. Emergency procedures for occurrences such as personal injury, fire, and exposure to toxic substances.

19. Emergency contact information for Contractor, subcontractors, fire, police, ambulance, and utility providers.

20. Contingency Measures.

D. The work zones shall be defined as follows:

1. The support zone shall be clearly delineated and shall be secured against active or passive contamination from the exclusion zone. The function of the support zone is to provide:

   a. An entry for personnel, materials and equipment to the exclusion zone of Site operations.

b. An exit area for decontaminated personnel, materials and equipment from the exclusion zone of Site operations.

c. Location for support facilities.

d. A storage area for clean work equipment.

2. The contamination reduction zone shall be located at the interface of the exclusion and support zone. The function of the contamination reduction zone is to provide:

a. An area to decontaminate personnel, equipment, and vehicles prior to entering the support zone from the exclusion zone.

b. A physical separation of the support and exclusion zones.

3. The exclusion zone shall include and encompass all areas designated for contaminated materials handling. The level of personnel protective equipment required in the exclusion zone shall be in accordance with the Contractor's approved HASP as determined by the CIH and SSHO.

4. Task-specific Job Safety Analysis (JSA) for each component of work anticipated for the Project, including but not limited to:

a. Mobilization Operations.

b. Housekeeping.

c. Fueling.

d. General Labor.

e. Utility Clearance and Identification.

f. Unloading of Equipment and Materials.

g. Critical Lift Plans for Cranes and Similar Sized Equipment

h. Traffic Control.

i. Hot Work.

j. Pipe Clearance and Identification.

k. Heavy Equipment Operation.

l. Office Trailer Site Setup.

m. Clearing and Grubbing, Including Tree Clearing.

n. Erosion and Sedimentation Controls Installation/Removal.

o. Fence Installation.

p. Decontamination.

q. Asbestos Removal.

r. Hazardous Material Removal.

s. Demolition.

t. Grading and Compacting.

u. Concrete Crushing

v. Demobilization Operations.

5. In the event a change in work scope occurs, that in the opinion of Engineer, Owner, or SSHO requires a new JSA be prepared, such Work shall not be performed until Contractor submits the JSA for review and comment by Engineer.

1.7 RESPONSIBILITIES OF THE CONTRACTOR AND ADDITIONAL SUB-CONTRACTORS

A. Minimum precautions noted in this Section shall in no way relieve individual employers from their responsibility to implement stricter health and safety precautions as warranted by the Work.

B. The SSHO shall maintain a continuous health and safety monitoring program throughout the performance of the Work. It shall be the SSHO's responsibility to notify the Contractor, Owner and the Engineer of any deviations from the health and safety monitoring program.

C. It shall be the Contractor's responsibility to notify the Engineer and Owner verbally and in writing as quickly as possible should any unforeseen safety hazard or condition become evident during the performance of the Work. In the interim, the Contractor shall take prudent action to establish and maintain safe working conditions and to safeguard workers, on-Site personnel, trespassers, and the environment in accordance with the established emergency response procedures detailed in the Contractor's HASP.

1.8 STOP WORK AUTHORITY

A. Should any unforeseen safety-related factor, hazard, or condition which poses a potential threat of physical injury or harm to Site personnel or the environment become evident during the performance of the Work, all Site personnel shall have authority as granted by OSHA regulations to issue a Stop Work directive. In addition, Engineer and Owner shall also have authority to issue a Stop Work directive upon observation of a safety-related factor, hazard, or condition of potential injury or harm to the environment.

B. If a Stop Work directive is issued, Contractor must immediately take prudent corrective action to secure the Work and provide safe conditions for Site personnel and the environment. This corrective action shall be followed by an immediate written incident report to Engineer and Owner. The incident report shall be provided as soon as possible but, at a minimum, within 24 hours of the incident. Contractor shall conduct an investigation and provide a written report incorporating results of the investigation if directed to do so by Engineer or Owner.

C. Contractor shall not charge standby time during Stop Work directives initiated by Owner or Engineer, in response to Contractor's near miss, unsafe action or reportable safety incident.

D. Should Contractor refuse to obey a Stop Work directive, Contractor shall immediately be excused from the Site.

1.9 EMPLOYEE TRAINING

A. Prior to the initiation of the Work, the Contractor and all subcontractors shall certify that all personnel assigned to perform or supervise work at the Site have received, and that new hires will receive, prior to being allowed on the Site, appropriate training in compliance with 29 CFR 1926.65/1910.120. The training for personnel working in the vicinity of environmentally impacted Site material shall consist of a minimum of forty (40) hours of health and safety training, twenty-four (24) hours of "on the job" training, and eight (8) hours of refresher training annually thereafter. All other Contractor personnel on the Site working outside of areas of known environmental impacts are required to have a minimum of twenty-four (24) hours of training in compliance with 29 CFR 1926.65/1910.120(e). In addition, the designated supervisory personnel shall have a minimum of eight (8) hours additional specialized training for managing hazardous waste operations in compliance with 29 CFR 1926.65/1910/120e.

B. Annual medical monitoring in compliance with 29 CFR 1926.65(f)/1910.120(f), is also required for personnel working in the vicinity of environmentally impacted Site material.

C. It will be the Contractor's responsibility to train its employees and to ensure that the Contractor's subcontractors are trained. The Contractor shall be responsible for ensuring that only personnel having successfully completed the required training are permitted to enter the Site. Documentation of training for all Site employees shall be maintained on the Site by the Contractor at all times.

D. The Contractor and any subcontractors shall comply with the following additional requirements; Hazard Communication, Respiratory Protection, Emergency Response procedures, Site orientation, daily toolbox meetings, weekly safety meeting, and all other training as required by other applicable regulations within 29 CFR 1926 and 1910.

1.10 HAZARD COMMUNICATION

A. The Contractor and each subcontractor must have a written Hazard Communication Program. This Program must be available on the Site at all times for review by the Owner or the Engineer.

B. The Contractor shall ensure that Safety Data Sheets (SDSs) for chemicals brought onto the Site by the Contractor and subcontractors shall be maintained within a current and comprehensive Chemical Inventory located at the Site and must be made available to the Owner or the Engineer upon request.

1.11 SITE ACCESS AND CONTROLS

A. The Contractor's HASP shall include Site access provisions which effectively limit access to active Work areas to only those persons in full compliance with the requirements of OSHA 29 CFR 1926.65/1910.120. Additionally, access into each specific Work zone shall be restricted to those employees assigned to complete the specified tasks.

B. The Contractor shall prepare Site control procedures to establish Work zones, based on the proposed work locations and the requirements specified in this Section. The HASP shall include operational procedures in order to properly implement the Site access and control provisions of the plan.

C. The Contractor shall change Work zones as necessary to support the specific Work being performed.

D. No eating, drinking, or smoking will be allowed within Work zones located in the vicinity of environmentally-impacted Site materials.

E. The Contractor shall be required to make provisions for pedestrian and other Site worker traffic control as necessary.

F. The Contractor shall maintain perimeter Site fencing during the performance of the Work to limit unauthorized access to the Site.

G. The Contractor is responsible for securing the Site and individual Work areas at the end of each shift and ensuring that all Work areas are fenced, barricaded, or secured in such a way so as to prevent unauthorized or accidental access to Work areas or tampering with equipment or materials that may result in bodily injury or a release of hazardous materials consistent with the requirements of Section 01 35 53 - Security Procedures. Contractor must limit the extent of open excavation areas within the work limits and must at a minimum protect excavations left open during non-working hours marked with orange construction fencing or yellow caution tape.

1.12 AIR MONITORING - GENERAL REQUIREMENTS

A. The Contractor shall be responsible for establishing an air monitoring program to monitor organic vapors, asbestos, PCBs, lead, odors, and dusts levels within active Work Zones and Work Zone boundaries.

B. The air monitoring program shall establish Work Zone and Work Zone boundary limits for organic vapors, asbestos, PCBs, lead, odors, dust, and other contaminants designed to be protective of worker health and safety, compliant with the applicable federal, State, and local requirements, and satisfy the Site perimeter limits within Section 01 57 16 - Temporary Project Controls.

C. The air monitoring program shall include descriptions of organic vapor, asbestos, PCBs, lead, odor, dust, and other contaminant suppression and control measures to be implemented if air monitoring results exceed the specified limits.

D. Information gathered during the air monitoring program shall be used by the Contractor to determine appropriate safety and personnel protective measures to be implemented during intrusive Work and the handling of contaminated and potentially contaminated materials and to document on-Site employee exposures. The Contractor shall use this information to implement appropriate employee hazard control measures, contingency plans, or both.

E. Action levels for the upgrading or downgrading of worker levels of protection shall be based upon information published by the American Conference of Governmental Industrial Hygienists (ACGIH), OSHA, and the United States Environmental Protection Agency (USEPA). Action levels shall be based upon established OSHA Permissible Exposure Limits, ACGIH Threshold Limit Values and ACGIH Short-Term Exposure Limits. Action levels shall be established for each work activity and each contaminant present. A table summarizing each activity, the contaminant(s) to be monitored, monitoring instruments, frequency and duration of monitoring, action levels and required response action shall be included in the HASP.

F. Direct read air monitoring results shall be cataloged and maintained by the SSHO and shall be provided to the Engineer daily. All other air monitoring results shall be provided to the Engineer within forty eight (48) hours after completing monitoring activities.

G. All required Work Zone and Work Zone boundary air monitoring equipment shall be provided by the Contractor and shall be maintained and calibrated according to OSHA and National Institute for Occupational Safety and Health (NIOSH) analytical methods or the manufacturers' instructions, or both. Calibration field checks using the appropriate reference standards shall be made on the Site at the minimum frequency of twice per shift (pre and post sampling). A daily log of all instrument readings, as well as field reference checks and calibration information must be maintained in the Contractor's record documents.

H. The SSHO shall be responsible for operating all air monitoring equipment.

1.13 NOISE MONITORING

A. Contractor shall conduct all operations so as to minimize noise consistent with OSHA 29CFR 1910.95 and local noise ordinances.

B. The Contractor shall be responsible for establishing a monitoring program to continuously monitor noise levels within active Work zones and Work zone perimeters.

C. The monitoring program shall establish Work Zone and Work Zone boundary limits for noise designed to be protective of worker health and safety, compliant with the applicable federal, State, and local requirements and ordinances, and satisfy the Limits of Work limits within Section 01 57 16 - Temporary Project Controls. In the event the OSHA limit of 85 dBA is exceeded for eight (8) hours per day or a peak level of 140 dBA is exceeded, a hearing protection program shall be implemented.

D. The monitoring program shall also include descriptions of noise suppression and control measures to be implemented if the monitoring results exceed the specified limits.

E. Owner reserves the right to suspend Work at any time, if necessary, due to noise generation causing a safety hazard.

F. Monitoring results shall be cataloged and maintained by the SSHO and shall be provided to the Engineer daily.

G. All required monitoring equipment shall be provided by the Contractor and shall be maintained and calibrated according to OSHA and NIOSH analytical methods or the manufacturers' instructions, or both. Calibration field checks using the appropriate reference standards shall be made on the Site at the minimum frequency of twice per shift (pre and post sampling). A daily log of all instrument readings, as well as field reference checks and calibration information must be maintained in the Contractor's record documents.

H. The SSHO shall be responsible for operating the monitoring equipment.

1.14 PERIMETER MONITORING

A. The Engineer or Owner may perform Limits of Work monitoring consistent with Section 01 57 16 - Temporary Project Controls. Perimeter action levels for total volatile organic compounds and particulate dust of 1 part per million (ppm) and 0.15 mg/m^3 PM_{10}, respectively will be established. In addition, no visible dust shall be permitted outside the Limits of Work.

B. In the event any of the action levels described herein or within Section 01 57 16 - Temporary Project Controls are met or exceeded, the Contractor shall immediately address the source, modifying work practices and/or implement additional

engineering controls prior to proceeding with additional work to the satisfaction of the Engineer at no additional cost to the Owner except as specified herein.

1.15 SUBMITTALS

A. Submit HASP in accordance with Section 01 33 00 - Submittal Procedures.

B. Within five (5) days of Notice to Proceed but no less than fourteen (14) days prior to commencement of field activities, Contractor shall submit the following to the Engineer:

1. Written Site-specific HASP containing all applicable requirements under 29 CFR 1910.120 and section 1.6 above. The plan shall be written to avoid misinterpretation, ambiguity, and mistakes that verbal orders cause.

2. HASP approvals by appropriate and qualified Contractor personnel for review and approval by Owner and Engineer.

3. Documentation of medical monitoring for all on-Site workers.

4. Documentation of training and applicable eight (8)-hour annual HAZWOPER refresher training and other applicable training (e.g., confined space entry) for all on-Site workers.

5. Documentation of personnel respirator qualification and fit testing.

6. Documentation must be maintained on the Site at all times by the Contractor.

C. During Work Activities:

1. All required forms and OSHA records shall be maintained on the Site by the Contractor as applicable.

D. Work Zone and Work Zone Boundary Monitoring Results:

1. Monitoring Results: Work Zone and Work Zone Boundary monitoring results shall be continuously reviewed by Contractor. Contractor shall notify the Engineer immediately of concentrations above established action levels. Contractor shall submit monitoring results via electronic files per Section 01 33 00 - Submittal Procedures.

PART 2 PRODUCTS

2.1 MATERIALS

A. The Contractor and all subcontractors shall provide on-Site personnel, when required by the Contractor's HASP, with the appropriate PPE and shall ensure that all PPE is kept clean and well maintained.

B. Minimum PPE to be worn on the Site includes hard hats, steel toed work boots, reflective safety vests, safety glasses, and standard work clothes. Additional task specific minimum PPE requirements are included in Section 02 41 00 – Demolition, Section 02 82 00 – Asbestos Remediation, and Section 02 84 00 – Hazardous Material Remediation.

C. All health and safety materials and equipment shall conform, at a minimum, to OSHA, NIOSH and American National Standards Institute standards and requirements.

D. The Contractor shall supply eyewash stations, first aid supplies and fire extinguishers for the period of the Work.

E. The Contractor shall supply any additional PPE or safety equipment for the period of construction as required by the Contractor's HASP or OSHA.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Implementation and General Requirements

B. Emergency/Contingency Planning

C. Logs, Reports, and Record Keeping

D. Decontamination

E. Incident Reporting Procedures

3.2 IMPLEMENTATION AND GENERAL REQUIREMENTS

A. It is the Contractor's responsibility to ensure compliance with the HASP by all on-Site personnel. Modifications to the Contractor's HASP shall be made by the CIH after consultation with the Engineer.

B. The Engineer and Owner may conduct quality assurance inspections and will have access to all of Contractor's project-specific health and safety records.

3.3 EMERGENCY/CONTINGENCY PLANNING

A. At a minimum, the Contractor's HASP shall include emergency procedures for occurrences such as personal injury, fire, and exposure to toxic substances. The

SSHO shall instruct all personnel, including subcontractor personnel, on the Site during the daily safety briefings concerning these safety procedures.

B. Emergency response procedures shall include employee training, alarm systems, escape routes and procedures, critical operations or equipment, rescue and medical duty assignments, designation of responsible parties, emergency reporting procedures and methods to account for all employees after evacuation.

C. Emergency contact information shall be included in the Contractor's HASP and shall be posted by the Contractor in accessible areas near the Work.

D. In the event that on-Site Work results in the accidental spill or release of oil or hazardous materials, containment to the extent possible by on-Site personnel (in proper PPE as designated by the SSHO) shall be required of the Contractor. Containment shall include the use of absorbent pads or materials, soil dikes, covering and/or diverting spills from sewers, drains, surface water bodies, etc. All Contractor personnel who perform activities involving a response to a release of hazardous substances shall be trained in compliance with the emergency response training requirements of 1926.65 and 1910.120.

E. Should any unforeseen hazardous condition that may affect the completion of this Work become evident, it shall be the SSHO's responsibility to bring such to the attention of the Contractor, Owner and the Engineer immediately both verbally and in writing. Resolution of the matter shall come through the Owner. In the interim, the CIH shall take prudent action to establish and maintain safe working conditions and to safeguard all Site personnel, the public, and the environment.

3.4 LOGS, REPORTS AND RECORD KEEPING

A. The SSHO shall maintain daily logs and reports covering the implementation of the HASP including the Air Monitoring Program and daily safety meetings. The SSHO shall provide the Contractor and Engineer with minutes of safety meetings including topics discussed and attendance sheets.

B. The Contractor shall be solely responsible for compliance with all federal laws (such as OSHA 29 CFR 1926.33/1910.1020) which require that chemical exposure records and medical records be maintained by the employer for a specified length of time after the termination of the job.

3.5 DECONTAMINATION

A. The Contractor's HASP shall specify equipment and vehicle decontamination procedures to minimize the tracking of contaminants from the Site.

B. The Contractor shall be responsible for the collection, characterization, and off-Site disposal of PPE and decontamination materials to an Owner approved facility.

3.6 INCIDENT REPORTING PROCEDURES

A. Incident Response Steps. In the event of a safety incident, including injuries and "near-misses", the SSH shall provide details of the incident to the Contractor, Engineer and the Owner as soon as possible and, at a minimum, within 2 hours of the incident. The report shall provide details regarding the following:

1. What happened?

2. Who and how many people were injured?

3. What treatment was administered?

4. What was the nature and seriousness of the injury?

5. Where did the incident occur?

6. When did the incident occur (date, time of day)?

7. Were there any witnesses?

Contractor shall conduct an investigation and at a minimum, provide a written report to the Owner within 24 hours of the incident. The investigation shall include identification of contributing factors relating to and the root cause of the incident and the corrective actions that will be taken to prevent reoccurrence. Contractor vehicle accidents occurring during the performance of work shall also be investigated and reported to the Owner and the Engineer.

B. All injuries, accidents and illnesses occurring as a result of or during on-Site work must be recorded on the Contractor's or affected subcontractor's OSHA 200 and 101 or equivalent forms. These forms shall be forwarded to the Owner and the Engineer. The Contractor shall report all injuries to the appropriate authorities, including OSHA if necessary, and the Owner and the Engineer immediately.

C. The Contractor shall make arrangements with an ambulance service, medical professionals, and hospitals for the emergency treatment of its employees prior to commencing work on the Site. The Owner and the Engineer will not furnish any emergency medical treatment.

END OF SECTION

SECTION 01 35 43 - ENVIRONMENTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. References

C. Submittals

D. Environmental Requirements

E. Protection Outside Work Limits

F. Protection of Water Resources

G. Spillages

H. Debris Disposal

I. Dust, Odor, Vapor, Vermin, and Noise/Vibration Control

J. Decontamination

1.2 RELATED SECTIONS:

A. Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites

B. Section 01 35 43.13 - Environmental Procedures for Hazardous Materials

C. Section 01 57 13 - Temporary Erosion and Sediment Control

D. Section 01 57 16 - Temporary Project Controls

E. Section 02 41 00 – Demolition

F. Section 02 81 00 - Asbestos Remediation

G. Section 02 82 00 - Hazardous Material Remediation

H. Section 02 84 00 – Waste Management and Disposal

I. Section 31 00 00 – Earthwork

J.

1.3 REFERENCES

A. Section 00 52 00 – General Conditions

1.4 SUBMITTALS

A. Contractor shall prepare a written detailed environmental procedures section for inclusion in the Project Work Plan within five (5) days of the Notice to Proceed.

B. The environmental procedures section of the Project Work Plan shall address protection of soil and water resources, debris disposal, dust control, odor and air pollution control, noise/vibration control, spill control, and decontamination to comply with all federal, State, and local regulations pertaining to water, air, and noise pollution and the Site specific permits/approvals obtained for this project by the Contractor, Owner, these Specifications, and the Drawings. At a minimum, the section shall address the following:

1. Specifications for proposed products to be used at the Site including SDSs. The Contractor shall provide to the Engineer samples or additional technical information demonstrating the effectiveness of the products proposed to implement the Project Work Plan, upon request of the Engineer.

2. The Contractor shall include elements of spill control. The information shall include, but not be limited to, a list of all potentially hazardous products (such as products brought on the Site by the Contractor such as fuel, hydraulic oil, and cleaners) and corresponding provisions to be taken to prevent accidental introduction of such materials into any waterway, the air, or the ground. This section shall also include plans for preventing polluted runoff from Work areas and equipment parking and maintenance areas from entering local water bodies as well as regulatory and Owner notification procedures in the event of a spill.

3. Erosion and sedimentation control material specifications as detailed on the Drawings and specified in Section 01 57 13 - Temporary Erosion and Sediment Control.

4. The Contractor shall detail methods for conducting daily housekeeping activities in accordance with this Section.

5. The Contractor shall detail plans for performing Decontamination activities in accordance with Section 01 35 43.13 - Environmental Procedures for Hazardous Materials. Plan shall outline the construction and locations of any additional decontamination pads, cleaning storage tanks, and wheel wash stations designed to contain decontamination sediment and cleaning fluids generated as part of the Work. Additionally, Contractor shall outline decontamination methods to be used for vehicles, personnel, process equipment and materials leaving the Site and the methods of storage, transport, and disposal for decontamination wastes. Additionally, all equipment (catalog cuts shall be provided), pad construction materials, and

cleaning materials (including all SDSs for proposed decontamination additives) shall be included in the Plan.

6. The details of dust, odor, vapor, vermin, and noise/vibration control measures and procedures to comply with the requirements described in Section 01 57 16 - Temporary Project Controls.

1.5 ENVIRONMENTAL REQUIREMENTS

A. All environmental pollution shall be prevented, abated, and controlled; environmental degradation arising from construction activities shall be minimized by complying with all permit/license conditions and requirements; applicable federal, State, and local laws; and regulations concerning environmental pollution control and abatement, as well as the specific requirements contained within these Specifications.

1.6 PROTECTION OUTSIDE WORK LIMITS

A. Areas outside the Limits of Work of this Agreement shall not be disturbed. Confine Work activities to areas defined by the Drawings. Disruption of areas beyond that specifically called for in the Contract Documents will not be permitted without the prior approval of Owner. Contractor shall not perform any unauthorized disruption of soil and/or sediment and shall be responsible for restoring such disruptions, including handling of any wastes generated there from at no additional cost to the Owner.

1.7 PROTECTION OF WATER RESOURCES

A. Waste materials shall not be discharged to surface or groundwater. The Contractor shall comply with all applicable federal, State, and local laws concerning pollution of surface and ground waters. The Contractor is responsible for proper management including treatment and discharge of any stormwater or groundwater that may be encountered during execution of the Work, regardless of when such groundwater or stormwater control is necessary.

1.8 SPILLAGES

A. Take all necessary measures to ensure that no contamination of the soil, sediments, groundwater, surface waters, or other uncontaminated areas will occur from any of the activities required to perform the Work or from equipment or materials used to perform the Work. Report all spills to the Engineer and Owner immediately. Take corrective action immediately, using approved emergency response and spill containment techniques in accordance with Section 01 35 29 – Health, Safety, and Emergency Response Procedures for Contaminated Sites and the Project Work Plan. These corrective actions shall be performed by the Contractor at no additional cost to the Owner.

1.9 DEBRIS DISPOSAL

A. Contractor is responsible for debris disposal including but not limited to foreign materials, and other surface and subsurface debris removed from within the allowable removal limits shown on the Drawings in order to facilitate the Work as well as the proper, containerization, staging, preparation of waste material for treatment/disposal, loading, transportation, and disposal of waste material. All debris shall be disposed at facilities pre-approved by the Owner.

1.10 DUST, ODOR, VAPOR, VERMIN, NOISE/VIBRATION CONTROL

A. Implement dust, odor, vapor, vermin, and noise/vibration control measures in accordance with Section 01 57 16 - Temporary Project Controls as necessary to adequately protect the public and employees of Contractor, subcontractor, Owner, and Engineer. Implement these measures as required by the Engineer-approved environmental procedures section of the Project Work Plan and consistent with Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites.

1.11 DECONTAMINATION

A. Decontaminate personnel and construction equipment in accordance with the Health and Safety Plan referenced in Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites, Section 01 35 43.13 - Environmental Procedures for Hazardous Materials, Section 02 41 00 – Demolition, Section 02 82 00 - Asbestos Remediation, and Section 02 84 00 – Hazardous Material Remediation.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Notification of Noncompliance

B. Protection of Soil Resources

C. Protection of Water Resources

D. Maintenance of Pollution Control Facilities

3.2 NOTIFICATION OF NONCOMPLIANCE

A. The Contractor will be notified by the Owner or Engineer of noncompliance with the provisions of this Section. Immediate corrective action shall be taken to be in compliance with this specification section and related sections. A notification by Owner or Engineer, delivered at the Site, shall be sufficient for the Contractor to take action, and the date and time of such notice shall be recorded in the Contractor's Daily Report. The Owner may issue an order stopping all or part of the Work for failure to comply until corrective action has been taken. No time lost due to such stop orders shall be the subject of a claim for extension of time or for costs or damages from the Owner.

3.3 PROTECTION OF SOIL RESOURCES

A. Install barriers as necessary to prevent migration of materials into or outside the Work area limits as shown in Drawings and in accordance with Section 01 57 13 - Temporary Erosion and Sediment Control.

B. Stockpiled materials shall be staged in areas approved by the Engineer or Owner and stored in a manner to prevent erosion, dust generation, etc.

C. Stockpiled materials shall be adequately protected from precipitation and surface water runoff so as to prevent saturation of the materials and contamination of the stockpiled material prior to being placed.

D. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter. Store loose granular materials on minimum 6 millimeter (mil) thickness poly-ethylene sheeting and covered with minimum 6 mil thickness poly-ethylene sheeting. Provide temporary berms as necessary to divert stormwater runoff away from stored loose granular materials.

3.4 PROTECTION OF WATER RESOURCES

A. Install barriers as necessary to prevent migration of materials into or outside the Work area limits.

B. Control the surface water runoff from the Work areas and the discharge of waters from Work areas to the surrounding land or watercourses.

C. Compliance with state water quality standards and conditions of any permits and clearances obtained for the Work is the Contractor's responsibility.

D. Except as provided in the contract, disposal of any wastes, effluents, trash, grease, chemicals, or other contaminants in waterways shall not be allowed. If any waste material is dumped in unauthorized areas, the material shall be removed and the area restored to a condition approximating the adjacent undisturbed area. Contaminated ground shall be excavated, disposed of, and the area restored to its pre-disturbed condition at no additional cost to the Owner.

3.5 MAINTENANCE OF POLLUTION CONTROL FACILITIES

A. The Contractor shall maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time that construction activities create the particular pollutant.

END OF SECTION

SECTION 01 35 53 – SECURITY PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Summary

1.2 RELATED SECTIONS

A. Section 01 33 00 - Submittal Procedures

B. Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites

C. Section 01 55 26 - Traffic Control

D. Section 32 31 13 – Fencing

1.3 SUMMARY

A. The Contractor shall be responsible for installing perimeter fencing and gates within the Limits of Work as needed to prevent and provide access to the Work. All fencing and gates are to remain at the completion of the Work.

B. The Contractor shall be responsible for maintaining and repairing/replacing damaged perimeter fencing and gates within the Limits of Work as needed for the duration of the project.

C. Contractor shall equip all gates with locks for his/her use throughout the Work. Gates shall be locked at all times or manned by Contractor personnel.

D. Work area gates shall be maintained as shown on the Drawings.

E. The Contractor shall be responsible for the removal of all contractor supplied temporary fencing around contractor parking and storage area at the completion of the project.

F. The Contractor is responsible for repairing any fencing damaged during Work activities at no additional cost to the Owner.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Maintaining Security During Site Access/Use

3.2 MAINTAINING SECURITY DURING SITE ACCESS/USE

A. Gates shall remain locked or manned by Contractor personnel at all times.

B. Contractor operations will be coordinated Owners personnel.

C. Work area gates must remain closed and locked during all non-working hours and when not is use during working hours.

1. Restrict entrance of persons and vehicles into Work areas.
2. Allow entrance only to authorized persons.
3. Maintain daily log of workers and visitors, submit to Owner daily.
4. Coordinate access with Owners requirements.

D. Truck gate must remain closed and locked during all non-working hours and closed when not is use during working hours. Contractor shall provide security personnel as required to monitor and control all entry and exist through truck gates.

1. Restrict entrance of persons and vehicles into Work areas.
2. Allow entrance only to authorized persons.
3. Maintain daily log of workers and visitors, submit to Owner daily.
4. Coordinate access with Owners requirements.

E. Protect Work areas from theft, vandalism, and unauthorized entry including locking and/or securing entryways into building.

F. Initiate an Owner approved security program at project mobilization.

G. Maintain security program throughout construction period.

H. The Contractor is responsible for all costs associated with providing the access restriction features, maintaining all features during construction and removal and disposal of temporary features at the conclusion of the Work.

I. Protect all staged waste materials from vandalism and unauthorized access.

J. Should any unforeseen, potentially Site security condition become evident during the performance of the Work, it shall be the Contractor's responsibility to bring such to the attention of the Engineer and Owner for resolution both verbally within one (1) hour and in writing within forty-eight (48) hours. In the interim, the Contractor shall implement all necessary prudent action to establish and maintain

safe working conditions and to safeguard employees, the public, and the environment.

END OF SECTION

SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Description

C. Requirements of Regulatory Agencies and Utilities

D. Construction Light and Power

E. Water Supply

F. Temporary Telephone Service

G. Internet Service

H. Temporary Sanitary Facilities

I. Signs

J. Field Office

1.2 RELATED SECTIONS

A. Section 01 33 00 - Submittal Procedures

B. Section 01 35 43 - Environmental Procedures

C. Section 01 35 53 - Security Procedures

D. Section 01 55 26 - Traffic Control

E. Section 01 57 13 - Temporary Erosion and Sediment Control

F. Section 01 57 16 - Temporary Project Controls

G. Section 01 74 23 - Final Cleaning

H. Section 02 41 00 – Demolition

I. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

J. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

K. Section 02 84 00 – Waste Management and Disposal

L. Section 31 00 00 – Earthwork

M. Section 32 31 13 – Fencing

N. Section 32 90 00 – Landscape Work

1.3 DESCRIPTION

A. Contractor shall furnish, install, and maintain all temporary facilities and utilities required for the Work and remove all temporary facilities and utilities upon completion of Work as described herein. Temporary facilities and utilities include, but are not limited to, construction light and power, water supply, telephone service, internet, sanitary facilities, storage sheds, signs, and field office.

1.4 REQUIREMENTS OF REGULATORY AGENCIES AND UTILITIES

A. Contractor shall comply with all federal, State, and local electric codes.

B. Contractor shall comply with federal, State, and local codes and regulations and with utility company requirements.

C. Contractor shall be responsible for notifying affected utility companies before starting Work and obtaining, maintaining and paying all fees and arranging all necessary inspections associated with required permits and approvals related to the Work.

1.5 CONSTRUCTION LIGHT AND POWER

A. Contractor will make the necessary arrangements to provide and maintain temporary electric which may be required for the performance of Work during the construction period. Contractor will be responsible for metering and routing power to any staging or trailer areas. All costs associated with power use will be paid for by the Contractor.

B. All required electrical work shall be performed by a licensed State of Massachusetts electrician engaged by the Contractor.

C. The Contractor may utilize generators for temporary power throughout the Work. All generators shall operate within noise limits set forth in the Specifications. Generators required to operate overnight shall be enclosed or equipped with sufficient noise reduction devises so that the generators are not audible from the Limits of Work. Generator or diesel powered lighting within building is not allowed.

D. The Contractor shall install all temporary electrical service as required. Meter, as needed to the Contractor Work areas in accordance with local, State, and federal electrical codes.

E. All wiring materials, devices, etc., installed as part of the construction light and power Work, shall be completely removed by Contractor as Work is completed and the temporary services are no longer required.

F. In the event that the Contractor utilizes artificial lighting, the Contractor shall utilize controls to prevent excessive light from impacting adjacent properties.

G. Contractor shall provide lighting to sufficiently illuminate work areas at their own discretion or as directed by the Engineer and at a minimum as required by 29 CFR 1926.56.

1.6 WATER SUPPLY

A. Contractor shall provide his own potable water in sufficient quantity and of sufficient quality for all potable needs of Owner, Engineer, and Contractor during the Work.

B. Contractor shall coordinate with Owner to use on-property hydrants located at the northeast corner of the building. The Contractor is responsible for all permits, backflow devices, and conveyance of water from service connections to Work areas. The Contractor is responsible for repair/replacement of any damage caused due to leaking connections or spills.

C. The quantity of water required for equipment and personnel decontamination, dust control, and other Site activities shall be determined by the Contractor

D. Contractor shall be responsible for removal of all temporary water supply lines and equipment at the completion of the Project.

E. Water used for the Work that is acquired by the Contractor from an off-Site source shall be at no additional cost to the Owner.

1.7 TEMPORARY TELEPHONE SERVICE

A. Contractor shall arrange for access to and use of, during working hours, one or more telephones in the vicinity of the Limits of Work for the purposes of making calls in the case of emergencies.

B. Contractor shall keep all personnel on the job, and the local jurisdiction informed of the location of such telephones. Cellular phones may be utilized provided that Contractor confirms cellular reception/operation is reliable at the Site at the start of Work. The Contractor's Project superintendent, or at least one regular member of each shift, shall be charged with the responsibility of promptly calling emergency services when necessary.

C. The Contractor shall establish and maintain an email address for the Project Manager and Project Superintendent. The Project Manager and Superintendent

shall be able to send, receive, and view emails at all times while on-Site throughout the duration of the Project.

1.8 INTERNET SERVICE

A. Contractor is to provide, maintain and pay for internet service to Contractor's field office and Owner's field office at time of Project mobilization.

B. Service shall be broadband cable, DSL, or cellular "Hot Spot" with wireless internet capabilities.

1.9 TEMPORARY SANITARY FACILITIES

A. Contractor shall provide sanitary facilities including hand wash station(s) for use by Contractor's employees, subcontractors, Owner and the Engineer, in compliance with laws and regulations.

B. Contractor shall service, clean, and maintain such facilities and enclosures, at a minimum, on a weekly basis.

C. Separate facilities for men and women shall be provided.

D. Location of temporary sanitary facilities shall be within the Limits of Work.

1.10 SIGNS

A. Individual advertising signs will not be permitted.

B. Signs needed to direct deliveries will be permitted with the approval of Owner as applicable.

C. Contractor shall furnish, erect, and maintain approved "Danger", "Warning", "Keep Out," "Construction Site, Authorized Personnel Only", "Hard Hats Required", and "Visitors Must Check In" signs at Limits of Work gate. All such signs shall be sufficiently illuminated to make them visible at all times in accordance with Section 01 35 53 - Security Procedures.

D. Contractor shall furnish all signs for traffic control as required by Section 01 55 26 - Traffic Control.

1.11 FIELD OFFICE

A. No Contractor offices are permitted within Site building unless approved by Owner.

B. Prior to commencement of construction at the Site, the Contractor shall provide and maintain watertight temporary offices of sufficient size for his own use and a separate trailer for use by the Engineer and Owner. The office shall be provided with electrical, heat, and cooling services.

C. Provide space for Project meetings, with table and chairs to accommodate up to six (6) persons.

D. Provide separate private office within trailer, similarly equipped and furnished, for use of Engineer and Owner.

E. The office trailers shall be located within Limits of work at approved locations.

PART 2 PRODUCTS

2.1 MATERIALS, GENERAL

A. Materials must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of all applicable codes and standards including requirements of the Drawings and Specifications.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Preparation

B. Removal

3.2 PREPARATION

A. Contractor shall consult with Owner prior to initiation or installation of any temporary facilities or controls.

B. Contractor shall provide a minimum of forty-eight (48) hour notice requesting a shut-down or turn-on of any Site utilities.

3.3 REMOVAL

A. Contractor shall remove temporary facilities completely and dispose of materials upon completion of the Work or as directed by Owner.

END OF SECTION

SECTION 01 55 26 - TRAFFIC CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. References

C. Summary

D. Submittals

E. Quality Assurance

F. Traffic Control

G. Required Notifications

1.2 RELATED SECTIONS

A. Section 01 33 00 - Submittals

B. Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites

C. Section 01 35 53 - Security Procedures

D. Section 01 50 00 - Temporary Facilities and Controls

E. Section 02 41 00 – Demolition

F. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

G. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

H. Section 02 84 00 – Waste Management and Disposal

I. Section 31 00 00 – Earthwork

J. Section 32 31 13 –Fencing

K. Section 32 90 00 – Landscape Work

1.3 REFERENCES

A. United States Department of Transportation. 2009, revision 2012. Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways. 2009, revised May 2012.

B. Massachusetts Department of Transportation (massDOT) Highway Division Traffic Engineering Section.

C. United States Department of Transportation (USDOT). 2009. Guidelines for Temporary Traffic Control in Work Zones, March 2009.

1.4 SUMMARY

A. Contractor shall furnish all labor, materials, equipment, tools, and services necessary to adequately safeguard the workers, Owner's employees, and public from construction hazards with minimum of inconvenience. Work includes but is not limited to the following:

1. Preparation of a traffic control specific section with details and maps for inclusion in the Project Work Plan.
2. Notification of agencies and entities having jurisdiction.
3. Establishing contractor/Owner-controlled entrance to Site at construction gate.
4. Working with Owner as needed to comply with Owner requirements for on campus traffic flow.
5. Supply, erection and removal of temporary construction and traffic control signs as required by Owner.
6. Installation and removal of temporary pavement markings and markers, traffic control devices, and pedestrian walkways and control devices.
7. Installation and removal of barriers, barricades, and other excavation protection measures.
8. Coordinating Work with utility locating services (i.e., "Dig-Safe" contacts), on-Site facility and operations personnel, and all other agencies having jurisdiction.

1.5 SUBMITTALS

A. Contractor shall prepare a traffic control specific section with details and maps for inclusion in the Project Work Plan within five (5) days of the Notice to Proceed.

B. In accordance with the requirements of Section 01 33 00 – Submittal Procedures, the Contractor shall submit a Project Work Plan with traffic control detail drawings, and other information related to traffic and pedestrian control devices including, but not limited to, planned trucking routes to and from the Site, employee parking,

delivery vehicle staging, demolition and construction activities and control of on-Site traffic, coordination of access into/out of the Site.

C. Contractor is responsible for obtaining required approvals from local, State, and/or federal officials regarding the placement of traffic control devices and signs, which may impact public and private roadways associated with the Work.

1.6 QUALITY ASSURANCE

A. Contractor shall be responsible for the continuous maintenance of all traffic control devices as specified by the Project Work Plan. Contractor shall conduct surveillance operations periodically each calendar day sufficient to assure himself and Engineer that the devices are reasonably and adequately maintained in accordance with local, State, and federal requirements.

1.7 TRAFFIC CONTROL

A. Contractor shall submit traffic control details for review and written approval by the Owner and Engineer. The Owner and Engineer reserve the right to observe the traffic control details in use and to make any changes as field conditions warrant. Changes to the Project Work Plan required by the Owner and Engineer shall be performed by the Contractor at no additional cost to the Owner.

B. No Work or temporary staging of construction and/or transport vehicles will be allowed outside the Limits of Work or designated contractor staging areas.

1.8 REQUIRED NOTIFICATIONS

A. Contractor shall conduct notifications in accordance with all regulations and as directed by the Engineer. Contractor shall provide documentation of all notifications to the Engineer.

B. Contractor shall notify Owner of all operations that may impact Owner’s on-Site activities and access routes.

PART 2 PRODUCTS

2.1 SECTION INCLUDES

A. Traffic Control Devices

2.2 TRAFFIC CONTROL DEVICES

A. All traffic control devices shall conform to the requirements of local ordinances and national standards in the MUTCD. These devices include, but are not limited to, flag units, police details, construction signs, channelizing devices, barricades, delineators, and lighting devices. All signs conveying messages during darkness

shall use reflectors or be illuminated. No signs or supports shall bear any commercial advertising.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Access to Adjacent Properties and On-Site Facilities

B. Traffic Coordination with Site Personnel and/or Other Contractors

C. Construction Parking Control

D. Trucking Routes

E. Pedestrian Safety

F. Truck Idling Requirements

3.2 ACCESS TO ADJACENT PROPERTIES AND ON-SITE FACILITIES

A. Contractor shall maintain access to adjacent properties and on-Site facilities located outside the Limits of Work at all times unless approved by Owner and Engineer.

B. Provide and maintain access to on-Site equipment, materials, and appurtenances outside the Limits of Work free of obstructions.

3.3 TRAFFIC COORDINATION WITH SITE PERSONNEL AND/OR OTHER CONTRACTORS

A. Contractor shall coordinate the traffic routing Work with that of Site personnel and other Work crews in the same or adjacent areas. Contractor shall coordinate the construction traffic routes with the daily operations of the Owner and adjacent properties in the vicinity of the Site. The Contractor shall provide detours as necessary for unimpeded traffic flow.

3.4 CONSTRUCTION PARKING CONTROL

A. Parking for personal vehicles driven by his employees, subcontractors, and visitors will be located in rear parking adjacent to the Maintenance Facility as shown on Drawings.

B. Construction equipment not actively engaged in the Work and employee vehicles shall not be parked in the vicinity of the Work in such a manner as to further restrict or obstruct traffic flow.

3.5 TRUCKING ROUTES

A. Contractor shall develop a trucking route for all trucks accessing the Site for deliveries to the Site and transportation of supplies, equipment, materials, and other miscellaneous items from the Site. On-Site traffic flow shall be as shown on contract Drawings. Trucking routes to and from the Site shall be approved by the Owner and Engineer prior to mobilization to the Site. The Contractor shall be responsible for obtaining approval as necessary from the Town of Holliston and other agencies as required for established truck routes.

3.6 PEDESTRIAN SAFETY

A. Contractor shall maintain safe and adequate pedestrian zones including walkways and control devices.

3.7 TRUCK IDLING REQUIREMENTS

A. Contractor shall comply with Massachusetts General Law Chapter 90, Section 16A and 16B and Massachusetts Department of Environmental Protection Idling Reduction Regulation 310 CMR 7.11(1)(b) and 510 CMR 27.01-27.07.

B. No person shall operate the engine of a motor vehicle while said vehicle is stopped for a foreseeable period of time in excess of five (5) minutes. This regulation shall not apply to:

1. Vehicles being serviced, provided that operation of the engine is essential to the proper maintenance for repair thereof.

2. Vehicles engaged in the delivery or acceptance of goods, wares, or merchandise, for which engine-assisted power is necessary and substitute alternate means cannot be made available.

3. Vehicles engaged in an operation for which the engine power is necessary for an associated power need other than movement and substitute alternate power means cannot be made available, provided that such operation does not cause or contribute to a condition of air pollution.

END OF SECTION

SECTION 01 57 13 – TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. References

C. Description

D. Submittals

1.2 RELATED SECTIONS

A. Section 01 11 00 - Summary of Work

B. Section 01 35 43 - Environmental Procedures

C. Section 01 50 00 - Temporary Facilities and Controls

D. Section 01 74 00 - Final Cleaning

E. Section 02 41 00 – Demolition

F. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

G. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

H. Section 02 84 00 – Waste Management and Disposal

I. Section 31 00 00 – Earthwork

1.3 REFERENCES

A. Section 00 70 00 – Standard Conditions and Agreement between the Owner and the Contractor.

B. NPDES General Permit for Stormwater Discharge from Construction Site Activities as modified on April 30, 2014

C. Massachusetts Department of Transportation, Drainage and Erosion Control, Chapter 8.

D. EPA – Office of Water, Storm Water Management for Construction Activities, September 1992.

1.4 DESCRIPTION

A. Contractor shall furnish all labor, materials, tools, supervision, transportation, equipment, and incidentals required to install, inspect, maintain, repair, and replace erosion prevention and sediment control measures as specified herein, as shown on the Drawings, and as necessary to complete the Work.

B. Contractor shall install and maintain a stabilized construction entrance as shown on the Drawings to prevent the off-Site migration of sediments and soil.

C. All work performed by the Contractor shall be consistent with the requirements of the permits and approvals necessary to complete the Work.

D. Temporary erosion and sedimentation control measures include, but are not limited to, berms, straw bales, silt sacks, stockpile covering, filter bags, and other applicable Best Management Practices (BMPs) approved by the Engineer and Owner.

E. Contractor is responsible for inspecting temporary erosion and sedimentation control measures at least once per week and 24 hours after rain events greater than 0.25 inches in intensity. The results of these inspections shall be documented in the Contractor's Daily Activity Reports. Any deficiencies identified during these inspections shall be addressed immediately by the Contractor at no additional cost to the Owner.

F. If required, the Contractor will prepare a Construction Storm Water Pollution Prevention Plans (SWPPP) and make Notice of Intent (NOI) prior to slab removal. Contractor shall be responsible for complying with all requirements and conditions within permits and plans.

G. Contractor is responsible for the removal and disposal of all temporary erosion and sedimentation control measures upon completion of the Work or as directed by the Engineer at an Owner approved disposal facility.

1.5 SUBMITTALS

A. Contractor shall include the details of erosion and sedimentation control measures including material specifications/cut sheets specified in this Section as part of the Project Work Plan specified under Section 01 33 00 – Submittal Procedures.

B. No demolition, earth disturbing activities, or removal activities, material delivery, or clearing shall be performed prior to installation of the erosion and sedimentation control measures consistent with the Engineer-approved Project Work Plan.

PART 2 PRODUCTS

2.1 SECTION INCLUDES

A. Berms

B. Silt Sacks

C. Polyethylene Sheeting

D. Bales

E. Silt Fence

2.2 BERMS

A. Berms may be used to collect or re-direct stormwater runoff away from Work areas. Commercially available berms may be used. Berms may be soil berms with clean imported soil; however, the soil berms shall be lined with 6-mil polyethylene plastic sheeting to prevent contaminating the soil with potentially impacted runoff.

2.3 SILT SACKS

A. Silt Sacks shall be manufactured from woven polypropylene geotextile and sewn by a double needle thread machine using a high strength nylon thread.

B. Silt Sacks shall have the following minimum properties:

PROPERTIES	**TEST METHOD**	**UNITS**	**SPECIFIED VALUE**
Grab Tensile	ASTM D4632	Lbs.	315
Grab Elongation	ASTM D4632	%	15
Puncture	ASTM D4833	Lbs.	140
Mullen Burst	ASTM D3786	psi	800
Trapezoid Tear	ASTM D4533	Lbs.	125 x 150
Permittivity	ASTM D4491	sec^{-1}	0.70

C. Silt Sacks shall consist of a Series I, Regular Flow Type C, Silt Sack manufactured by ACF Environmental of Richmond, Virginia or an Engineer-approved equivalent.

2.4 POLYETHYLENE SHEETING

A. Polyethylene sheeting utilized to cover stockpiles shall be, at minimum, 6-mil polyethylene sheeting.

2.5 BALES

A. Straw Bales shall be baled within 12-months of use and the minimum dimension of any bale shall be 18 inches. Each bale shall be bound with a minimum of two strips of nylon bale twine or wire. Twine or wire shall be sufficiently strong to act as handles when placing in position by hand.

B. The bale shall have a minimum weight of 60 pounds and shall be composed entirely of vegetative matter.

C. Stakes for anchoring bales in landscaped areas shall be a minimum of 36 inches long and made either from hardwood with dimensions of at least 1.5-inches square or steel posts with a minimum weight of 0.5 pounds per linear foot.

2.6 SILT FENCE

A. Silt Fence shall be a pervious sheet of polypropylene, nylon, polyester, ethylene or similar filament and shall be non-rotting and acid and alkali resistant.

B. Posts shall be a minimum of 42-inches long and made of either hardwood stakes with minimum dimensions of 1.5-inches square or steel posts with projections for fastening.

C. Silt Fence shall meet the following requirements:

PROPERTY	**TEST METHOD**	**MINIMUM VALUE**
Apparent Opening Size	ASTM D4751	Less than 0.9 mm and greater than 0.6 mm
Permittivity	ASTM D4491	0.05 sec-1
Grab Tensile Strength	ASTM D4632	100 lbs.
U.V. Stability	ASTM D4355	70% after 500 hours of exposure

2.7 FILTER BAGS

A. Filter Bags shall be made from non-woven geotextile material sewn with high strength double stitched “J” type seams.

B. Filter Bags shall be capable of trapping sediments with a micron size larger than 150 microns.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Bale Installation

B. Silt Fence and Bale Installation

C. Silt Sack Installation

D. Filter Bag Installation

E. Stockpile Covering

F. Construction of Stabilized Construction Entrance

G. Provisions for Erosion Control During Construction

3.2 BALE INSTALLATION

A. Bales shall be installed in the existing paved areas shown on the Drawings.

B. Within the existing paved areas:

1. Bales shall be installed in a single row with ends tightly abutting and the bindings oriented around the sides.

2. A layer of burlap shall be installed beneath the entire footprint of each Bale.

3.3 SILT FENCE AND BALE INSTALLATION

A. Silt Fence and Bales shall be installed in the existing landscaped areas shown on the Drawings.

B. Silt Fence and Bales shall be installed within a minimum 4-inch deep trench with the Silt Fence directly upgradient of the protected area.

C. Posts for the Silt Fence shall be driven to a minimum of 12-inches below the ground surface. Posts shall not be installed more than 10 feet apart. Silt Fence shall be secured the posts per the manufacturer's instructions.

D. The bottom flap of the Silt Fence shall extend under the Bale.

E. Where two ends of a Silt Fence join, the ends shall be overlapped a minimum of 12 inches.

F. Bales shall be installed within the same trench and immediately upgradient of the Silt Fence. Bales shall be installed in a single row with ends tightly abutting and the bindings oriented around the sides

G. Each Bale shall be secured with two stakes driven a minimum of 18-inch below grade.

H. Backfill the upgradient side of the Bales with the excavated material generated during excavation of the trench. Backfill shall be hand tamped or machine compacted.

3.4 SILT SACK INSTALLATION

A. Silt Sacks shall be installed by removing the catch basin grate and placing the sack in the opening. Approximately six (6) inches of the sack shall be held outside the frame. Replace the grate to hold the sack in place.

B. Silt Sacks shall be removed by placing two (2) pieces of one-inch diameter rebar through the lifting loops on each side of the sack to facilitate lifting of the sack.

C. Silt sack shall be emptied by placing the unit where the contents will be collected. Place the rebar through the lift straps (connected to the bottom of the sack) and lifting. After the contents have been emptied the sack shall be rinsed and placed back in the basin.

3.5 STOCKPILE COVERING

A. All material stockpiles shall be covered at the end of the work day with a layer of polyethylene sheeting weighted down with sand bags or equivalent to the satisfaction of the Engineer.

3.6 CONSTRUCTION OF STABILIZED CONSTRUCTION ENTRANCE

A. Contractor shall provide all equipment, materials, and labor to construct a stabilized construction entrance at the Grove Street gate as shown on the Drawings prior to disturbance of Site materials.

B. Contractor shall be responsible for inspecting, maintaining, and repairing the stabilized construction entrance at no additional cost to the Owner.

3.7 PROVISIONS FOR EROSION CONTROL DURING CONSTRUCTION

A. Contractor shall implement and maintain the minimum erosion and sedimentation control measures specified herein and shown on the Drawings. The Engineer shall periodically observe and inspect erosion and sedimentation control structures to confirm that the Contractor is maintaining these features. All observed deficiencies shall be corrected by the Contractor within one day.

B. No demolition or earth disturbing activities, material deliveries, or clearing shall be allowed prior to the installation of erosion and control measures to the satisfaction of the Engineer and Owner.

C. Contractor shall take sufficient precautions during construction to prevent the runoff of polluting substances such as silt, clay, wastes, fuels, and oils into the surface waters of the State of Massachusetts. Storm water catch basins or drains

shall be protected from materials runoff. Contractor shall install Silt Sacks within each catch basin in the vicinity of any work areas in accordance with the manufacturer's recommendations, should catch basins be encountered during Work. Contractor shall use all BMPs necessary to protect these inlets from sediment and debris if encountered.

D. Accumulated non-contaminated storm water shall be handled at a location approved by the Engineer and Owner.

E. Erosion and sediment control features shall be maintained by the Contractor in the locations shown on the Drawings at all times until completion of the Work or as otherwise approved by the Engineer.

F. Accumulated silt and debris shall be removed and managed by the Contractor from behind the face of the erosion and sedimentation control measures or other BMPs as needed to maintain BMP effectiveness and properly handled and disposed of by the Contractor. Clogged or damaged BMPs shall be replaced immediately.

G. Contractor shall inspect erosion control measures at least weekly and within 24 hours after a rainfall of 0.25 inches or more. The Contractor shall immediately repair any damaged or failed erosion control measures. The Contractor shall document these inspections and maintenance/repair activities in their Daily Activity Reports as outlined in Section 01 33 00 – Submittal Procedures.

H. Care shall be taken not to place removed sediments within the path of existing, newly created, or proposed areas that are or may be subjected to storm water flow.

I. All disturbed areas that are subject to erosion, either newly filled or excavated shall be protected.

J. Additional sediment control measures shall be placed as conditions warrant or as directed by the Engineer or local or State environmental officials.

K. The Contractor shall remove and dispose of the erosion and sedimentation controls after completion of the Work or as directed by the Owner. Upon removal, any trenches created during the installation of the erosion and control measures shall be backfilled to match the surrounding ground surface and restored in accordance with the Restoration Plan.

END OF SECTION

SECTION 01 57 16 – TEMPORARY PROJECT CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. References and Standards

C. Submittals

D. Dust Control

E. Odor and Vapor Control

F. Vermin Control

G. Noise/Vibration Control

H. Dust, Odor, Vapor, Vermin, and Noise Monitoring

I. Site Perimeter Limits

1.2 RELATED SECTIONS

A. Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites

B. Section 01 35 43 - Environmental Procedures

C. Section 01 50 00 - Temporary Facilities and Controls

D. Section 01 57 13 - Temporary Erosion and Sediment Control

E. Section 02 41 00 – Demolition

F. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

G. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

H. Section 02 84 00 – Waste Management and Disposal

I. Section 31 00 00 – Earthwork

J. Section 32 31 00 – Fencing

K. Section 32 90 00 – Landscape Work

1.3 REFERENCES AND STANDARDS

A. Section 00 52 00 – General Conditions

B. OSHA Regulations – Part 1910.95

C. OSHA Regulations – Part 1910.1000 Table Z-1

D. Local Regulatory Noise Ordinance

E. Contractor's HASP

1.4 SUBMITTALS

A. Contractor shall include the elements of dust, odor, vapor, noise and vibration controls specified in this Section as part of the Project Work Plan specified under Section 01 33 00 – Submittal Procedures.

1.5 DUST CONTROL

A. Contractor shall conduct all operations in accordance with Section 00 52 00 – General Conditions.

B. Dust control measures shall be employed to mitigate the release of visible airborne particulate matter and/or fugitive dust beyond the Limits of Work generated from general Site work, construction, abatement, and demolition activities. Fugitive dust at the Limits of Work shall not exceed 0.150 milligrams per cubic meter (mg/m^3). Dust control measures shall also be implemented in accordance with the perimeter Limits of Work action levels and Work zone limits set forth in the Contractor's HASP as outlined in Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites.

C. Dust generation during asbestos, PCB, hazardous material, demolition, or construction Work shall not exceed local, State, or federal air quality regulations or specific contaminate limits as outlined in the Contractor's HASP as outlined in Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites.

D. Work surface and vehicle control measures shall be employed to prevent caked mud/sediment and debris from being transported off-Site during transportation activities, vehicle movement, and equipment demobilization. Contractor is responsible for road sweeping and Work stoppage as necessary to maintain facility and public roadways affected by construction activities.

E. In the event that it becomes necessary, in the opinion of Engineer/Owner or the SSHO to provide additional measures to control the release of dust, Contractor shall implement such measures immediately, at no additional cost to the Owner.

F. Contractor is responsible for the implementation of dust control measures required to comply with Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites; Section 02 41 00 - Demolition; Section 02 81 00 – Waste Management and Disposal; Section 02 82 00 - Asbestos Remediation; Section 02 84 00 - Hazardous Materials Remediation; and Section 31 00 00 - Earthwork.

G. Owner reserves the right to suspend Work at any time, if necessary, due to dust generation which causes a safety or an air quality problem or which may cause contamination of adjacent areas. Contractor shall not be entitled to any additional compensation for suspension of Work under such conditions.

H. Visible particulate dust shall not be permitted to leave the Limits of Work.

1.6 ODOR AND VAPOR CONTROL

A. Contractor shall conduct all operations and maintain the Work area so as to minimize and suppress objectionable odors and the potential for organic vapors associated with the Work consistent with all local, State, and federal regulations.

B. Based on the Contractor's Work Zone and Work Zone boundary monitoring and the Engineer's Site perimeter monitoring results, Contractor shall implement measures to suppress organic vapor concentrations and/or odors that may be present. Acceptable measures include covering stockpiles with polyethylene sheeting and backfilling open excavations.

C. Owner and/or Engineer reserve the right to suspend Work at any time in the event the Contractor's operations result in organic vapors or objectionable odors which are deemed to cause a potential safety and/or air quality issue. Contractor shall not be entitled to any additional compensation for suspension of Work under such conditions.

1.7 VERMIN CONTROL

A. The Contractor is responsible for exterminating and/or eliminating vermin and animal harborage within the Limits of Work prior to the start of abatement and demolition activities.

B. The Contractor shall obtain vermin control sign-offs and/or inspections as needed for acquisition of the demolition permit.

C. The Contractor shall set and maintain vermin traps as needed around the perimeter of the Limits of Work throughout abatement and demolition activities to prevent the migration of vermin outside the Limits of Work.

1.8 NOISE/VIBRATION CONTROL

A. Contractor shall conduct all operations so as to minimize noise and vibrations. All Work shall be performed consistent with OSHA 29CFR 1910.95 and applicable local, state and federal ordinances, rules and regulations.

B. The Contractor is responsible for preventing damage to adjacent structures and utilities resulting from vibrations.

C. Contractor is responsible for limiting vibrations at adjacent structures through the utilization of specific Work practices or vibration controls.

D. Contractor shall modify Work practices or install appropriate vibration controls to limit vibrations. Contractor will be required to stop Work immediately and modify operations if vibrations of 1.0 ips or greater occur at monitoring locations that may be established by the Owner. Vibration-causing Work will not be allowed to resume without approval of modified procedures from the Engineer.

E. Vibration controls may include, but are not limited to the utilization of blast mats or sand aprons around the perimeter of the building to limit the impact of falling demolition debris.

F. Owner reserves the right to suspend Work at any time due to noise generation causing a safety or excessive vibration hazard. If noise levels exceed a peak level of 85 A-weighted decibels (dBA) at the Limits of Work, the Work will be halted and the Contractor shall be responsible for implementing measures to reduce noise levels below these thresholds.

G. To the extent practicable, all equipment utilized at the Site shall be equipped with appropriate noise reduction devices.

H. Contractor is responsible for modifying operations as required in the event of neighborhood noise or vibration complaints.

1.9 DUST, ODOR, VAPOR, VERMIN, AND NOISE MONITORING

A. Contractor shall be responsible for continuous monitoring of active Work zones and Work zone boundaries for dust, odor, vapors, vermin, and noise.

B. Contractor shall perform all required Work Zone and Work Zone boundary monitoring consistent with the Specifications and the Site-specific HASP.

C. The Contractor’s HASP shall establish Work Zone and Work Zone boundary limits for dust, odors, vapors, and noise designed to be protective of worker health and safety, compliant with applicable federal, State, and local requirements, and satisfy the Limits of Work limits described herein at all times.

1.10 SITE PERIMETER LIMITS

A. The Engineer may perform certain monitoring along the Limits of Work during the performance of the Work. In the event any of the following limits are exceeded, the Engineer will alert the Contractor and the SSHO and the Contractor shall immediately implement appropriate engineered controls such that acceptable levels are achieved and/or stop Work at no additional cost to the Owner.

1. Dust

   a. Instantaneous particulate dust levels in excess of 0.150 mg/m^3 at the Limits of Work shall not be allowed.

   b. No visible dust at the Limits of Work will be allowed.

2. Odor

   a. No objectionable odors resulting from the Work shall be allowed at the Limits of Work.

3. Organic Vapor

   a. Organic vapors, as measured using a photoionization detector, in excess of 1 part per million (ppm) above background levels at the Limits of Work will not be allowed.

4. Vermin

   a. Vermin shall not be allowed to migrate outside the Limits of Work.

5. Noise

   a. Noise levels that are above 85 dBA at the Limits of Work shall not be allowed.

B. The Engineer may perform vibration monitoring along the Limits of Work, within adjacent buildings during the performance of the Work. In the event any of the following limits are exceeded, the Engineer will alert the Contractor and the SSHO and the Contractor shall immediately implement appropriate engineered controls such that acceptable levels are achieved and/or stop Work at no additional cost to the Owner.

1. Threshold and Limiting Values as measured by a seismograph are outlined in the following table.

Threshold Value	Limiting Value
Peak Particle Velocity:	Peak Particle Velocity:
0.5 inches per second less than 30 hertz	1.0 inches per second less than 30 hertz
0.5 inches per second greater than 60 hertz	1.0 inches per second greater than 60 hertz

2. If a Threshold Value is exceeded, the Contractor shall be immediately notified and shall be responsible for implementing appropriate response actions.

3. If a Limiting Value is exceeded, the Contractor shall be immediately notified and shall immediately stop Work in the area. Contractor shall be responsible for modifying his procedures to as not to exceed Limiting Values.

C. Contractor shall perform adequate control of dust, odor, vapor, and noise/vibration during his/her Work at all times to achieve these perimeter limits.

D. Contractor's Work zone and Work zone perimeter monitoring program shall be designed to meet these Site perimeter limits.

PART 2 PRODUCTS

2.1 SECTION INCLUDES

A. Dust Meter

B. Organic Vapor Meter

C. Noise Dosimeter

D. Plastic Sheeting

2.2 DUST METER

A. Dust meter shall consist of a real time aerosol monitor with data logging capabilities and a range of 0.001 to 400 mg/m^3.

B. Dust meter shall be a Model pDR-1000AN Personal DataRAM™ manufactured by Thermo Scientific or Engineer-approved equivalent.

2.3 ORGANIC VAPOR METER

A. Organic Vapor Meter shall consist of a hand held photoionization detector (PID) equipped with a 10.6 eV lamp and a range of 0 to 15,000 ppm.

B. Organic Vapor Meter shall be a MiniRAE 3000 PID manufactured by RAE Systems or Engineer-approved equivalent.

2.4 NOISE DOSIMETER

A. Noise Dosimeter shall have a range of 70 to 140 decibels with data logging capabilities.

B. Noise Dosimeter shall be an Edge 4 (model #eg4) Noise Dosimeter manufactured by Quest Technologies or Engineer-approved equivalent.

2.5 PLASTIC SHEETING

A. Sheeting shall be strong, durable, impermeable, flexible six (6) mil minimum thickness polyethylene sheeting or other Owner/Engineer-approved material meeting the established criteria in ASTM D4397.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Dust Monitoring and Control

B. Odor and Organic Vapor Monitoring and Control

C. Vermin Monitoring

D. Noise/Vibration Monitoring and Control

E. Plastic Sheeting

3.2 DUST MONITORING AND CONTROL

A. Real time total dust monitoring shall be conducted by the Contractor within Work areas and at the perimeter of Work areas as outlined in the HASP and as may be required by OSHA regulations during certain work activities utilizing a particulate meter capable of monitoring instantaneous particulate levels in air as well as time weighted average.

B. Airborne monitoring for asbestos, lead, PCBs, Silica and other hazardous material removal Work shall be conducted by Contractor within the Work zone as outlined in Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites, the Site-specific HASP, and as may be required by OSHA regulations during certain work activities. At a minimum, monitoring shall be completed to establish baseline airborne concentrations at the start of each unique task and/or Work procedure for the contaminants of concern.

C. The Contractor shall utilize fine water sprays to control dust on material stockpiles or use other means appropriate in freezing conditions.

D. The Contractor shall utilize mechanical sweepers on paved surfaces where necessary to prevent dust/soil build-up.

E. In the event that it becomes necessary in the opinion of Engineer or Owner to provide additional measures to control the release of dust, Contractor shall implement such measures immediately at no additional cost to the Owner.

F. Owner reserves the right to suspend work at any time, if necessary, due to dust generation which causes a safety concern or which may cause contamination of adjacent areas. Contractor shall not be entitled to any additional compensation for suspension of work under such conditions.

G. Each working day, furnish to Engineer a daily report presenting the results of the previous day's dust monitoring.

H. This dust monitoring is not intended to be a substitute for any worker exposure monitoring which Contractor may deem necessary for the protection of his work force.

3.3 ODOR AND ORGANIC VAPOR MONITORING AND CONTROL

A. Contractor shall collect background organic vapor level data prior to beginning Work using an Organic Vapor Meter (OVM) equipped with a 10.6 eV lamp. The OVM shall be calibrated in accordance with the manufacturer’s recommendations by the Contractor. The background readings shall be collected at locations approved by the Engineer.

B. Real-time total organic vapor monitoring shall be performed by the Contractor daily within the Work Zone in accordance with the HASP and as requested by Engineer.

C. This monitoring is not intended to be a substitute for any additional worker exposure monitoring which Contractor may deem necessary for the protection of the work force.

D. The Engineer will conduct Site perimeter monitoring as described herein.

E. When odors are noted at the perimeter of the Limits of Work or when directed by the Engineer, Contractor shall halt Work and implement odor and organic vapor control measures. Acceptable control measures shall include, but are not limited to, covering stockpiles or open excavations with polyethylene sheeting and/or backfilling open excavations.

F. Contractor shall implement odor control procedures to suppress organic vapor concentrations or objectionable odors in the work area or at the Engineer’s request. In the event that it becomes necessary, in the opinion of Engineer, to provide additional measures to suppress organic vapor concentrations, Contractor shall implement such measures (i.e., engineering controls, backfilling open areas, etc.) immediately, at no additional cost to Owner.

G. Contractor shall conduct all operations and maintain the Work Zones per Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites so as to minimize and suppress organic vapors and objectionable odors associated with the Work activities through the use of physical barriers.

H. Each working day, furnish the Engineer a daily report presenting the results of the previous day's organic vapor monitoring results.

I. Owner and/or Engineer reserve the right to suspend work at any time, if necessary, due to organic vapors or objectionable odors which cause a safety or air quality problem. Contractor shall not be entitled to any additional compensation for suspension of work under such conditions.

3.4 VERMIN MONITORING

A. Engineer may conduct vermin monitoring during abatement and demolition activities to confirm that vermin and animals are not harboring within Site buildings. The Contractor is responsible for preventing nuisance conditions resulting from vermin and animal harborage within the Limits of Work.

3.5 NOISE/VIBRATION MONITORING AND CONTROL

A. The Contractor is responsible for preventing damage to adjacent structures and utilities resulting from vibrations. In the event that damage to adjacent structures and/or utilities resulting from vibration due to Contractor activities, the Contractor shall promptly repair structures to conditions similar to those existing prior to the start of construction operations at no additional cost to the Owner. All repair work shall be subject to review by the Engineer to determine acceptability of repairs. The Engineer may conduct vibration monitoring as necessary prior to and during operations to confirm that vibrations do not exceed tolerable limits as described in this Section.

B. The Contractor shall monitor and record background noise prior to start of work activities utilizing a noise dosimeter.

C. The Contractor shall monitor and record noise continuously within the immediate vicinity of the work area. Noise monitoring shall be performed during heavy work activities and at the direction of the Engineer. The Engineer reserves the right to monitor simultaneously and as necessary. Noise levels shall not exceed the levels specified in the Contractor's HASP without implementation of a hearing protection program.

D. Each working day, furnish to the Engineer a daily report presenting the results of the previous day's noise monitoring.

E. The Owner reserves the right to suspend Work at any time, if necessary, due to noise generation causing a safety or excessive vibration hazard. If noise levels exceed a peak level of 85 dBA at the Limits of Work, the Work will be halted and the Contractor shall be responsible for implementing measures to reduce noise levels below these thresholds.

F. To the extent practicable, all equipment utilized at the Site shall be equipped with appropriate noise reduction devices.

G. The Contractor is responsible for modifying operations as required in the event of neighborhood noise or vibration complaints.

H. Acceptable noise/vibration control measures include limiting the amount of equipment in operation at any given time and sequencing the work in a manner to avoid the generation of excessive noise and vibration levels.

3.6 PLASTIC SHEETING

A. If during Work, sheeting becomes torn or punctured, Contractor shall immediately repair or replace damaged sheeting or covering at no additional cost to the Owner. Contractor shall be responsible for inspecting sheeting or covering at least once per day to check if repair is needed.

END OF SECTION

SECTION 01 66 00 – PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Transportation and Handling

C. Storage and Protection

1.2 RELATED SECTIONS

A. Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites

B. Section 01 35 43 - Environmental Procedures

C. Section 01 35 53 - Security Procedures

D. Section 01 50 00 - Temporary Facilities and Controls

E. Section 01 55 26 - Traffic Control

F. Section 01 57 13 - Temporary Erosion and Sediment Control

G. Section 01 57 16 - Temporary Project Controls

H. Section 02 41 00 - Demolition

I. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

J. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

K. Section 02 84 00 – Waste Management and Disposal

L. Section 31 00 00 - Earthwork

M. Section 32 31 13 – Fencing

N. Section 32 90 00 – Landscape Work

1.3 TRANSPORTATION AND HANDLING

A. Contractor shall be responsible for delivery to and/or return from the Site of all materials and equipment necessary to perform the Work and shall pay all freight and handling charges for same.

B. All unloading, storing and reloading necessary shall be the responsibility of the Contractor and shall be at the Contractor's expense.

1.4 STORAGE AND PROTECTION

A. All materials delivered to and used on the Site shall be suitably housed and protected. The areas to be used for storage shall be within the Limits of Work as shown on the Drawings and must be approved by Owner and/or Engineer.

B. No materials or equipment shall be stored so as to interfere with the use, by the public or Owner, of adjacent sidewalks and roads (both on and off Site).

C. Coordination with Site personnel and installation of any traffic control devices shall be conducted by the Contractor in accordance with the requirements of Section 01 55 26 - Traffic Control.

D. All construction materials shall be delivered in original, undamaged, sealed containers which are to be unbroken and with labels plainly indicating manufacturer's name, brand, type, and grade.

E. Owner assumes no responsibility for damage, deterioration, or theft of stored materials, equipment, tools, and supplies. Contractor shall assume full responsibility for the storage and protection of all materials brought to the Site. Materials which become damaged, contaminated, deteriorated, destroyed, or stolen shall be repaired or replaced, at the discretion of Owner and/or Engineer, at no cost to Owner. Containers which are broken, opened, watermarked, or otherwise damaged and/or which contain unsuitable or damaged materials are unacceptable and shall be removed immediately from the Site.

F. Site storage shall be conducted by the Contractor in accordance with the following:

1. Interior Storage:

a. Interior storage areas shall be constructed by the Contractor, as needed, within the Limits of Work.

b. Materials and equipment shall be stored in accordance with manufacturer's instructions, with seals and labels intact and legible.

c. Materials and equipment subject to damage by elements shall be stored in weathertight enclosures.

d. Temperature and humidity within ranges required by manufacturer's instructions shall be maintained.

2. Exterior Storage:

a. Fabricated materials and equipment shall be stored above ground, on blocking or skids. Materials and equipment which are subject to deterioration shall be covered with impervious sheet coverings and

provided with adequate ventilation to preclude the formation of condensation on such materials/equipment.

b. Loose granular materials shall be stored in accordance with Section 01 35 43 - Environmental Procedures.

c. Materials such as pipes shall be stored on pallets or racks, off the ground.

3. Storage shall be arranged in a manner to provide easy access for inspection and inventory. Periodic inspections of stored materials and equipment shall be made to ensure that materials and equipment are maintained under specified conditions and free from damage or deterioration.

G. All bentonite, cement, lime, sealants, aggregates, and similar items shall be stored above ground and protected from dampness, weather and other damage.

H. Sheds for flammable liquids shall be so placed or located to avoid damage and danger to Owner's property, adjacent properties, and the public and must be maintained in a way as to avoid inadvertent spills or discharges to the environment.

I. Contractor shall maintain on-Site, SDS for all OSHA classified hazardous materials stored or used on-Site.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 70 00 – EXECUTION AND PROJECT CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. References

C. Substantial Completion

D. Final Inspection

E. Re-Inspection Fees

F. Contractor's Closeout Submittals to Owner

G. Guarantees and Warranty

1.2 REFERENCES

A. Section 00 52 00 – General Conditions

1.3 SUBSTANTIAL COMPLETION

A. When Contractor considers the Work is substantially complete, Contractor shall submit to Owner, in writing:

1. A notice that the Work is substantially complete, including Project As- Built Record Drawings.

2. A list of items to be completed or corrected.

3. A request that Owner issue a Certificate of Substantial Completion.

B. Within five (5) days after receipt of such notice, Owner and Engineer will review the Work to determine the status of completion.

C. Should Owner determine that the Work is not substantially complete:

1. Owner will notify Contractor promptly in writing, giving the reasons therefore.

2. Contractor shall remedy the deficiencies in the Work and send a second written notice of Substantial Completion to Owner and Engineer.

3. Owner will review the Work to determine status of completion.

D. When Owner concurs that the Work is substantially complete, Owner will:

1. Prepare and deliver to Contractor a Certificate of Substantial Completion, accompanied by list of items to be completed or corrected by Contractor as a precedent to final payment.

1.4 FINAL INSPECTION

A. When Contractor considers the Work is complete, Contractor shall submit written certification to the Owner that:

1. Contract Documents have been reviewed.

2. Work has been inspected for compliance with the Contract Documents.

3. Work has been completed in accordance with Contract Documents.

4. Work is completed and ready for final inspection by Owner and Engineer.

B. Owner will review the Work to verify the status of completion with reasonable promptness after receipt of such certification.

C. Should Owner consider that the Work is incomplete or defective:

1. Owner will notify Contractor promptly in writing, listing the incomplete or defective Work.

2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to Owner and Engineer that the Work is complete.

3. Owner and Engineer will review the Work.

D. When Owner finds that the Work is acceptable under the Contract Documents, he shall request Contractor to make closeout submittals.

1.5 RE-INSPECTION FEES

A. Should Owner or Engineer have to view the Work more than once after Contractor notifies Owner that the Work is substantially complete or complete due to failure of the Work to comply with the claims of status of completion made by Contractor, Owner reserves the right to deduct re-inspection fees from the final payment to Contractor.

1.6 CONTRACTOR’S CLOSEOUT SUBMITTALS TO OWNER

A. The Contractor shall provide closeout submittals to Owner within ten (10) days of receiving the request from Engineer to make closeout submittals unless otherwise agreed to by Owner.

B. The following documentation shall be provided in the Closeout submittals to Owner:

1. Evidence of compliance with requirements of governing authorities.

2. Project Record Documents as specified in Section 01 78 00 – Project Record Documents.

3. Evidence of Payment and Release of Liens in connection with the requirements of Section 00 52 00 General Conditions.

4. Guarantees and Warranties.

1.7 GUARANTEES AND WARRANTY

A. Contractor and its subcontractors shall guarantee that all Work under this Agreement shall be free from defects of labor and/or materials for a period of one (1) year from date of final acceptance. This guarantee is to be provided within the limitations of other guarantees or warranties in the Contract Documents. This requirement shall not expand or supersede any guarantees or warranties stated, implied, or offered or specified in these Contract Documents.

B. Should any item supplied by Contractor be found defective, whether in design, workmanship, or materials, and providing the item has been utilized in accordance with generally accepted practice and in accordance with the conditions specified, Contractor shall, at his expense, correct all such defects without delay. If Contractor is obliged to correct such defects, the warranty for the repaired or replaced item shall extend for the same period as noted in the Specification(s).

C. If Contractor is unable or unwilling to repair or replace such defective part or parts within reasonable time after having received written notice from Owner, or if any emergency exists rendering it impossible or impracticable for Owner to notify Contractor to repair or replace the defective item, in all such cases Contractor shall reimburse Owner for the reasonable cost of replacing or repairing such defective items.

D. Final payments are contingent upon Owner receipt of such guarantees and/or warranties from Contractor and subcontractors. Contractor shall require all subcontractors to make any repair or replacement necessary by reason of any defects in materials or workmanship, or failure to meet the requirement of the Specifications, which may develop within one (1) year from date of final payment.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 74 00 - FINAL CLEANING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. References

C. Description

D. Disposal Requirements

1.2 RELATED SECTIONS

A. Section 01 50 00 - Temporary Facilities and Control

B. Section 01 57 13 – Temporary Erosion and Sediment Control

C. Section 01 78 00 - Project Record Documents

D. Section 02 41 00 – Demolition

E. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

F. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

G. Section 02 84 00 – Waste Management and Disposal

H. Section 31 00 00 – Earthwork

I. Section 32 31 13 – Fencing

J. Section 32 90 00 – Landscape Work

1.3 REFERENCES

A. Section 00 52 00 – General Conditions

1.4 DESCRIPTION

A. The Contractor shall remove all debris and perform all cleaning required as a result of the performance of the Work. Cleaning work shall be performed throughout the duration of the project so as to result in a neat, safe and organized Site. Final clean-up shall be performed by the Contractor to the satisfaction of the Owner at the completion of the Work.

1.5 DISPOSAL REQUIREMENTS

A. Contractor shall conduct cleaning and disposal operations to comply with all State, federal and local codes, ordinances, regulations, anti-pollution laws and these Specifications.

PART 2 PRODUCTS

2.1 SECTION INCLUDES

A. Materials

2.2 MATERIALS

A. The Contractor shall use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.

B. The Contractor shall use only those cleaning materials and methods recommended by the manufacturer of the surface material to be cleaned.

C. The Contractor shall use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Site Restoration

B. Final Cleaning

3.2 SITE RESTORATION

A. Contractor shall remove all construction material, excess equipment and other debris remaining on the Site as a result of construction operations and shall restore the Site of the Work to a neat and orderly condition.

3.3 FINAL CLEANING

A. At completion, Contractor shall clean all Work areas related to the Agreement, and remove from the Site all debris and waste material in compliance with these Specifications. Contractor shall then perform a general and final cleanup of the Site.

1. Employ skilled workers for final cleaning;

2. Remove debris and packing material associated with construction activities from the project area; and

3. Prior to final completion, Owner shall view all Work areas, to verify that the entire area within the Limits of Work is clean. Contractor shall perform additional clean-up as necessary to satisfy the Owner at no additional cost to the Owner.

END OF SECTION

SECTION 01 78 00- PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. References

C. Submittals

D. Maintenance of Documents

E. Recording

F. As-Built Record Drawings

1.2 RELATED SECTIONS

A. Section 01 33 00 - Submittal Procedures

1.3 REFERENCES

A. Section 00 52 00 – General Conditions

1.4 SUBMITTALS

A. Work includes keeping accurate record documents for the Work and all additions, substitutions of material, variations in Work and any other additions or revisions to the Agreement in accordance with Section 00 70 00 – Standard Conditions.

1. Individual drawings showing the location (including Global Positioning System (GPS) coordinate location) of utility terminations, removals, and abandonments; locations and elevations of the final grade of the backfill within and adjacent to the former building footprints and locations of existing features and foundations to remain within the Limits of Work.

2. All record documents required for the Work as described herein.

3. The Contractor shall prepare and submit red-lined copies of the Drawings showing clearly how construction deviated from the design in accordance with Section 01 33 00 – Submittal Procedures.

1.5 MAINTENANCE OF DOCUMENTS

A. Maintain at Site, one copy of:

1. Contract Drawings

2. Specifications

3. Addenda

4. Permits

5. Health and Safety Plan

6. Reviewed Shop Drawings

7. Change Orders

8. Any other modifications to the Contract

9. Engineer’s field orders or written instructions

10. Field Test Reports

11. Disposal Manifests

12. Material Delivery Receipts and Tickets

B. Maintain all documents in clean, dry, legible condition.

C. Do not use record documents for construction purposes.

D. Make all documents available at all times for inspection by Engineer and Owner.

1.6 RECORDING

A. Label each document "PROJECT RECORD" in large printed letters.

B. Keep record documents current and do not permanently conceal or cover any installed Project components until required information has been recorded.

C. Drawings; legibly mark up to record actual construction:

1. Utility terminations

2. Backfill limits and thicknesses

3. Fence installation

4. Features and foundations to remain within the Limits of Work

5. Field changes of dimension and detail

6. Changes made by Field Order or by Change Order

7. Details not on original Contract Drawings

D. Specifications and Addenda; legibly mark up each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

2. Changes made by Change Order or Field Order.

1.7 AS-BUILT RECORD DRAWINGS

A. The Contractor shall furnish the Engineer with As-Built Record Drawings (also referred to as As-Built Drawings) of the Work.

B. All surveying shall be performed under the direction of a Registered Land Surveyor licensed to perform such Work in the State of Massachusetts (Licensed Surveyor). All As-Built Record Drawings shall be signed and sealed by the Licensed Surveyor who directed the survey Work. As-Built Record Drawings shall use the coordinate systems shown on the Contract Drawings and be at a scale not smaller than 1 inch = 40 feet. As-Built Record Drawings shall be provided to the Engineer as: 1) Mylar® hard copy; and 2) on compact disk (CD) in AutoCAD Civil 3D (2014) format.

C. Contractor shall submit As-Built Drawings to Engineer within ten (10) business days after the completion of the Project.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

DIVISION 02
EXISTING CONDITIONS

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Description of Work

C. Applicable Regulations

D. Submittals

1.2 RELATED SECTIONS

A Section 01 11 00 - Summary of Work

B Section 01 11 13 - Work Covered by Contract Documents

C Section 01 31 19 - Project Meetings

D Section 01 33 00 - Submittal Procedures

E Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites

F Section 01 35 43 - Environmental Procedures

G Section 01 35 53 - Security Procedures

H Section 01 50 00 - Temporary Facilities and Controls

I Section 01 55 26 - Traffic Control

J Section 01 57 13 - Temporary Erosion and Sediment Control

K Section 01 57 16 - Temporary Project Controls

L Section 01 66 00 - Product Storage and Handling Requirements

M Section 01 70 00 - Execution and Project Closeout Requirements

N Section 01 74 00 - Final Cleaning

O Section 01 78 00 - Project Record Documents

P Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

Q Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

R Section 02 84 00 – Waste Management and Disposal

S Section 31 00 00 – Earthwork

T Section 31 05 13 – Soils and Aggregate for Earthwork

U Section 32 31 00 –Fencing

V Section 32 90 00 - Landscape Work

1.2 DESCRIPTION OF WORK

A. Contractor shall furnish all labor, materials, tools, supervision, transportation, and equipment necessary to perform complete demolition of the Flagg School Building, and certain other Site features including, but not limited to, retaining walls, floor slabs, foundation walls, concrete aprons, asphalt, landscaping, certain utilities (overhead and underground), ramps, site stairs, poles, bollards, and other building appurtenances within the Limits of Work as specified herein and as shown on the Drawings.

B. The Contractor shall sequence the demolition Work in accordance with Contractors approved work plans. Demolition will be sequenced from northeast to southwest to maintain physical barrier between the site and the High School to the east.

C. Certain limited pre-characterization sampling and analysis have been performed in an effort to identify potentially hazardous materials including PCB Bulk Product Waste and asbestos and other hazardous materials. The Contractor is responsible for conducting hazardous material and asbestos removal operations in accordance with Section 02 82 00 – Asbestos Remediation and Section 02 84 00 – Hazardous Material Remediation. Reference documents including copies of pre-characterization sampling and analysis are included in Attachment D These documents are for reference only and contractor should verify actual site conditions

D. Work of this Section includes, but is not limited to the following:

1. Paying for, obtaining, and complying with all permits and notifications from the State of Massachusetts and the Town of Holliston, including but not limited to demolition permit. Copies of all notifications, permits, approvals and communications with the State of Massachusetts and the Town of Holliston shall be provided to the Engineer and Owner.

2. Prior to initiation of demolition activities, The Contractor will complete disconnect and redirect of water, sewer, electric, gas, steam, condensate, telecommunications and security utilities associated with the Flagg School Building. Contractor is responsible for proper closure and disconnect of all other utilities including existing storm drain system. Utility work shall be coordinated with the Owner.

3. Implementation and maintenance of Site controls including, but not limited to perimeter fencing, temporary barriers, and signage.

4. Contractor will be responsible for installation and maintenance of temporary fence around the work area, contractor parking and staging areas.

5. Protection of abutting properties, structures, and public and private ways including but not limited to temporary shoring, bracing, scaffolding, debris nets, and/or other devices.

6. Traffic and pedestrian control consistent with Owner requirements and all state and local requirements.

7. Implementation of environmental controls including installation and maintenance of stormwater and spill control measures, erosion and sedimentation controls, safety procedures and controls, and dust, odor, vapor, vermin, and noise/vibration controls.

8. Cap all existing floor drains prior to demolition to protect drains from being contaminated by run-off from demolition activities.

9. Contractor will remove free liquids in accessible piping. Contractor is responsible for confirmation of the absence/presence of residual liquids in all piping prior to demolition. Remove, containerize, and dispose off site all residual liquids that may be present in piping.

10. Contractor is responsible for removal, management and disposal of all liquids, solids and sludge's present in pits, floor drains, trenches or any storage system. Remove, containerize, and dispose off-Site all residual liquids that may be present in piping.

11. If necessary, clean all stained concrete slab, trenches pits and surfaces using an approved degreaser and high pressure wash. All was liquids, sludge's, solids and residuals will be characterized, stored, disposed of by contractor.

12. Demolition of the Flagg School Building and certain other Site features including, but not limited to, retaining walls, floor slabs, foundation walls, asphalt, landscaping, certain utilities (overhead and underground), ramps, site stairs, poles, bollards, and fencing within the Limits of Work as specified herein and as shown on the Drawings.

13. Interior trench and column foundations shall be removed to approximately two feet below existing slab.

14. All interior sub-slab utilities shall be completely removed to approximately thirty inches below finished grade.

15. Existing interior storm systems shall be removed or closed in place by filling lines and structures with flowable fill. Structures will be demolished to approximately two feet below finished grade

16. All rebar shall be cut flush from any foundation systems that are to remain.

17. Fracture floor slabs in basement, trenches and pits to remain to the satisfaction of the Engineer to promote water infiltration.

18. Management of all hazardous or regulated building materials in accordance with applicable laws and regulations and as specified herein and as shown on the Drawings.

19. Contractor shall use caution when working around and near the existing school building to the east. Special care shall be taken when demolition occurs along the eastern side of building proximate to the High School Building. Contractor shall protect the High School Building and associated utilities.

E. Segregation, management, testing, loading and off site disposal, recycling, and/or salvage of residual liquids, sludges and solids in or on process piping, demolition debris, solid waste, petroleum impacted wood flooring, and steel to an approved facility:

1. Secure temporary staging area for containerization and/or stockpiling prior to transportation off site.
2. Loading into transport containers or vehicles.
3. Inspection and cleaning of transport vehicles prior to their departure from the Site.
4. Preparation and submittal to Engineer of a daily summary sheet that indicates the date, load number, truck number, time of departure from the Site, gross weight, tare weight, net load weight, and a copy of signed bill of lading and/or manifest.
5. Segregation, management, and on-Site crushing of brick and concrete for reuse, including, but not limited to, coated and uncoated brick, concrete, and masonry materials removed as part of the Work or staged by others within the limits of work, crushed to 3-inch minus with reinforcing steel removed, and reused for backfill and restoration activities on-Site.
6. Contractor is required to obtain all approvals for on0site crushing and reuse of asphalt, brick or concrete. All crushing must be performed in in accordance with the conditions at 16.03(2)(b)5 of Site Assignment Regulations for Solid Waste Facilities, 310 CMR 16.00.

7. Contractor must make all required notification including MassDEP and local board of health at least 30 days prior to starting the crushing operations.

F. Contractor shall re-use processed coated and uncoated brick, concrete, and masonry materials and Suitable Site Materials as backfill to the maximum extent practical and prior to the import of backfill materials.

G. Excess crushed material will be staged and secured on site in up to four separate piles at Owner designated location.

H. Identification, termination, capping, and/or removal of certain utilities associated with the building and Site features. Prior to initiation of demolition activities, the Contractor will complete utility disconnect to the Flagg School. Contractor will be responsible for the following utility closures, removals and disconnects:

1. Gas
2. Sewer
3. Water
4. Electrical – Contractor will be responsible for coordination with Eversource for the disconnect and removal of equipment from the vault.
5. IT service
6. Storm Drain;
7. Subslab piping and utilities
8. Others as identified during demolition and confirmed with Engineer and Owner

1.3 APPLICABLE REGULATIONS

A. Conform to applicable federal, State of Massachusetts and the Town of Holliston codes as applicable for demolition of structures, utility termination or removal, safety of adjacent structures, traffic and pedestrian control, dust control, odor control, vapor control, vermin control, noise/vibration control, soil erosion and sediment control, and waste disposal.

B. Obtain, pay all fees, and maintain all necessary permits and notifications from applicable authorities for the demolition including, but not limited to demolition permit. Copies of all notifications, permits, and communications with the State of Massachusetts and the Town of Holliston shall be provided to the Engineer and Owner.

C. Demolition activities shall be completed in a manner that complies with the requirements of the National Fire Protection Association (NFPA) 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations 2009 Edition.

D. Contractor will prepare a Storm Water Pollution Prevention Plan (SWPPP) along with the required Notice of Intent (NOI) to MDEP for the project The Contractor will be responsible for complying with all requirements and conditions within the SWPPP and NOI.

E. Notify affected utility companies before starting Work and comply with their requirements, including obtaining, paying for, and maintaining all applicable permits. Copies of all permits and communications with the utility companies shall be provided to the Engineer and Owner.

F. All work will be within limits shown of drawings, do not close or obstruct roadway, pedestrian, or Site access without prior approval by Owner

G. Conform to all local, state and federal regulations related to Hazardous Waste Management and other applicable regulatory procedures when removing, handling, disposing, transporting or otherwise managing hazardous or contaminated materials.

1.4 SUBMITTALS

A. Prepare and submit to Engineer and Owner within five (5) days of Notice to Proceed, a comprehensive project specific demolition section for inclusion in the Project Work Plan. The demolition section of the Project Work Plan shall be reviewed and approved by the Engineer and Owner prior to the start of demolition activities. The demolition section of the Project Work Plan shall be coordinated with and, as appropriate, include reference to the various Drawings, Work Plans, and submittals required by and included in these Specifications.

At a minimum, the Contractor's Demolition Work Plan shall specifically include and address the following:

1. Indicate proposed variances from the Specifications and Drawings.

2. A Critical Path Schedule that details the sequence of asbestos and hazardous material removal, utility cut and caps, and demolition for Work within the buildings and other structures being demolished under this Contract.

3. Methods, equipment, procedures, and operations. Include information such as equipment types and placement; building access; removal of residual liquids, removal of residuals in pits and on floors, on-Site handling of debris from demolition to staging and loading; segregation of demolition debris waste streams; on-Site crushing of brick and concrete for reuse; and protection controls including protection to traffic, passerby, roadways and abutting areas and structures.

4. Building Separation Plan and rigging including methods, equipment, procedures, sequencing of building separations, shoring, bracing, and protection or building modifications for building separations stamped and signed by a Professional Engineer registered in the State of Massachusetts.

5. Description of installation of temporary utility services.

6. Description of clearance, shut-off, disconnection, and removal/ abandonment of storm drain system.

7. Description of means for protecting adjacent structures including utilities as shown on Drawings included in Attachment F.

8. Identification of project staffing including competent person to supervise demolition, erection, and dismantling of scaffolding and other protective structures on-Site.

9. Requirements and procedures for assuring trained and experienced workers.

10. Inspection and tagging program.

11. On-site orientation program for visitors

12. Limitations of Work during adverse weather conditions.

13. A site plan indicating Contractor's intended plan and identifying location for various aspects such as temporary work platforms, temporary access roads, temporary demolition staging and stockpiling areas, truck decontamination (if needed), debris storage areas, dumpster locations, truck loading areas, equipment and material storage, and similar information.

B. Demolition section of Project Work Plan shall include drawings and calculations for the following and shall address the aspects identified.

1. Temporary structural supports as required during demolition activities, including but limited to, scaffolding, bracing, bulk heads for buildings, and other protective structures. Particular attention shall be given to building separations and personnel and debris fall hazard. All calculations and methods shall be stamped and signed by a Professional Engineer registered in the State of Massachusetts.

2. Calculations for floor loading adequacy to support any personnel or equipment that the Contractor will have on any of the building floors or roofs during any phase of demolition.

3. Utilization of completely decked working levels for handling of materials.

4. Identification of prohibited activities; e.g., prohibition of the use of cross bracing as a work surface, climbing device or as handrail, etc.

5. Provisions that only scaffold-grade planking or equivalent be used.

6. Methods of temporary protection for adjacent structures within the Limits of Work, when, and if, applicable. The protection systems must clearly show how adjacent structures and utility service are adequately protected, and that worker and public safety is ensured in providing protection and performing the work of this section.

7. Methods, equipment, and sequence of operations for the demolition of the buildings showing how the public and Owner on-Site workers are protected during such demolition.

8. Methods, equipment and materials being used for any support of excavation for the protection of utilities and adjacent structures.

9. Methods of demolition of the buildings and structures that show how adjacent property is being protected.

C. If the Engineer or Owner finds that the submitted demolition section of the Project Work Plan or Critical Path Schedule does not comply with specified requirements, the corrective revisions will be noted on the submittal copy returned to the Contractor.

D. Revisions to the accepted demolition section of the Project Work Plan and Schedule may be made only with the written approval of the Owner. A change affecting the contract value of any activity including the contract time may be made only in accordance with applicable provisions of the Contract Documents.

E. Project schedule review and update shall be provided at weekly construction period meetings as specified in Section 01 31 19 – Project Meetings.

F. Submit the following at each weekly construction meeting.

1. Spreadsheet detailing all materials removed from the Site on a volume and/or mass basis.

2. Summary of actual locations of terminated, sealed, and removed utilities.

3. Updated Construction Schedule.

G. Submit the following upon completion of the demolition activities.

1. Recorded actual quantities of materials removed on a volume and/or mass basis and provide copies of profile forms, and shipping papers.

2. Recorded actual locations of terminated, sealed, and removed utilities.

3. Photographic documentation of Work.

4. Copies of all waste manifests for hazardous waste shipments, manifests and/or bills of lading for nonhazardous waste shipments, disposal documentation, certificates of destruction, and certificates of recycle for all recycled materials generated during course of Work.

PART 2 PRODUCTS

2.1 SECTION INCLUDES

A. Demolition Equipment

B. Sheeting and Coverings

C. Run-Off Controls

2.2 DEMOLITION EQUIPMENT

A. Hydraulically operated grappler, hoe rams, rotating concrete pulverizer, masonry saws, and/or shear equipment, including hand tools, shall be used to dismantle the Site structures.

B. Use of explosives, wrecking balls, or other demolition methods likely to generate excessive dust, noise, vibration, and other debris are **not** permitted unless approved in writing by Owner.

C. Equipment used in cold cutting of scrap metal shall be approved by Engineer and Owner for use with lead-based paint. No hot cutting equipment shall be used on surfaces containing lead-based paint unless the appropriate precautions are taken to comply with OSHA regulations, specifically 40 CFR 1926.62.

D. All costs associated with any required fire watch or monitoring is the responsibility of the Contractor.

2.3 SHEETING AND COVERINGS

A. Waterproof sheeting used to cover stockpiles shall be strong, durable, impermeable, flexible 6 mils minimum thickness polyethylene sheeting or other Engineer approved material. It shall be capable of resisting tears or punctures due to equipment placement.

B. Covering of stockpiled demolition debris capable of becoming airborne or generating dust shall be with a strong, durable, impermeable, tear resistant material.

C. Equipment or structural material that is cut and is placed on laydown area that has liner must be cut and placed such that sharp edges do not tear liner.

D. If during Work, sheeting or covering becomes torn or punctured, Contractor shall immediately repair or replace damaged sheeting or covering at no additional cost to the Owner. Contractor shall be responsible for inspecting sheeting or covering at least once per day to check if repair is needed.

2.4 RUN-OFF CONTROLS

A. Refer to Section 01 57 13 – Temporary Erosion and Sediment Controls.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. General Demolition Requirements

B. Utility Termination/Removal

C. General Waste Handling Procedures

3.2 GENERAL DEMOLITION REQUIREMENTS

A. Work shall be conducted in such a manner as to keep it confined within Limits of Work shown on the Drawings.

B. Contractor shall ensure that all pre-demolition activities are performed prior to the initiation of demolition activities. This includes, but is not limited to, protecting abutting properties and structures, public and private roadways, and sidewalks, asbestos and hazardous materials removal, temporary outages or removal of overhead wires, terminating and/or removing appropriate utilities, and protecting storm water and floor drains.

C. Cap all existing floor drains within the interior of the buildings. Protect adjacent storm drains from being contaminated by run-off from the demolition area consistent with Section 01 57 13 - Temporary Erosion and Sediment Control.

D. Protect Work areas from storm water run-off. Divert or contain storm water run-off as necessary to prevent accumulation within Work areas.

E. Provide all bracing, shoring, protection, or building modifications as necessary and detailed in the Engineer-approved demolition section of the Project Work Plan.

F. Structures to be demolished shall be removed under the supervision of a competent demolition superintendent in accordance with appropriate regulatory requirements for demolition.

G. Contractor shall take all necessary precautions to preclude any release of hazardous materials or hazardous wastes during demolition. If areas are contaminated during

the performance of the Work, Contractor shall clean-up and restore contaminated area to the satisfaction of the Engineer at no additional cost to Owner.

H. All asbestos and hazardous materials removal Work shall be performed by the Contractor as described in Section 02 82 00 - Asbestos Remediation and Section 02 84 00 – Hazardous Material Remediation prior to initiating demolition activities. Handle all asbestos-containing and hazardous materials as outlined in the Contractor's approved asbestos, hazardous materials, and demolition sections of the Project Work Plan.

I. The Contractor shall conduct the Work in a manner giving prime consideration to safety, protection of the public, protection from the weather, control of noise and vibration, control of sediments and dust, orderly access for storage of materials, protection of existing structures, surfaces, property features not part of the Work, and coordination and cooperation with the Owner and other Contractor's at all times.

J. Demolition will be sequenced to maintain physical barrier between the High School Building and the Work unless otherwise approved by Owner.

K. The Contractor shall mitigate lead-based paint hazards through proper management of building materials during demolition using lead-safe work practices. At no point will loose and flaking lead-based paint be allowed to become airborne during on-Site operations of any nature. In the event loose and/or flaking paint becomes airborne in the opinion of the Engineer, the Contractor shall modify his procedures to prevent such occurrences at no additional cost to the Owner.

L. Dust, odor, vapor, vermin, and noise/vibration shall be strictly controlled in all areas requiring demolition. Dust, odor, vapor, vermin, and noise/vibration control and monitoring shall be performed in accordance with Section 01 57 16 - Temporary Project Controls.

M. The Owner or Engineer reserves the right to suspend Work at any time, if necessary, due to dust, odor, vapor, vermin, and/or noise/vibration generation which causes a safety or an air quality problem or which may cause contamination of adjacent areas. Contractor shall not be entitled to any additional compensation for suspension of Work under such conditions.

N. Contractor shall not be permitted to drop demolition material from elevated areas unless material is wetted, dropped within an enclosed chute or similar structure, and vibration at the base of drop is controlled. Elevated materials such as poles, stacks, and signage shall be securely held and lowered slowly all the way to the ground.

O. Work in accordance with Section 01 50 00 – Temporary Facilities and Controls. The Contractor is responsible for all equipment, permits, and costs associated with conveyance and use temporary water source.

P. Protect abutting properties and structures, appurtenances, utilities and miscellaneous items located on the property, abutting properties, and roads not scheduled for demolition. Cease operations immediately if abutting structures appear to be in danger, and notify Engineer immediately. Structures, fencing, and other improvements, both on- and off-Site, damaged by the Contractor that are intended to remain shall be repaired or replaced to the satisfaction of the Engineer at no additional cost to Owner.

Q. The Contractor shall be responsible for clearance of all pipe, conduits, and exposed wiring prior to disconnect and removal/abandonment.

R. The Contractor shall be responsible for the closure in place and termination and/or removal of storm drains and associated appurtenances within the Limits of Work associated with The Flagg School Building.

S. Demolish features as described herein and shown on the Drawings as follows:

1. Building demolition activities shall be conducted in accordance with the Owner approved work sequence.
2. Engineer approved methods, procedures, and equipment shall be used to remove the structural materials and complete building separations.
3. Building demolition includes removal, management, containerization, transportation, disposal, recycle, or on-Site reuse of all building components, materials, and equipment associated with each structure and feature to be demolished.
4. Limits of concrete removal are shown on drawings.
5. Protect, package and store items specified on drawings including two plaques encased in a concrete retaining wall located on the eastern side of the building.
6. All existing pits, trenches and sections of floor slab to remain shall be perforated prior to placement of backfill.
7. Contractor shall repair in kind all damage to existing buildings and features to remain caused by building removal activities at no additional cost to the Owner.
8. Remove and dispose/recycle all sub-slab utilities and process piping within the Limits of Work.
9. Remove and dispose/recycle all overhead wires, poles, and bollards not in use within the Limits of Work.
10. Remove and dispose/recycle all loose miscellaneous debris within the Limits of Work.
11. Protect trees and landscape areas as shown on drawings.

12. Remove and dispose/recycle retaining walls, asphalt, landscaping features, ramps, and fencing as shown on the Drawings.

T. Demolition debris shall be segregated according to the type of material in the staging area. Any salvageable materials shall be staged separately.

U. Demolition material, trash and debris shall be stockpiled or containerized on-Site until appropriate documentation has been prepared and accepted by the Engineer. Debris shall be kept covered and contents wetted (as necessary) to prevent fires or off site dust migration.

V. Demolition material shall be disposed off site, recycled, or salvaged according to characterization requirements of the Owner- approved receiving facilities.

W. .

X. Conduct operations with minimum interference to facility and Site access. Maintain Site egress and access at all times.

Y. Contractor shall not burn or bury materials on-Site.

Z. Any vehicles and/or equipment utilizing gasoline or diesel powered internal-combustion engines that are used anywhere within the buildings shall have their exhaust systems directly vented outside of structure.

3.3 UTILITY TERMINATION/REMOVAL

A. The Contractor shall be responsible for the termination and/or removal/abandonment of all utilities associated with the Flagg School Building.

B. The Contractor shall be responsible for capping and closure of existing interior storm drain systems. Locations, procedures and materials to be utilized in closure shall be coordinated with and approved by Engineer and Owner.

C. The Contractor shall be responsible for maintaining and protecting existing exterior storm drain systems to remain throughout demolition activities.

D. The Contractor shall remove and dispose off Site all underground utilities encountered by the Contractor during demolition activities to thirty inches below finish grade. The Contractor is not required to chase identified underground utilities encountered beyond exterior foundation walls.

3.4 GENERAL WASTE HANDLING PROCEDURE

A. Disposal of all wastes generated as a result of Work shall be performed by the Contractor in accordance with all applicable federal, State, and local regulations and in accordance with waste management and disposal specifications outlined in Section 02 81 00 – Waste Management and Disposal.

END OF SECTION

SECTION 0208100 – ASBESTOS ABATEMENT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Related Sections, Drawings and general provisions of this Contract, including Town Holliston Bid Package requirements, Instructions to Bidders, Contract documents, Massachusetts prevailing wage rates, General, and Supplementary Conditions apply to this section, including, but not limited to:

1. Attachment A
2. Table 1 –Confirmed Asbestos-Containing Materials
3. Table 2 – Hazardous Materials Inventory
4. Attachment D Annotated floor plans (pages 1-5) Approximate ACM locations for reference only.
5. Section 02 41 00 Demolition
6. Section 02 82 00 – Hazardous Building Materials Remediation
7. Section 02 84 00 – Waste Management and Disposal
8. Demolition related sections, drawings, and documents

1.2 RELATED SECTIONS

A. In general, supply labor (in accordance with Massachusetts prevailing wage rates), tools, equipment, materials, waste hauling, and disposal necessary for the proper completion of the work in this section and as required by the Awarding Authority – (Town of Holliston, Massachusetts). The state licensed Abatement Contractor shall be referred to as the “Contractor” herein.

B. This Section specifies the requirements for the handling and removal of asbestos-containing materials (ACMs) throughout the former Cole-Flagg Middle School (former Flagg Building) located at 100 Linden Street, Holliston, Massachusetts. The intent of the Work includes the complete removal and disposal of asbestos-containing materials (ACMs) and asbestos-containing waste materials (ACWMs), asbestos-containing contaminated components and materials to allow for building demolition. Properly remove, handle, package, transport and dispose asbestos-containing materials (ACMs) and asbestos-contaminated components and materials, and clean contaminated surfaces.

1.3 DESCRIPTION OF WORK

A. Remove and dispose asbestos-containing materials (ACMs) and asbestos-containing waste materials (ACWM) throughout the Former Flagg Building as outlined in Table 1 or encountered during demolition activities. Information and quantities included in Specifications is provided for reference only Provide Unit pricing per linear foot for pipe and pipe fitting insulation removal within/under concrete floor slab.

B. Upon request by the Owner, the Contractor shall provide **Unit Cost/Credit Bid Pricing** for removal and disposal of each ACM by unit (LF/SF).

C. The Contractor shall prepare Bid Pricing using his own estimated quantities of materials determined during the pre-bid site inspection. The quantities listed in this section represent estimated quantities of ACMs only and are not guaranteed. All estimated quantities are approximate and may vary by ten percent (10%) without changes to the contract. Conditions, materials, ACMs and locations identified herein shall be reviewed completely and thoroughly by each bidder. The Bidder/Contractor is required to review and confirm all quantities and existing field conditions. The Contractor shall completely remove and dispose each referenced ACM and clean surfaces throughout the work areas at the bid price regardless of minor variations in the actual quantities of materials present.

1. The bidder shall include the complete cost, including expenses, labor, permits, notifications, DEP & EPA work plan approvals, transportation and materials, etc. required to properly remove and dispose ACMs throughout the building as required herein.

D. Final payment shall not be made until required submittals are completely supplied in full to the Awarding Authority. The Awarding Authority reserves the right to hold ten percent (10%) as final payment until abatement is completed and finals submittals (waste manifests, worker information, etc.) are supplied in full.

1.4 SUBMITTALS

A. Pre-Construction Submittals (Submitted for review and completeness within five (5) work days prior to project start).

1. Submit Site Specific Abatement Work Plan for review and completeness detailing the proposed construction/abatement schedule and site specific work area containment plans by floor and wing, including;

- Number of shifts to complete the work by phase or work area
- Floor plan depicting phases by containment work areas, decontamination unit, HEPA fan unit and exhaust locations, etc.

- Description of work flow/process completion outlining containment preparation methods, removal methods, manpower and shifts required per wing and phase.
- Abatement methods to be utilized (mastic removal, fan unit, waste container locations)
- Handling areas with enclosed ACM, ACM debris and contaminated ACWM, etc.
- Names of Supervisors and workers to be onsite to include copies of worker licenses, training, medical exam and fit–test records.

2. Contractor's State DLS Abatement license (current).

3. Federal, State and local notifications (submitted minimum within 10 days prior to the work).

4. OSHA 10-hour construction safety training cards for each worker and 30-hour construction training card for assigned abatement supervisor.

5. Original Insurance Certificates - Umbrella General Liability Insurance Coverage to include Asbestos Abatement Pollution Occurrence Coverage, with limits of not less than three Million Dollars ($3,000,000.00) made out to the Owner/Awarding Authority as additionally insured (see Town of Holliston Bid Package for insurance requirements and required language).

B. Final Closeout Submittals

1. Waste Shipment Records (original copy, signed manifest receipts) for asbestos waste within 35 days of each individual waste dumpster and waste vehicle transported off site.

2. Copy of Contractor OSHA Personal Air Sample Results

3. Copy of worker 10-hour and supervisor 30-hour construction safety training cards

4. Daily Site sign in/out logs

5. Copies of each Employee state licenses, training, medical and fit test records

1.5 PHASING AND SCHEDULE

A. The Contractor is responsible for coordinating and completing the project within the Awarding Authority’s phasing schedule during available time frames as directed. Minor variations in project phasing, scheduling and hours of operation may occur and shall be reflected in the bid price.

B. The abatement work shall be performed using six (6) separate building areas and distinct phases.

1. **Front Storage Wing** - front right side classroom wing (original building)

2. **Classroom Wing** - middle section with back side classrooms (original building)

3. **Front Office Wing** – 2 story front left side (original 1st floor and 2nd floor addition)

4. **Back New Wing Addition -** (Town Storage Wing – new 1970's construction)

5. **Boiler Room, pipe tunnel space, Edison transformer room and main crawl/pipe space** (original building)

6. **Exterior and Roof level (original building and new 1970's wing** additions)

C. Hours of Operation:

1. Work may take place between the hours of 7:00 am and 5:00 pm during Awarding Authority pre-approved project dates and time frames. Work to follow local work, regulatory, and noise ordinances which take precedent.

1.6 SPECIAL CONDITIONS

A. No running water and no toilet facilities will be available in the building. One water spigot source will be made available in the fire sprinkler room.

B. Moveable items shall be moved out of the work areas by the Contractor. The Owner reserves the right to retain and keep any and all items prior to and after abatement. Moveable items shall be removed out of each work and is the responsibility of the Contractor.

C. Exterior roof, window and soffit abatement work shall **not** be conducted when the adjacent school building is occupied session. No exterior building abatement removal work shall take place during occupied school hours without the approval of the Awarding Authority. The Contractor may erect screening which restricts public view of the Work with the Awarding Authority's approval.

D. Interior building abatement work may take place during adjacent school building occupancy. No workers shall wear suits and respirators visible to the public during interior abatement work.

E. Waste container(s) may be maintained on-site in a location (back of building) designated by the Awarding Authority. No waste container may be allowed on-site without t**he Owner's permission.**

F. Post window unit abatement, the Contractor shall prevent and restrict the general public from entering the building.

G. Refer to Section 02082 (Hazardous Building Materials Remediation) for information and compliance requirements on polychlorinated biphenyls (PCBs) and lead-based paint (LBP).

1.7 REGULATORY COMPLIANCE

A. The Contractor shall comply with Federal, State and local standards which they exist at the time of the work. Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, applicable codes, regulations, and standards have full force and effect. The Work shall conform to the standards set by applicable federal, state, and local laws, regulations and ordinances.

B. Federal Requirements which govern asbestos abatement work or transportation and disposal of asbestos waste materials include the following:

1. Occupational Safety and Health Administration, (OSHA) including Title 29, Parts 1910 and 1926, as applicable.

2. Environmental Protection Agency (**EPA**) including but not limited to Title 40, Part 61 - National Emission Standards for Hazardous Air Pollutants (**NESHAPS**), as applicable.

3. U.S. Department of Transportation (**DOT**), Title 49, Parts 172 and 173.

C. State Requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include the following:

1. Massachusetts Department of Labor Services (**DLS**) - 453 CMR 6.00 of the Code of Massachusetts Regulations for The Removal, Containment and Encapsulation of Asbestos.

2. Massachusetts Department of Environmental Protection (**DEP**):

a. Air Pollution Control Regulations - Title 310, Chapter 7, Section 7.15 of The Code of Massachusetts Regulations and as amended in June 2014 (Asbestos Regulatory Reform).

b. Solid Waste Regulations - Title 310, Chapter 19 of The Code of Massachusetts Regulations

c. BWP-96-012, Bureau of Waste Prevention - Policy Concerning Non-Friable Asbestos-Containing Materials

3. Massachusetts construction safety laws for public work to include worker 10 hour OSHA safety and Supervisor 30 hour OSHA training courses with applicable training cards to be submitted and maintained on-site.

D. Local Requirements: Abide by local requirements which govern asbestos abatement work, fire protection, hauling and disposal of asbestos waste materials.

1.8 QUALITY ASSURANCE

A. The Contractor performing ACM abatement shall hold a current, valid Massachusetts, Division of Labor Standards (DLS) Abatement license while utilizing State DLS licensed abatement personnel (licensed workers and supervisors) for asbestos abatement (removal and disposal) operations.

1. The selected Abatement Contractor shall not sub-contract the abatement work. Supervisors and foreman employed by the Contractor shall be on-site at all times to coordinate, manage, and oversee the work.

B. The Contractor shall notify Commonwealth of Massachusetts, Department of Environmental Protection (DEP) and Department of Labor Standards Division of Labor Standards (DLS). Written notification sent and received ten (10) working days prior to beginning any work on asbestos-containing materials. Forward an electronic copy of the completed notification form to the Awarding Authority and Consultant at the time of submission to the Commonwealth.

C. The Contractor is responsible for the methods and materials used to perform the work. The Contractor is required to comply with all applicable Federal, state and local laws, regulations and ordinances. Costs and expenses associated with the completion of the Project shall be borne by the Contractor. When there is a conflict or overlap of these Specifications with any of the above references, the most stringent provisions shall apply.

D. The Contractor maintains responsibility throughout the project for protecting the other trades, general public, authorized visitors, and building systems and materials against atmospheric, asbestos fiber, physical, biological, chemical, nuisance odors and particulate contaminant exposure and damage. The Contractor is responsible for making right or cleanup of any such contamination and damage in accordance with the regulations and acceptable project conditions.

E. The Contractor is responsible for coordinating and maintaining the health and safety and procedures used for his employees and the building occupants within the building in conformance with federal and state occupational safety & health regulations.

F. The Contractor shall comply with OSHA 29 CFR 1926.1101 and 29 CFR 1910.134 for appropriate respiratory protection applicable to the project.

G. The Contractor is responsible for conducting his own personal air sampling as required by OSHA 29 CFR Section 1926.1101.

H. The Contractor's Supervisor shall be on-site at all times to monitor the entrance to the DF to prevent unauthorized access and maintain a written log of all people entering the work area.

I. Flammable materials, solvents, spray cans, etc. shall be removed at the end of each shift from the asbestos work area daily and shall be stored in a proper flammable storage cabinet.

J. A sufficient number of portable fire extinguishers and first aid kit shall be maintained at/in the work site.

K. Non-Traditional Work Plan:

1. The Contractor shall be responsible for obtaining Mass DEP approval for alternative work practices and abatement methods utilized on the project as required by the Massachusetts DEP. The Contractor shall be responsible for completing DEP requirements for Non-Traditional Work Plan preparation, including; DEP submittal, AQ 36 application and associated application fees. The Contractor’s plan shall be approved and signed by the Contractor’s Massachusetts DLS licensed Project Designer.

2. The Contractor’s Non-Traditional Work Plan shall be submitted to the Owner’s Consultant for review and comment. After review and comments by the Owner’s Consultant, the Contractor shall submit the Non-Traditional Work Plan to the appropriate Massachusetts DEP regional office for approval. The Contractor shall make edits and revisions as required by the Owner’s Consultant and the Mass DEP to their satisfaction.

1.9 FINAL CLEARANCE REQUIREMENTS

A. The Awarding Authority (Owner) shall employ an independent State DLS-DOS air monitoring technician (State licensed laboratory and licensed project monitor/industrial hygienist) to perform background air monitoring, final visual inspections, clearance air sampling and sample analysis as required.

B. The independent State licensed Project Monitor may conduct work area visual inspections throughout the abatement process and make corrective recommendations to the Supervisor. Air samples before, during and after abatement may be collected within the work area and/or outside the work area at the discretion of the project monitor/industrial hygienist.

C. A post abatement final visual inspection for job completeness shall be scheduled by the Contractor and performed in each work area by the independent State Licensed Project Monitor. The work area(s) shall be cleaned free of visible dust and debris.

Asbestos waste material shall be completely removed from the work areas prior to final visual inspections. No final clearance air testing will be conducted until successful completion of each work area final visual inspection.

1. The Contractor's on-site supervisor shall, upon request, sign a final visual inspection certificate of completion for each work area.

2. The work area may be encapsulated after completion of the final visual inspection(s). The contractor is responsible to ensure encapsulant compatibility with remaining surfaces.

D. Post abatement clearance air sampling will be performed in each interior building work area where asbestos-containing materials (ACMs) greater than three square/linear feet are removed. The contractor shall be required to pass the inside work area sample analysis clearance criteria outlined herein.

E. Phase Contrast Microscopy (PCM) air sample analysis shall be performed using Massachusetts Asbestos Regulation sampling protocols for background and final clearance air samples. Should airborne fiber concentrations on any background sample analysis via NIOSH 7400 method exceed 0.010 f/cc, the Contractor shall stop abatement operations, determine (with the Project Monitor) the cause of the elevated levels and take steps and methods necessary to reduce airborne fiber levels to below 0.010 f/cc.

F. Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM) sample analysis may be utilized for final clearance testing at the Project Monitors discretion. Sampling and analysis shall be performed using approved EPA AHERA and Commonwealth of Massachusetts Asbestos Regulation sampling and analysis protocols.

1. The final clearance air sample collection criteria for each work area containment shall be:

   a. A minimum of one (1) sample per room/containment will be used for final PCM sampling and analysis.

   b. A minimum of five (5) samples inside work area containment, five (5) samples outside the work area and 3 analytical field blanks will be used for final TEM sampling and analysis.

G. Work areas shall pass the clearance criteria regardless of environmental conditions and fiber levels outside the work area(s). The post abatement clearance criteria (completion) are as follows:

1. PCM Analysis:

a. The interior asbestos control work area(s) shall pass when each of the samples collected are analyzed to have a fiber concentration not to exceed 0.010 fibers per cubic centimeter of air (f/cc). Samples collected shall be analyzed by PCM methods using the NIOSH 7400 Method.

b. Should airborne fiber concentrations for any sample exceed 0.010 f/cc during final air testing, or sample cassette filters are overloaded, the Contractor shall re-clean the Asbestos Controlled Area via wet-wiping, HEPA vacuuming techniques and other work practices until the work area is re-sampled and found to be in compliance.

2. **Classroom Wing** - middle section with back side classrooms (original building)

a. The asbestos control work area(s) shall pass when the average concentration of the five (5) inside work area(s) samples (or greater) is below 70 asbestos structures per millimeter squared (< 70 S/mm^2).

b. Should airborne fiber concentrations on the set of five TEM sample analysis exceed 70 S/mm^2, regardless of outside work area level concentrations, or of sample cassette filters are overloaded, the Contractor shall re-clean the asbestos controlled area via wet-wiping, HEPA vacuuming techniques and other work practices until the work area is resampled and found to be in compliance.

c. The Contractor is required to pass the less than 70 S/mm^2 average clearance criteria for each set of inside work area final air samples regardless of outside work area conditions and fiber levels. The Owner is only responsible for the costs associated with the first set of inside TEM and PCM clearance samples for each work area containment.

H. Additional inspection, sampling, testing, and analysis fees for failed worked areas (inspections, testing and laboratory analysis) or for improperly scheduled inspections by the contractor, may be deducted from the contractor's application for payment at the Awarding Authority’s/Owner's discretion.

1.10 DEFINITIONS

A. The following abbreviated list is provided for informational purposes only in relation to the Asbestos Abatement Specification.

Asbestos-containing flooring – Asbestos flooring, including but not limited to, floor tile, linoleum, paper and mastic layers, shall include each associated layer down to the substrate that contains ACM or is contaminated. Where required, asbestos flooring removal shall include removal of leveling (levelastic) type compounds as required regardless of application within the Bid price.

Asbestos Containing Materials (ACM) - Material composed of asbestos of any type and in an amount of one percent (1%) or greater, either alone or mixed with other

fibrous or non-fibrous materials. ACMs shall include each applied layer of material to the substrate.

Asbestos-containing pipe and pipe fitting insulation – Pipe insulation shall include continuous runs, to include associated insulated pipe fittings, valves, elbows of each diameter size piping. Cementitious pipe fitting insulation shall include each cementitious insulated fitting, valve, tee, elbow, union and pipe hanger of each diameter size.

Asbestos Controlled Area - An area (work area) where asbestos removal operations are performed which is isolated by physical boundaries (including decontamination chambers) to prevent the spread of asbestos dust, fibers, or debris. The area shall include operations during demolition, work area preparation, non-friable abatement and glove bag removal. The term is equivalent to asbestos work area, negative pressure containment and asbestos removal work area.

Asbestos Containing Waste Material (ACWM) – Per the Mass DEP, which designates that any building material containing any percentage of asbestos or is contaminated with adhered ACM, shall be classified as asbestos-containing waste material (ACWM). ACWM shall be treated and disposed as regulated ACM waste material.

Asbestos Project - Any activity involving the removal, enclosure, or encapsulation of asbestos materials or any renovation, repair or demolition which disturbs or potentially disturbs asbestos-containing materials. Removal shall be equivalent to abatement.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Materials and equipment used on site shall conform to OSHA standards and as well as State and local ordinances.

B. Materials shall be fire retardant and comply with applicable Massachusetts and Town of Holliston Fire Safety regulations and standards.

C. Electrical: Electrical tools and equipment shall meet all applicable codes and regulations.

D. Ground Fault Circuit Interrupters (GFCI) **– GFCI's shall be used on all electrical cords, circuits, equipment,** and shall be UL approved and meet OSHA and State Electrical Codes.

E. Equipment, including protective clothing and respirators, if applicable, used in the execution of this contract and provided to visitors to the site shall comply with all applicable federal, state and local regulations. HEPA filtered equipment shall meet or exceed the requirements of ANSI Z9.2.

F. Polyethylene Sheeting – The minimum thickness for all polyethylene (poly) sheeting and disposable waste bags used on-site shall be 6-mil.

G. Plywood, lumber and other solid materials used on-site shall be fire-retardant grade and labeled as such.

H. Scaffolding, mechanical lifts, ladders and staging shall be in good working order and structurally intact. Scaffolding and staging shall be erected in accordance with each applicable OSHA and State (DLS) safety regulation in manner to properly complete the specified work.

I. Other tools, equipment used on-site shall be free of debris, in good working condition and shall meet applicable safety codes.

J. Mastic Solvent: Each removal solvent shall be pre-approved by the Awarding Authority and Awarding **Authority's** Representative prior to use. MSDS sheets shall be submitted for each solvent.

K. Encapsulants: The Contractor shall use pre-approved amended water and lock-down encapsulant based-products.

L. Sufficient inventory of protective clothing, respirators, filter cartridges, 6 mil plastic sheeting of specified size and thickness, duct tape, glue, spray-on adhesive, air filters, etc. for workers' use.

1. Provide list and MSDS for each chemical based product used.

PART 3 EXECUTION

3.1 APPROVAL OF WORK AREA PREPARATION

A. Prior to removal in each regulated work area (both interior and exterior regulated areas), the Contractor shall request a site inspection (pre-removal visual inspection) **by the Awarding Authority's Consultant (Licensed** Project Monitor) for completion of required preparation work. No removal, demolition, or other disturbance of ACMs, dust, or debris shall occur until the Consultant has inspected and accepted the containment preparation work.

3.2 LIMITED DEMOLITION

A. Prior to work area preparations, the Contractor shall conduct demolition of bookcases, shelving, cabinets, lockers, sinks, ducting, carpeting, counters, unit ventilators, ceilings, walls, paneling, chases, soffits, etc. to completely access, contain and remove ACMs. These items shall be removed from the work areas.

B. Remove ceiling paneling and ceiling tiles (including grid/support systems) and fiberglass batt insulation to access ACMs for removal.

C. Pipe chases (restroom and other chases) shall be opened to provide proper access to enclosed ACMs. Remove cinder block (CMU), plaster and gypsum walls and other

materials and move out debris out of the work areas. Debris remaining in the abatement work areas shall be disposed as ACM waste.

D. Remove lockers and other fixed items attached to flooring to fully access ACMs. Remove walls, fixed items, and floor tracking, studs, bracings, etc. to fully access floor tile and mastics.

1. Note: Gypsum (sheetrock) wallboard contains asbestos-containing joint compound. Remove items for inspection to the point that no ACMs exist.

E. Shut down and lock out energized (electrical) systems and components attached to and adjacent to ACMs. Remove bracing, brackets, clips, etc. to completely access and remove ACMs.

F. Non-contaminated items removed by the Contractor may be placed outside the work areas within the building interior for disposal.

G. Cut back and remove all exterior shrubbery to access window units and soffits for regulated area preparation.

3.3 GENERAL WORK AREA PREAPRATION

A. Coordinate with Awarding Authority for access to available water and power sources. The contractor shall be responsible for installing necessary connections, panels, hoses, etc. for required water and electrical power. One water source shall be provided at the water main meter.

B. ACM Removal: The Contractor shall construct a regulated area using a negative pressure containment in each interior asbestos controlled work area to complete the abatement using the criteria outlined herein.

C. Electrical: Isolate (lockout) effected building electrical systems in each work area, and provide temporary power and lighting as required for each work area.

1. Where required, asbestos work area energized systems and power (electrical, etc.) shall be shut down and isolated. Comply with OSHA Lock out/tagout procedures.

2. Where required, provide and install OSHA compliant temporary electrical panels and provide (Ground Fault Circuit Interrupter (GFCI) protected circuits, as required, to provide power to work area equipment. The source(s) shall be located outside the work areas. Coordinate power panel installation in accordance with Awarding Authority direction and oversight.

3. Electrical power used in the abatement work area shall originate from outside the work areas and shall be GFCI protected at the source.

4. The Contractor shall provide appropriate temporary lighting for proper completion of the work.

5. Shut down and lock out electrical systems attached to ACMs to be removed. The Contractor shall remove electrical components, brackets, etc. for the proper and complete removal of ACMs.

D. Filtration: HEPA-filtered air fan unit(s) in good working order shall be situated in the work area(s) and exhausted outside the building to establish negative pressure equal to or greater than four air changes an hour. Negative air HEPA exhaust equipment shall comply with Section ANSI Z9.2. and Mass DEP regulations. Each negative air unit shall be vented outdoors through a solid barrier manifold situated in the perimeter opening. HEPA Filtered fan units shall be supplied in sufficient quantity to provide a minimum of four (4) air exchanges per hour and a pressure differential of 0.02 inches of water. All units shall have visible and audible alarms as required by governing regulations.

1. Install operational, calibrated manometer with visible and hard copy printout to document minimum pressure differential of 0.02 inches of water (negative pressure) in each containment work area.

E. Decontamination Facilities: The Contractor shall establish a Decontamination Facility (DF) that is contiguous and connected to each asbestos work area for waste transport and the decontamination of workers. The three-stage decontamination facility shall consist of an equipment room, shower room/area and clean room in series. Each room shall be a minimum of nine (9) square feet in size and appropriately separated by multiple 6 mil poly flaps (inside and outside flaps). The Contractor shall ensure that workers and equipment enter and exit the regulated area through the DF.

1. Decontamination units leading to the building exterior shall have a lockable, solid barrier entrance that allows airflow into the work area.

2. Place separate poly barrier sheeting outside each exterior building decontamination unit to separate/block the DF and work area(s) from public view.

3. Pre-approved remote decontamination systems will be acceptable for specific abatement methodologies (i.e. individual glovebag and exterior non-friable abatement). Each interior work area shall have a minimum of a one-stage decontamination unit.

4. Provide dedicated hot and cold running water to each shower unit. Provide HEPA-filtration (5 micron) for decontamination unit shower wastewater. Properly dispose of shower water per regulatory requirements.

5. Maintain floors of the decontamination unit dry and clean at all times. Do not allow overflow water from shower to enter changing room or other areas outside the DF.

6. The Contractor's Supervisor shall at all times monitor the entrance to the DF to prevent unauthorized access and maintain a written log of all people entering the work area.

7. A functioning three-stage decontamination chamber shall be maintained on site during asbestos abatement regardless of abatement types and methods.

8. Where feasible with preapproval by the Project Monitor, a secondary two chamber waste loadout facility may be installed. The waste load-out facility shall be separated by poly sheeting flaps at all times. The Contractor shall maintain appropriate negative pressure as outlined above during waste load-out procedures. The waste loadout facility shall be sealed when not in use.

F. Maintain emergency and fire exits from the work area, or establish alternative exit (air lock) satisfactory to local fire officials, and Awarding Authority. Exits shall be checked daily for exterior blockages or impediments to exiting.

G. Access Restrictions: The Contractor shall limit access to abatement work area to persons who have previously approval, including trained personnel, Project Monitor(s) and regulatory agents having legal jurisdiction over the work.

H. Pre-Cleaning: Prior to commencing work area preparations, the Contractor shall wet mist, clean, remove and bag any gross or residual asbestos material/debris identified within the work areas. HEPA vacuuming to pre-clean contaminated work area surfaces shall be performed particularly where the dust or debris will be disturbed during work area preparation (or glove bag removal operations). Where applicable, floors, walls, ledges, sills, ceiling systems, lighting, frames, fixed stationary items and equipment shall be wet-wiped and HEPA-vacuumed prior to sealing with polyethylene sheeting.

I. The Contractor shall remove non-contaminated, moveable items to the fullest extent possible out of the work areas prior to commencement of abatement activities. Contaminated moveable items shall be pre-cleaned via wet-wiping and HEPA vacuuming prior to being removed from the work areas. Fixed items and fixed equipment to remain shall be covered and completely sealed with two layers of six mil polyethylene sheeting. Surfaces, equipment and items shall be thoroughly cleaned with HEPA vacuuming and wet-wiping techniques prior to sealing.

J. The Contractor shall completely mask and seal critical barriers, entrances, openings, equipment, lighting, doors, windows, HVAC systems, controls, etc. remaining in the work areas using 6 mil polyethylene sheeting and duct tape.

K. The work area shall be sealed airtight to the fullest extent possible. Floor drains shall be thoroughly sealed to prevent contaminated water from exiting the work area.

L. Protect and maintain smoke/fire alarms systems in accordance with Town of Holliston Fire Department requirements and regulations. Alterations, precautions and shut down of fire/smoke alarm systems shall be as required by the Town of Holliston Fire Department. The Contractor shall schedule all necessary inspections and compliance to the Town's satisfaction.

M. After sealing critical barriers, the Contractor shall mask and seal floors, walls and ceilings of the work area(s) using appropriate layers of 6 mil polyethylene sheeting and duct tape. Sealing of the work areas shall be in compliance with Massachusetts DLS and DEP regulations. Surfaces to be abated shall remain exposed for proper removal.

N. The Contractor shall demarcate and post required OSHA asbestos warning signs at all entrances to the asbestos work areas and where waste materials are to be deposited. These signs shall remain in place until the successful completion of visual inspection and final clearance testing. The signs shall be posted in such a manner and locations that a person easily may read the legend as follows:

DANGER
ASBESTOS CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

O. Heating, ventilating and air-conditioning (HVAC) systems in the asbestos work areas shall be shut down, locked out and isolated to by the Contractor under the direction of the project monitor. HVAC ducting shall be sealed to prevent fiber migration. All supply and return diffusers and other openings shall be sealed air tight.

1. Where required, ducts shall be blanked and sealed on the interior to prevent fiber and air movement and cross-contamination.

2. Friable, damaged, and exposed fiberglass duct insulation shall be sealed air tight or removed as asbestos-containing waste material.

3.4 GENERAL METHOD OF ABATEMENT

A. Completely wet/mist ACMs with amended water prior to removal. After the ACMs have been fully wetted, they shall be carefully and completely removed from applied surfaces using suitable tools and equipment per the Contractor's approved work plan. Each layer of material containing ACM shall be removed down to the substrate. ACM shall be completely removed from substrate

surfaces. Each material and surface containing ACM shall be removed as ACM waste. ACM waste removed from surfaces shall be placed in approved asbestos labeled waste containers (six mil bags, drums, etc.) for proper packaging (wetted) and disposal. Water-soaked material shall be picked up and contained while wet to prevent water loss.

1. Completely remove ACM present between floors, ceilings, and walls. Seal back side openings to prevent contamination.

B. ACM waste shall not be permitted outside of the Asbestos Controlled Work Area except in leak-tight containers (bags, drums, etc.). Equipment and tools that are to be reused shall be thoroughly decontaminated so that no visible residue remains prior to removal from the Asbestos Controlled Area. If equipment is not thoroughly decontaminated, it shall be sealed in leak-tight containers so that no residue appears on the outside surfaces.

C. Bags and drums shall be marked with the label prescribed by 40 CFR, Section 61.152 and 29 CFR, Section 1926.1101 of OSHA Regulations. The outside of all containers shall be wet-cleaned or HEPA vacuumed free of debris before leaving the Asbestos Controlled Area.

D. Clean work area surfaces free of debris by HEPA vacuuming and wet-wiping methods. Abated surfaces, as well as work area floors, walls, equipment, sealed items, etc. shall be thoroughly cleaned of visible debris. Cloths used for cleaning shall be disposed of as contaminated waste.

E. Once the work area is clean, the Contractor’s Supervisor shall schedule a final visual inspection 24 hours in advance with the independent project monitor and required post abatement air sampling per Massachusetts regulations.

F. Work area surfaces may be sealed with a pre-approved lock-down encapsulant after completion of final visual inspections with Consultant approval and prior to final clearance air testing. Clearance air testing shall be conducted when inside and outside work area surfaces are clean and dry.

3.5 MINI-CONTAINMENT ABATEMENT

A. Removal of small quantities of ACMs (less than 25 LF/SF) may be conducted inside of a small negative pressure enclosure due to their location outside the main work area containments. Mini-containments shall be used with the approval of the Project Monitor where ACM locations are not contiguous to main work areas.

B. Prepare work area with polyethylene sheeting barriers and establish a contiguous decontamination facility (minimum one stage). The work area shall be completely enclosed with critical barriers, walls, ceilings, floors, and equipment sealed with six mil poly sheeting. Provide a source of negative air pressure within the mini-containment using a HEPA air filtration fan unit exhausted to the exterior.

C. Remove ACMs and place immediately into waste bags/containers. Ensure sufficient wetting of ACMs to minimize dust generation.

D. Mini-containments shall be thoroughly cleaned and left free of debris prior to final visual inspections and clearance air testing.

3.6 REMOVAL OF NON-FRIABLE MATERIALS

A. This Section covers the removal of certain non-friable ACMs such as transite cement board, floor tile and/or flooring mastics and/or floor leveling compound. Where appropriate, removal of other ACMs may be combined inside negative pressure containments.

B. Removal work shall be conducted inside of a negative pressure enclosure which has been constructed with polyethylene coverings, HEPA fan unit exhaust system and a 3-stage decontamination facility (equipment/dirty room, shower unit and clean/change room).

C. Interior walls and other fixed components will be demolished before or in conjunction with the asbestos abatement. The complete removal of all asbestos-containing flooring materials (tile, mastics, leveling compound) shall be performed in all locations where walls or other wall, cabinet, and vertical components are present.

D. Prior to abatement activities begin, demolish and remove non sheetrock wall, chase, lockers, unit ventilators, and fixed cabinetry/shelving components to fully access flooring materials for abatement. Remove uncontaminated waste as general construction waste outside the work areas prior to abatement.

E. Fixed items, porous surfaces, critical barriers, lights, windows, doors, openings, controls, etc. shall be sealed with six mil poly sheeting.

F. Vinyl cove-base material on gypsum (sheetrock) wallboard shall be removed and disposed as ACM waste.

G. Vinyl cove-base on block walls shall be removed as non-asbestos waste prior to abatement. Cove base removed during gross ACM removal shall be disposed as ACM waste.

H. Where flooring mastics are to be removed, install splash guards (6-mil polyethylene plastic sheeting) from the base of walls up a minimum of three (3) feet.

I. The Contractor shall remove and separate carpeting (if present) from the asbestos flooring within the completed negative pressure containment. Flooring material that remains adhered to the carpeting underside shall be removed and separated. Clean carpeting (no ACM contamination) may be removed from the work area prior to gross removal as general construction waste.

J. Carpeting that contains ACM material (ACM debris) that cannot be separated shall be disposed as ACM waste. All carpeting and non-asbestos floor tile that is adhered to or otherwise in contact with asbestos-containing mastics and/or leveling compound will be treated as asbestos contaminated. No extra compensation shall be given for removal of non-asbestos carpet mastics, flooring mastics, leveling compound or other materials necessary to achieve complete asbestos removal and provide the desired floor condition.

K. Asbestos-containing floor tile, flooring and/or linoleum shall be wetted with amended water prior to and during disturbance and waste packaging. Remove floor tile and/or linoleum in whole pieces or large sections as conditions allow. ACM and all associated affected layers shall be completely removed down to the floor substrate.

1. Unless approved in writing by duly authorized Owner representatives, the resulting floor finish shall be clean and smooth concrete in all locations.

L. Dry sweeping is prohibited. The Contractor shall use vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) to clean floors.

M. Removal of flooring mastic on concrete surfaces shall be performed using a pre-approved method.

1. Mastic removal solvent may be used with the pre-approval of the Owner.

2. Mastic on wood floors shall be removed using a method approved in advance by Awarding Authority.

3. Where abrasive grinding removal methods are employed, a full containment will be constructed prior to the removal operation and a decontamination facility with operational shower will be required.

N. Mastic Removal: Mastic shall be removed to a point where no mastic can be scraped from the concrete substrate. A clean floor surface shall remain with minimal scarring. Maintain HEPA filtered AFDs operational in the work areas to provide airflow and odor control. HEPA vacuum and wet-wipe surfaces free of dust and debris.

1. If solvent is used by the Contractor, a low odor mastic solvent will be approved by the Awarding Authority. All used rags, cloths and hand tool heads shall be treated as asbestos waste.

2. Alternative forms of mastic removal and work area preparation shall be pre-approved by the Awarding Authority and Awarding Authority's Representative prior to use.

O. Remove, clean surfaces free of debris, conduct final visual inspections and post abatement air sampling as outlined herein.

3.7 GLOVE BAG REMOVAL METHODS

A. Removal of asbestos pipe and pipe fitting insulation using the HEPA filtered ventilated glove bag technique shall be performed inside a negative pressure enclosure.

B. The Contractor shall perform glove bag removal operations in compliance with manufacturer's requirements and governing regulations, including, but not limited to Mass DEP regulations.

C. Glove bag removal work shall be planned in advance and scheduled with the Owner's Consultant who will observe and monitor all glove bag removal activities.

D. Glove bag removal will be performed inside a negative pressure containment to include HEPA filtration and decontamination facilities. HEPA-exhaust units shall be installed in each Work Area.

1. Work area modifications will be allowed with the Owner's consultant pre-approval.

E. The Owner's consultant shall pre-approve the work area containment and complete individual glove bag preparation prior to gross removal. The Contractor is responsible for demonstrating to the Owner's Consultant the tightness of the glove bag to the piping.

F. All ACM in each work area shall be sealed with glove bags (all glove bags hung/installed) prior to starting removal. Hanging glove bags and immediate gross removal is not allowed. Glove bags shall not be moved (slid) along the piping to remove asbestos material.

G. Isolate work area, exclude unauthorized personnel from the immediate area, seal critical barriers, and install warning signs.

H. Critical barriers, openings, controls, equipment, lights, windows, and floors shall be sealed with a minimum of one layer of six (6) mil poly sheeting

I. All glove bag enclosures will undergo a final visual inspection and final air clearance testing by the Owner's Consultant.

J. Asbestos-containing insulation material shall be completely removed from piping, fittings, valve, unions, etc.

K. Fiberglass/neoprene insulation may remain in place and shall be protected and cleaned free of debris. Damaged fiberglass insulation remaining in the work areas shall be removed as ACM waste.

L. Where asbestos-containing pipe hanger block material exists, place wood or other suitable solid material under pipe and replace metal hanger plate.

3.8 REMOVAL OF EXTERIOR ACMs

A. This Section covers the removal of asbestos-containing materials such as caulking, window glazing compound, sealants, tar mastics, and roofing flashing compound from the building exterior. It is the responsibility of the Contractor to use means and methods that comply with all governing regulations.

B. Non-friable ACM roofing waste will be removed and disposed using appropriate poly lined dumpsters covered with poly sheeting or equivalent methods in accordance with MA DEP regulations.

C. Asbestos abatement work covered under this section shall be performed in a Regulated Work Area a minimum of ten feet out from the building façade. Use asbestos caution tape and appropriate OSHA signage to define/outline the Regulated Work Area. The Contractor shall restrict unauthorized personnel from entering the regulated work area.

1. The Contractor shall be responsible for any public access protection and/or rerouting required by the Owner.

D. Perform pre-cleaning activities using HEPA-filtered vacuums and/or wet wiping/cleaning in instances where existing dust or debris is present.

1. All loose ACM debris throughout the Work Areas shall be collected and bagged for disposal.

E. A functioning existing Decontamination Facility (DF) shall be used for workers to wash and clean. A remote DF adjacent to the work areas will be required.

F. The Contractor shall use plastic sheeting “drop cloths” placed on all horizontal and ground surfaces below the removal work. The plastic sheeting shall be of sufficient size to capture all falling debris. Secure poly sheeting to prevent it from blowing away and to prevent tripping/fall hazards.

G. The Contractor shall use wet methods and HEPA vacuums during removal work to minimize the “release” of asbestos into the environment.

H. Minimum worker protection shall include disposable suits, hand protection and respiratory protection (minimum half-face air purifying respirators.

1. OSHA compliant fall protection methods shall be employed where required by regulations.

I. Removal of Roofing ACMs

1. HVAC systems shall be shut down to the fullest extent possible. Building openings, HVAC and grills (fresh air intakes) will be sealed with 6 mil poly sheeting.

2. Fully wet and remove non-friable asbestos tar mastic, flashings, ACMs using hand tools and dispose using approved methods.

3. Place in waste containers with appropriate bladder bag systems for proper transport and disposal.

3.9 ASBESTOS WASTE DISPOSAL

A. All routes through the building and exterior walkways to be used for the transportation of contaminated wastes shall be pre-approved at the direction of the Awarding Authority and Awarding Authority's Representative.

B. During waste load out activities, the contractor shall restrict public access through the waste load out route and elevator. If required, seal off or use barrier tape to restrict access. Surfaces within the waste load out route shall be left free of debris and water leaks and spills. The contractor is responsible for cleanup activities of spills and contamination.

C. Asbestos waste will be removed from the work site daily whenever possible. Provisions for temporary on-site storage (dumpster) will be allowed only with the approval of the Awarding Authority. The Awarding Authority shall approve the location of the on-site dumpster. Otherwise, all ACM waste will be transported offsite in a solid container (box truck) with appropriate poly lined surfaces to the contractor's TSD (Transfer, Storage, Disposal Facility) or directly to the designated landfill for disposal per the Contractor’s state notification.

D. Procedures for hauling and disposal of asbestos waste shall comply with 40 CFR 61, Subpart M, 40 CFR 141 and 257, and State of Massachusetts Department of Environmental Protection Solid Waste Rules, regional, and local standards. The landfills to be utilized shall be pre-approved by the Awarding Authority.

E. Waste Shipment Records (manifest) shall be completed in full, signed by an officer of the contracted abatement firm and notarized to provide appropriate documentation of waste disposal. The waste manifest shall show the chain of custody for the material, appropriate quantities and respective dates. The original

manifests shall be submitted within 45 days to the Awarding Authority's Representative after the completion of each waste disposal sequence.

3.10 WORK AREA RE-ESTABLISHMENT

A. Completely remove abatement materials, temporary electrical power systems, equipment, tape, poly sheeting, etc. Re-establishment of the work area to the public shall occur only after the completion of cleaning procedures, and after clearance air monitoring has been performed and documented by the Awarding Authority's Representative to the satisfaction of the Awarding Authority. No extra cost will be allowed for additional site visits to complete the punch list items.

B. Following a successful final visual inspection and clearance monitoring, the Contractor shall carefully remove the decontamination facilities, regulated areas, and poly control critical barriers. Remaining equipment and tools belonging to the Contractor shall be promptly removed from the work area.

C. The Contractor and Awarding Representative shall jointly inspect the floors and walls for any visible asbestos residue. If present, additional cleaning by HEPA vacuuming and wet wiping may be required of the Contractor and sampling procedures may be performed.

3.11 SPECIFIC ABATEMENT REQUIREMENTS

A. Boiler Room Abatement:

1. Completely remove the identified ACMs as outlined herein. Removal of thermal system insulation shall include tank, breaching, boiler, pipe and pipe fitting insulation and associated ACM debris. Remove interior asbestos boiler gaskets, packing and linings within the negative pressure work area.

2. Remove existing ACM debris on floors prior to work area preparations.

3. Construct a negative pressure containment with full three stage decontamination facility. Seal all openings, porous surfaces and equipment with poly sheeting.

4. Prior to gross removal, remove all non-contaminated miscellaneous items out of the work. Materials remaining in the work area, including fiberglass insulation, shall be disposed as ACM waste.

5. Removal of ACMs and cleaning of surfaces shall be performed prior to final inspections and testing.

6. The boiler shall be completely dismantled for access of interior ACMs during boiler room abatement. Insulation, packings, linings etc. shall be removed as ACM waste prior to final inspections.

B. Pipe Crawlspace/Pipe Tunnel Abatement

1. Completely remove ACMs (pipe and pipe fitting insulation) throughout pipe tunnels and main crawlspace within negative pressure containment(s).

2. Construct a negative pressure containment with full three stage decontamination facility and HEPA filtered exhaust systems. Preclean surfaces of visible debris. Seal all openings and equipment with poly sheeting. Provide temporary lighting as required to sufficiently illuminate the work areas. Place poly sheeting on horizontal floor surface under piping during removal operations. Collect all debris and poly sheeting post removal and dispose as asbestos waste.

3. The Contractor may install additional pipe tunnel openings to allow for additional access and emergency exit.

4. **The Contractor shall comply with all OSHA General Industry and Construction Industry confined space work standards (CFR 1910.146 Permit Required Confines Spaces).** The crawl spaces shall be assessed by the Contractor for the confined space designation. A written assessment on the crawlspace "Confined Space Classification" shall be provided by a Licensed Project Designer, CIH and/or CSP. Continuous daily atmospheric testing with a calibrated 4-gas monitor is recommended.

   a. The Contractor may install multiple 3' x 3' openings in the concrete slab floor in designated areas to provide additional airflow and work area access.

5. Completely wet and remove pipe and pipe fitting insulation from surfaces within the crawlspace and back side pipe tunnel. ACM removal methods shall be performed in accordance with the Contractor's preapproved work plan.

   a. Coverings (if present) on asbestos pipe and pipe fitting insulation shall be removed as asbestos waste. All remaining insulation and debris in the work areas shall be removed as ACM waste.

6. ACM contaminated soils shall be removed and disposed by the Contractor. The Contractor shall remove soil as required to comply with Mass DEP regulations.

7. Properly containerize, wrap, seal, double bag all waste within the regulated area prior to transportation and disposal.

8. Surfaces shall be cleaned and left free of debris prior to final visual inspections and clearance air testing.

C. Enclosures/Pipe Chases

1. The Contractor shall remove enclosed pipe insulation within pipe chases throughout the building. Chases include layers/sections of asbestos sheetrock/wallboard systems, wood paneled, cinder block walls (CMU), glazed block, terracotta block type construction materials.

2. The contractor shall demolish and open each solid ceiling and vertical chase (restroom, heating, perimeter, etc.) throughout the building for inspection of enclosed ACMs. Openings shall be large enough to the Owner's Representative(s) satisfaction to sufficiently inspect for the presence of ACMs.

   a. The Owner's Representative shall inspect each and chase enclosed ceiling/wall spaces containing or suspected of containing piping for interior, enclosed ACM. The Contractor shall demolish and open walls, ceiling and chases to the satisfaction of the Owner's Consultant to properly inspect and determine the presence of interior, enclosed ACMs.

3. Where enclosed ACMs exist, the chases shall be fully demolished to sufficiently open and access the entire length of the chase and interior ACMs. Fully remove non-contaminated wall and block debris material prior to abatement.

4. A mini-containment or other proposed regulated area shall be constructed contiguous to each chase to fully enclose and contain the ACM. A decontamination facility and negative pressure shall be installed and utilized during abatement.

5. Where appropriate, glove bags may be used to remove pipe system insulation. Completely remove ACM between floors and walls. Seal back side openings to prevent contamination.

6. Pipe chase abatement may take place in conjunction with flooring abatement negative pressure enclosure work areas.

7. The Contractor shall seal vertical openings air tight within each pipe chase leading to the floor above and below.

8. Each pipe chase abatement enclosure shall be removed of ACM, ACM debris and left free of visible debris prior to final visual inspections and clearance air testing.

D. Interior ACM Abatement

1. Prepare negative pressure containments as outlined herein for the proper removal of thermal system insulation and non-friable ACMs. Seal critical barriers, openings, equipment, doors, windows, porous surfaces, etc. with six mil poly sheeting.

2. Where feasible, the entire building wing section (4 separate wings) shall be included in one asbestos controlled work area. Work areas shall not be larger than the immediate wing being abated.

3. Install decontamination facilities and HEPA air filtration within each asbestos controlled work area.

4. Remove carpeting covering ACM floor tile free of tile and move outside the work areas.

5. Remove contaminated carpeting with ACM debris present as asbestos-containing waste material (ACWM).

6. Remove cabinetry, shelving, metal supports, closets, lockers, floor track/grid, etc. covering ACM floor tile and pipe insulation to fully expose ACMs and move to designated area.

7. Remove asbestos flooring materials under sheetrock walls (ACM) and floor support tracking inside negative pressure containment work areas.

8. Remove suspended ceiling, spline ceilings, sheetrock ceilings and plaster ceilings within negative pressure containment(s) to access ACMs. Uncontaminated ceiling material may be removed from the work area(s) and disposed as construction waste.

9. ACM contaminated cove base (vinyl) applied to gypsum (sheetrock) wallboard shall be removed as ACM waste. Vinyl cove base applied to block walls shall be removed as construction waste prior to gross ACM removal or disposed as ACWM.

10. Pipe and pipe fitting insulation may be removed using glove bag removal techniques as outlined herein.

11. Asbestos floor tile and mastic materials shall be fully removed within negative pressure work areas. Floor tile shall be wetted, removed using hand tools and appropriately containerized.

12. Asbestos controlled work areas shall be completely removed of ACMs and cleaned free of debris prior to final visual inspections and clearance air testing.

13. Sheetrock (gypsum) wallboard systems containing asbestos joint compound, wall paneling and wood studs containing asbestos mastic, and transite asbestos cement board shall be removed and disposed as ACM waste within negative pressure work areas. Entire sheetrock wallboard systems throughout

E. Transite Cement Board and Decorative Soffit Panels –

1. Non-friable, exterior transite cement board and fascia board panels (vertical and horizontal soffit) shall be fully removed as asbestos waste. Panels shall be removed whole without breakage to the fullest extent possible.

2. Ladders and mechanical lifts shall be used in accordance with OSHA regulations to access ACMs.

3. Properly shut down, lock out, and remove all energized systems, brackets, etc. attached to or adjacent to ACMs in accordance with OSHA regulations.

4. Asbestos regulated areas shall be established prior to abatement. Poly sheeting shall be placed below the work areas to collect debris. Asbestos caution tape and signs shall be used to regulate the work area. Floor and window/door sills and surfaces shall be left free of ACM remnants and debris. ACMs and contaminated materials shall be wetted, completely removed, containerized and disposed as asbestos waste.

5. The contractor shall schedule final visual inspections with the Owner's consultant prior to completion.

F. Removal of exterior window, vent, and door unit ACM shall be as follows. Removal of exterior window, vent, and door unit ACM shall be as follows.

1. Establish a regulated area, to include poly sheeting on ground surfaces, decon facility unit, caution tape and OSHA signage a minimum ten feet from the building.

2. For window glazing compound removal that removes the entire window sash, the inside of the window opening shall be sealed with one layer of plastic sheeting before removal begins.

3. For window, door and vent caulking removal that is performed from inside the building, a negative pressure containment will be required with final visual inspection and final clearance air testing performed inside each work area by the Owner's Consultant.

4. Remove window sashes containing asbestos as whole components that are wrapped and sealing in labeled, poly sheeting.

5. For the removal of ACMs via the exterior, a final visual inspection will be performed by the Owner's Consultant. All remaining surfaces shall be free of ACM and general debris.

6. ACMs shall be wetted prior to its disturbance and maintained in a wet condition throughout the removal operation.

7. Remove ACMs (caulkings and glazing compound) using hand tools (e.g. scrapers, chisels, knives). Rotary grinders or other power tools shall not be used to perform the removal unless the work is performed inside a negative pressure enclosure or inside a glove bag enclosure.

8. Removed ACM (caulking) and window sashes containing glazing compound shall be immediately placed into proper asbestos waste bags or wrapped in poly sheeting for disposal. ACM debris on building and ground surfaces shall be removed by the Contractor.

9. Post window abatement; prevent public access to the building.

G. Roofing ACMs

1. Remove tar mesh flashing throughout the original tar gravel built up roof systems. Remove roofing material beyond the application of flashing. Flashing exists approximately a minimum two to three feet from perimeter edge, at middle exhaust hoods and other roof penetrations which requires complete abatement.

2. Remove tar mastic and caulkings from perimeter brick façade, copper flashing and metal exhaust duct hoods. Contaminated components and materials shall be removed whole and disposed as ACM waste. Removal shall be conducted within regulated areas.

3. The contractor shall schedule final visual inspections with the Owner's consultant prior to completion.

H. <u>Pipe Insulation under Slab</u> –

1. The Contractor shall access each individual asbestos insulated piping line/extension running under the front wing (meeting room and office area) concrete floor slab. Concrete slab shall be cut and removed from the work areas to properly access pipe insulation for removal. Pipe insulation shall be removed within a negative pressure work area. Debris and contaminated soil shall be removed and disposed.

2. The Contractor shall cut and provide a sufficient number of access holes to locate and identify or refute the presence of ACM piping to the Owner's representative satisfaction.

3.12 SUMMARY OF ACMs

A. The ACMs listed below have been identified for complete removal at the Flagg Building: **Summary of ACMs present:**

1. **Boiler insulation** – boiler room on abandoned boiler (note – ACM debris on floor)

2. **Interior boiler caulkings, gaskets, packings, and linings** - entire boiler and loose box of gaskets/rope

3. **Breeching insulation** – boiler room on boiler flue exhaust to chimney

4. **Tank Insulation** – boiler room

5. **Hard block and pressed paper pipe insulation** (and associated pipe fitting insulations) – throughout original building, boiler room, Edison room, and crawlspaces

6. **Cementitious pipe fitting insulation** (on original fiberglass pipe insulation) – Stage HVAC loft

7. **Roof drain pipe insulation** – front admin wing in maintenance shop (1 riser)

8. "**Transite" asbestos cement board** - (interior ceilings and exterior soffits)

9. **Concrete fascia panels** - (New addition wing upper soffit vertical decorative panels)

10. **9" x 9" floor tile** – throughout rooms in original wings

11. **12" x 12" brown floor tile and black floor mastic** – Back new wing and front admin. wing

12. **12” x 12” white floor tile and black floor mastic** – 2 restrooms in front storage wing hallway

13. **Joint compound on sheetrock wallboard systems**– throughout original and new building wings (excluding entrance foyer divider wall)

14. **Black/Brown tar mastic bead compound** – on/behind wood wall paneling and wood framing (classroom 107)

15. **Exterior window glazing compound -** (wood and aluminum window units)

16. **Exterior gray window caulking -** (original wood window units)

17. **Exterior door caulking** – original building wings

18. **Exterior caulking -** on exterior small block windows and exterior metal vents

19. **Black metal sink mastic undercoating** – original building

20. **Flexible cloth duct connector** – Stage HVAC Loft on metal ducting

21. **Red duct mastic sealant -** Stage HVAC Loft and stage area

22. **Asbestos debris** – Stage, meeting room, front admin offices, HVAC loft – upper extension and in northeast vertical stage HVAC chase

23. **Fire door interior white block insulation** – Front admin. wing 2nd floor and 1st floor hallway

24. **Tar mastic flashing compound -** on copper roof level flashings and brick facades

25. **Tar mesh roof flashing material** – Roof level ~2-3’ foot wide at perimeter edges and exhaust hood/penetrations (original wings)

26. **White and gray caulking materials -** on roof level metal duct exhaust hoods

END OF SECTION

SECTION 0208100 – HAZARDOUS BUILDING MATERIALS REMEDIATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Related Sections, Drawings and general provisions of this Contract, including Town Holliston Bid Package requirements, Instructions to Bidders, Contract documents, Massachusetts prevailing wage rates, General, Supplementary Conditions and Addenda apply to this section, including, but not limited to:

1. Attachment A
2. Table 1 –Confirmed Asbestos-Containing Materials
3. Table 2 – Hazardous Materials Inventory
4. Attachment D Annotated floor plans (pages 1-5) Approximate ACM locations for reference only.
5. Section 02 41 00 Demolition
6. Section 02 81 00 – Asbestos Abetment
7. Section 02 84 00 – Waste Management and Disposal
8. Demolition related sections, drawings, and documents

1.2 SUMMARY OF WORK

A. Remove, package, recycle and dispose of hazardous building materials throughout the former Flagg Building (100 Linden Street, Holliston, MA) as outlined in Table 2 or encountered during demolition. Information and quantities included in the Specifications are provided for reference only.

B. The Work includes complete removal, recycling, and disposal of the following hazardous building materials throughout the former Flagg Building:

1. PCB/DEHP and Non-PCB ballasts to be removed, recycled and disposed
2. Mercury vapor tubes/bulbs in fluorescent and high intensity lights
3. Mercury containing thermostat ampules

4. Fixed and loose metal halide (HID) and other high intensity light tubes and bulbs

5. Batteries and bulbs associated with emergency lights, signs, smoke detectors, strobes, etc.

6. Oil-containing cylinders, tanks, etc. (miscellaneous sources)

7. CFCs (Freon) in air-conditioning, refrigeration and freezer units

8. Miscellaneous containerized wastes, cleaning products, paints, oil-based products, fire extinguishers, etc.

9. PCB containing building materials

C. An inventory with the location and estimated quantities of materials is provided in the attached Section 3.04 Table 2 at the end of this section.

D. The Contractor shall remove, package, including characterization (any testing that may be required by disposal facilities) and legally dispose (recycle) of specified materials.

E. The Contractor shall file necessary notices, abatement plans, obtain permits and licenses, and pay governmental taxes, fees, and other costs in connection with the work. Obtain necessary approvals and submit remediation plans of each governmental agency having jurisdiction.

F. Comply with provisions within these Specifications, Federal, state and local regulations, codes and standards having jurisdiction, and Contractor's Health and Safety Plan.

G. The bidder shall include the complete cost including expenses, labor, permits, transportation and materials, etc. required to remove, recycling, and dispose ACMs throughout the building as required herein.

H. Final payment shall not be made until required submittals are completely supplied in full to the Owner. The Owner reserves the right to hold ten percent (10%) as final payment until finals submittals are supplied in full.

1.3 DESCRIPTION OF WORK

A. This section specifies the requirements for the proper removal and recycling/disposal of Hazardous Building Materials (HBMs) identified herein at the Former Cole-Flagg School Building, located at 100 Linden Street, Holliston, Massachusetts (Subject Site). The hazardous building materials abatement contractor (Contractor) shall furnish all labor (via Massachusetts prevailing wage rates), materials, equipment, and services for the removal, recycling and disposal of

specified HBMs as outlined in the Section 3.04 Hazardous Building Materials Table and as required by the Awarding Authority (Town of Holliston).

B. The Work includes the complete removal, recycling, and disposal of hazardous building materials (including, but not limited to, regulated and universal wastes) outlined herein and located in on or about the Subject Site, including but not limited to those as described herein and any additional hazardous building materials discovered during the work.

C. The intent of the work is to completely remove hazardous building materials from the building to allow for building demolition. It is the Contractor's responsibility to determine the most efficient method and manner to safely and legally perform the work.

D. The Contractor shall prepare a Bid Price using his own estimated quantities of materials determined during the pre-bid site inspection. The quantities listed in this section and attached Hazardous Building Materials Inspection Report represents estimated quantities only and are not guaranteed. Materials and locations identified herein shall be reviewed completely and thoroughly by bidders. The Contractor is required to review and confirm quantities and existing field conditions. The Contractor shall remove and dispose/recycle each referenced HBM at the bid price regardless of minor variations in the actual quantities of materials present.

E. Bidders shall inform the Awarding Authority of any discrepancies between the quantities and types of materials specified herein and those verified to be present by the Bidder. If appropriate, an adjustment shall be made as to the types and/or quantities to be included in the Bid. Otherwise, no claims for extra payment due to incorrect quantities will be considered. By submitting a bid, a bidder agrees and warrants that he is familiar with the building site conditions, including the required scope of work and descriptions and that the bidder will produce the specified results.

F. The bidder shall include the complete cost including expenses, labor, permits, transportation and materials, etc. required to remove and dispose and/or recycle HBMs required by the WORK herein.

G. The Contractor shall be responsible for acquiring an EPA Waste Generator identification number as required for the removal and disposal of hazardous building materials from the site.

H. Any required limited demolition and component dismantling shall be carefully coordinated and performed in a manner to prevent damage to asbestos-containing materials (ACMs), PCBs/DEHP containing-materials, mercury, CFCs, oils and other regulated materials. The Contractor shall clean contaminated surfaces and components and damaged affected by his work.

I. The Contractor shall be responsible for preparing a site specific work plan to include health & safety components which outline the work to be performed. Refer to submittals sections 1.04 for specific requirements.

J. The Contractor shall be responsible for proper storage, use and waste disposal of any hazardous materials, chemicals or noxious products or processes used for removal of materials.

K. The Contractor shall be responsible for coordinating work and isolation of building systems to avoid exposure outside work areas to asbestos fibers, PCBs, lead dust, nuisance dust, fumes or noxious odors caused by work.

1.4 RECORDKEEPING AND DOCUMENTATION

A. Supplemental abatement plans and associated costs required for regulatory compliance shall be prepared by the Contractor, including associated costs.

B. Submittals

1. Site Specific Work Plan detailing the proposed construction schedule, worker training, site specific containment plans by floor and wing, including work processes and methods, including manpower and number of shifts to complete.

2. Training documentation of workers per OSHA 1910.1200.

3. Original Insurance Certificates - Umbrella General Liability Insurance Coverage to include Hazardous Waste Pollution Occurrence Coverage, with limits of not less than Three Million Dollars ($3,000,000.00) made out to the Awarding Authority/Owner as additionally insured (see Town of Millis Bid Package insurance policy and language requirements).

4. Original waste manifests within 35 days of offsite waste disposal.

5. No Town of Holliston waste shall be combined with other work site manifests. The Town of Holliston is not responsible for payment for any waste(s) not properly listed and traceable on specific manifests.

1.5 REGULATIONS AND REFERENCES

A. The Contractor is advised to thoroughly review the documents referenced in this Section. Strict adherence to the hazardous materials, noise, air, and water pollution regulations and requirements is required.

B. The current issue of each document incorporated by reference herein shall govern. Where conflict among requirements or with this specification exists, the more stringent requirements shall apply.

1. OSHA Regulations

   a. 29 CFR 1910 OSHA General Industry Standards
   b. 29 CFR 1926 OSHA Construction Safety Standards
   c. 29 CFR 1926.1101, OSHA Asbestos Standard
   d. 29 CFR 1910.1200, OSHA Hazard Communication Standard
   e. 29 CFR 1926.62, OSHA Lead Standard
   f. 29 CFR 1910.134, OSHA Respiratory Protection Standard

2. Environmental Protection Agency (EPA) Regulations

   a. RCRA. Resource Conservation and Recovery Act regulations. 40 CFR 260-299.
   b. U.S. Environmental Protection Agency Toxic Substance Control Act, TSCA, (Code of Federal Regulations Title 40, Part 761).
   c. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) regulations (40 CFR 300-399).

3. DOT regulations. Provide special attention to the Hazardous Materials Regulations, 49 CFR 171-180.

4. Massachusetts Department of Environmental Protection Waste Disposal Regulations

5. Applicable Local, City, or County Bylaws, Codes and Regulations

1.6 SUBMITTALS

A. A minimum of five (5) days prior to the work before work is allowed to start; the Contractor shall submit a Site Specific Work Plan to the Awarding Authority for review and approval. Upon review by the Awarding Authority's independent industrial hygiene consultant, the Contractor shall revise and provide all additionally requested documentation for final approval prior to starting the Work.

B. The Contractor's Site Specific Work Plan shall be reviewed for completeness, approved, and signed by a Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP) or Certified Hazardous Materials Manager (CHMM). Provide detailed credentialed documentation, including, name, address, certification number by certifying body.

C. Site-specific Hazardous Waste Handling Plan to include;

   1. Name, address, and ID number of the hazardous waste hauler(s), waste transfer route(s), and proposed disposal (incineration/recycling) site(s).

   2. Name of each company and individual(s) performing the work, including CFC reclamation, including certified licensing/permits.

3. Methods and work procedures to reclaim CFCs and recycling destination.

4. Methods, work procedures and packaging plan for removal of each HBM type at the site.

5. Designated temporary storage location prior off site transportation.

6. Personal Protective Equipment (PPE) including respiratory protection to be utilized.

7. Hazardous building material disposal and/or recycling plan by individual component.

8. Copies of all supervisor and worker certifications associated with OSHA 40 Hour Hazardous Waste Site Health and Safety Training in accordance with 29 CFR 1910.120.

9. Copies of all notifications, permits, applications, licenses, and like documents required by Federal, state, or local regulations obtained or submitted in proper fashion.

10. A proposed timetable for the complete job that shows the preparation, removal and disposal, clean up, testing, and teardown portions of the job for each work area. A critical path showing completion dates for each area shall be included.

11. Proposed Emergency Plan and route of egress from work areas in case of fire or injury, Including the name, directions/map and phone number of nearest medical assistance center.

12. Contractors Health & Safety Plan, including HAZCOM Program.

13. An MSDS or equivalent, in accordance with the OSHA Hazard Communication Standard (29CFR 1910.1200) for all products and materials proposed for use on the project.

D. No work on the project will be allowed to begin until Awarding Authority and designated consultant has reviewed the Pre-construction Submittals and Safety Plan for completeness. Any delay caused by the Contractor's refusal to submit this documentation in a timely manner does not constitute a cause for change order or a time extension.

E. Upon completion of the hazardous materials abatement work, the Contractor shall submit the following to the Awarding Authority for approval:

1. Copies of manifests, bills of lading and receipts acknowledging disposal of all hazardous waste materials, drums, tanks transformers, etc., from the

project, showing delivery date, quantity, and appropriate signature of disposal/recycling/incineration sites' authorized representative.

F. Permits: The Contractor shall be responsible for securing and paying for necessary permits for hazardous materials related work, including hauling, removal and disposal, building, fire, tank permits, and materials usage, Police and Fire details, or any other permits required to perform the specified work.

1.7 QUALITY ASSURANCE

A. The Contractor is responsible for the methods and materials used to perform the work. The Contractor is required to comply with all applicable Federal, state and local laws, regulations and ordinances. All costs and expenses associated with the completion of the Project shall be borne by the Contractor. When there is a conflict or overlap of these Specifications with any of the above references, the most stringent provisions shall apply.

B. The Contractor maintains responsibility throughout the project for protecting the building occupants and building systems and materials against asbestos fiber, biological, and chemical contamination of atmospheric and building surfaces. The Contractor is responsible for making right or cleanup of any such contamination and damage in accordance with the regulations and pre project conditions.

C. The Contractor is responsible for coordinating and maintaining the health and safety and procedures used for his employees and associated building occupants within the building in conformance with federal and state occupational safety & health regulations.

D. This project is subject to compliance with Public Law 91-596, "Occupational Safety and Health Act of 1970" (OSHA), with respect to all Rules and Regulations pertaining to construction 29 CFR 1926 and 29 CFR 1910, including Volume 36, Numbers 75 and 105, of the Federal Register, as amended, and as published by the U.S Department of Labor.

E. In addition to any detailed requirements of the Specification, the Contractor shall at his own cost and expense comply with all laws, ordinances, rules and regulations of Federal, State, Regional and Local Authorities regarding handling and storage of hazardous waste materials.

F. Significant levels of settled mold (fungal) growth and airborne mold (fungal) spores exist within the building

1.8 EXISTING CONDITIONS

A. Polychlorinated Biphenyls (PCBs)

1. The Contractor shall be made aware that building materials associated with the former Flagg Building are **likely to contain PCB's in**

concentration greater than one part per million (> 1 ppm). The suspect building materials include, but are not limited to, paints, caulkings, glazing compounds, roofing materials, mastics, glues, coatings, and other suspect building materials in the interior and exterior surfaces at the subject site.

2. The Contractor is directed to assume that other suspect building materials (which have not been previously sampled) may contain PCBs in concentrations >1 ppm. The Contractor shall take all necessary steps and precautions for proper removal, packaging, and disposal of these materials in compliance with EPA regulations.

3. The Work of this contract shall be in compliance with applicable EPA RCRA and Massachusetts DEP regulations for PCB management and disposal. Required costs associated with EPA RCRA compliance and plans, sampling, testing, analysis, packing, transport and disposal of PCB waste shall be the responsibility of the Contractor.

4. The Contractor shall, at his own expense, control, manage, package, remove and dispose PCB contaminated materials, debris and soil in accordance with applicable regulations.

5. Limited PCB Sample Analysis Results

   a. In preparation for the proposed demolition, a limited number of pre-characterization material samples were collected by PMEC for PCB analysis. The sample results are provided to the Contractor as limited information and general guidance in managing PCBs at the Subject Site. Four samples of representative window caulk and glazing compound materials were collected for analysis on January 20, 2017 at the Former Flagg Building.
   b. Refer to the PMEC PCB Sampling Report (dated 2/6/17) for specific sampling and analysis methods, locations etc. Table 1 below summarizes the sampling locations and results for reference.

Table 1 - Summary of PCB Sample Analysis for Former Flagg School Sampled January 20, 2017

Sample #s	Suspect Material by Homogeneous Area	General Location	Highest Result in ppm* for 9 PCB Aroclors
Original Building Wing			
104-01	Exterior window glazing compound	Original Building – on wood window sash outside room 111	None Detected
104-02	Exterior window caulking	Original Building – under wood window unit framing at brick façade outside room 111	None Detected
104-03	Exterior window glazing compound	Original Building – on wood window sash outside room 101	None Detected

104-04	Exterior window caulking	Original Building – under wood window unit at brick façade outside room 101	None Detected
New Addition Building Wing			
104-05	Exterior window glazing compound	New Wing Building – on aluminum/metal window sash outside room 116	None Detected
104-06	Exterior window caulking	New Wing Building – on aluminum/metal window at brick facade outside room 116	Aroclor 1242 – 70.8 ppm
104-07	Exterior window glazing compound	New Wing Building – on aluminum/metal window sash outside room 117B	Aroclor 1242 – 0.747 ppm
104-08	Exterior window caulking	New Wing Building – on aluminum/metal window at brick facade outside room 117B	Aroclor 1242 – 1.82 ppm

Note: ** = 1,000 micrograms per kilogram (ug/Kg) = 1 part per million (ppm)*

6. Summary of Results

a. Materials with < 1 ppm PCB - Materials with detections of PCBs less than 1 ppm or no detections within a laboratory reporting limit of less than1 ppm are not subject to the PCB regulations under 40 CFR 761.61. The following materials contained less than 1 ppm PCBs:

- Original Wing – wood window unit caulking
- Original Wing – wood and aluminum window unit glazing compounds
- New Wing – aluminum/metal window unit glazing compounds

b. Materials with ≥ 50 ppm PCB and Impacted Adjacent Building Materials - Materials with a concentration of PCBs of 50 ppm or greater are categorized as PCB Bulk Product Waste and are subject to regulation under 40 CFR 761.62. Under EPA's reinterpretation of 40 CFR 761, building materials impacted by migrating PCBs from adjacent PCB-containing caulks may be regulated under 40 CFR 761.62 as bulk product waste provided the impacted building material is removed at the same time as the source material. These materials are assumed as PCB-containing building materials regulated as PCB bulk product waste under EPA's reinterpretation of 40 CFR 761. The following materials contain or are assumed to contain ≥ 50 ppm PCB:

- New aluminum/metal window unit caulking (new and original buildings)
- Assumed - associated window sill concrete materials and façade brick product contacting caulkings

B. Lead-Based Paint

1. The following painted components listed below were sampled and analyzed to contain lead above the threshold level of 0.5%. Refer to the PMEC 2015 Hazardous Building Materials Assessment Report. Therefore,

the following paint types should be treated and handled as lead-based paint (LBP):

a. Miscellaneous paint layers and primer paint on interior metal door frames
b. Exterior white paint on wood window trim and window frames and sashes
c. Exterior white paint on exterior fascia board
d. Exterior painted metal doors and frames - assumed on original building

2. The Contractor shall comply with OSHA regulation 1926.62 Lead (worker exposure) and EPA RCRA 40 CFR Part 261 (TCLP testing procedures for disposal) regulations when handling, removing and disposing of components containing leaded-based paint.

1.9 COMPLIANCE MONITORING

A. The Awarding Authority shall employ an independent industrial hygiene consultant to perform pre, during and final visual inspections to monitor the Contractors work in compliance with the Specifications.

B. The independent consultant may conduct work area visual inspections throughout the removal process and make recommendations for the proper completion of the Work.

1. The industrial hygiene consultant may review the Contractor's work practices prior to the start of, and during all hazardous materials related work, and will report any specification violations to the Contractor. If the Contractor fails to correct deficiencies in a timely manner, the Awarding Authority will be notified, and work may be stopped until corrective response actions are implemented.

C. A post HBM removal final verification inspection for Work completeness shall be performed by the independent consultant accompanied with the Contractor’s Supervisor. The Work shall be completed when work area(s) surfaces are free of residual HBM debris and components as well as the complete removal of the specified hazardous building materials. The HBMs shall be properly contained, packaged and labeled, stored in a designated area or removed off site.

D. The Contractor’s on-site supervisor shall, upon request, sign a final visual inspection certificate of completion.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. All materials and equipment used on site shall conform to OSHA standards and as well as State and local ordinances.

B. Materials shall be fire retardant and comply with applicable Town of Holliston Fire Safety regulations and standards.

C. Fire Extinguishers - The Contractor shall provide multi-purpose ABC minimum rating to A40BC fire extinguishers. The Contractor shall comply with the applicable recommendations of NFPA Standard 10 "Standard for Portable Fire Extinguishers." Fire extinguishers shall be located where they are most convenient and effective for their intended purpose, but provide not less than one extinguisher inside each work area and one outside each work area.

D. Drums - The Contractor shall provide DOT approved drums or containers for the disposal of specified materials.

PART 3 EXECUTION

3.1 GENERAL CONSIDERATIONS

A. Approvals and Inspection

1. All temporary facilities, work procedures, equipment, materials, services, and agreements must strictly adhere to and meet these contract specifications along with NFPA, EPA, OSHA, and DOT regulations and recommendations as well as any other federal, state, and local regulations. Where overlap exists of these regulations, the most stringent regulation shall apply.

2. Work performed by the Contractor is further subject to review by the Awarding Authority. Modifications to these procedures and design may be considered if all elements of proper and safe procedures to prevent contamination and exposure can be demonstrated.

B. General Handling Requirements

1. Removal, handling, packaging, disposal and/or recycling of the components listed herein should be performed in accordance with the Massachusetts Universal Waste Management Standard (310 CMR 30.1034) as well as EPA’s Resource Conservation and Recovery Act (RCRA) and other governing regulations and requirements.

2. Workers who handle hazardous materials shall be properly trained and certified in safe and proper hazardous materials handling procedures. At a minimum, this shall include OSHA 40 Hour Hazardous Waste Site Health and Safety Training in accordance with 29 CFR 1910.120.

3. Any hazardous materials containers in poor condition shall be properly containerized (over drummed), labeled and removed as soon as possible.

4. Place waste in DOT approved containers and label the containers for transport to a licensed disposal site.

5. Use an authorized hazardous waste transporter to haul waste to a hazardous waste facility.

6. Follow all record-keeping, chain-of-custody, and reporting requirements, including a copy of the hazardous waste manifest.

C. Personal Protective Equipment (PPE)

1. At a minimum, the Contractor shall implement Level D PPE. PPE shall comply with the Contractor's corporate health & safety plan requirements.

2. Level D Protection includes the following:

a. Hard hat (for overhead work)
b. Coveralls (cotton) or Tyvek suit
c. Safety boots/shoes
d. Work gloves or chemically protective outer gloves (if deemed necessary)
e. Safety glasses or goggles

3. PPE shall be modified as conditions change. Additional PPE requirements shall be reviewed and approved by the Contractor's safety professional.

3.2 SPECIFIC HANDLING ITEMS

A. Mercury-Containing Equipment - Fluorescent Tubes, etc.

1. Mercury-containing equipment throughout the interior and exterior of the Subject Site shall be properly removed, packaged, transported and disposed or recycled.

2. Fluorescent light, metal halide, and other high-intensity discharge lamp tubes and bulbs shall be safely and carefully removed from each lighting fixture throughout the subject site. At no time, shall tubes be broken or crushed. All loose tubes, lamps and bulbs stored throughout the subject site shall also be removed for packaging, transport, and disposal/recycling.

a. In the event of a lighting tube/lamp breaking, properly sweep and place waste in double plastic taped bags and dispose of as universal waste as required by applicable regulations.

3. Bulbs and lamps will be removed and packed for intact storage into properly sized cardboard boxes, in a manner that that will eliminate breakage during packing, storage and transport.

4. Each storage box will then be labeled with a generator label and the date that the lamps were placed in the box. Properly label filled boxes with appropriate Universal Waste labels.

5. Safely move and store filled boxes for ultimate transport and recycling in a pre-approved temporary storage location within the building.

6. Transport all mercury-containing containers and boxed to the designated destination facility. Ensure proper disposal and recycling of mercury-containing equipment.

7. Provide all waste shipment and recycling records and incorporate them into the final waste disposal documentation report.

B. Thermostats: Remove, package, and dispose mercury containing glass ampules located in 2nd floor thermostats and switches. The glass ampules shall be removed from thermostats and other mercury controls without breakage and packed into leak-tight containers to safely transport them.

C. Light Ballasts

1. Light ballasts throughout the interior and exterior of the Subject Site shall be properly removed, packaged, transported, and disposed or recycled. Ballasts shall be treated as containing the following regulated hazardous building materials:

   a. Polychlorinated biphenyls (PCBs)
   b. Di (2-ethylhexyl) phathatlate (DEHP)
   c. Confirmed Non-PCB/DEHP ballasts – for recycling

2. PCB and DEHP containing material and shall be properly handled, containerized, and disposed. Wherever feasible, regulated materials and associated components shall be recycled.

   a. The Contractor along with the Awarding Authority’s IH Consultant shall assess, confirm, and determine the PCB and DEHP content of ballasts throughout the building.
   b. For bidding purposes, the Contractor shall treat ballasts as containing damaged, leaking PCB and DEHP material.

3. Ballasts shall be removed utilizing chemically resistant gloves, as exterior surfaces may contain trace quantities of PCB's, in accordance with all Federal, State, and local laws and regulations.

4. If a leaking ballast or visibly contaminated light fixture component, or other PCB/DEHP equipment is detected during removal, workers shall

immediately don chemically resistant protective suits, i.e., one made of Tyvek, to reduce skin contact with PCB's and/or DEHP.

a. Leaking and damaged ballasts will be separately handled and stored in six mil polyethylene lined containers with proper labels. Leaking ballasts shall be kept separate from all other items.
b. Leaking ballasts and damaged ballasts shall be managed in accordance with the Contractors pre-approved health and safety plan.

5. Ballasts, contaminated fixture components, and other PCB/DEHP contaminated items shall be placed in double 6-mil thick polyethylene bags immediately upon removal. Bags will be labeled with the following yellow PCB caution label in accordance with 29 CFR 1910.145:

CAUTION
CONTAINS
PCB's
(Polychlorinated Biphenyls)
A toxic ~~environment conta~~minant
requiring special handling and
disposal in accordance with U.S.
Environmental Protection Agency
Regulations 40 CFR 761 - For
Disposal Information contact the
nearest U.S. EPA Office.

In case of accident or spill, call toll-free the
U.S. Coast Guard National

6. After labeling, place bags immediately into prepared, labeled 55-gallon steel drums or other Department of Transportation (DOT) approved containers. Drums shall be labeled with the same label depicted above. Separate ballasts, fixture components, and other equipment into separate drums.

7. Use new 17C 55-gallon open head steel drums or similar approved drums that have been approved for transporting hazardous materials. Used or reconditioned drums may be used only if they have been properly cleaned, tested, and labeled.

8. Remove, characterize and legally dispose at an appropriate off-site PCB recycling/disposal facility all PCB, DEHP and non-PCB fluid-containing light ballasts throughout the building in accordance 40 CFR 761.

D. Refrigerants (chlorofluorocarbons)

1. The Contractor shall properly reclaim and dispose and/or recycle refrigerants / freon containing chlorofluorocarbons (CFCs) in refrigeration equipment and components throughout the Subject Site.

2. Collect and analyze refrigerant samples, as necessary, to identify system gases from all refrigerant-containing vessels and systems. These systems include, but are not limited to, refrigerant coolants associated with water fountain bubblers and the main building HVAC refrigerant supply within the roof top chiller unit, including associated distribution lines.

3. Evacuate all refrigerant-containing vessels and systems using a vacuum pump to collect refrigerants into a reclamation vessel. Furnish and install all necessary generators, valves, and fittings required to capture and collect the refrigerants in DOT-approved recovery cylinders, tanks or drums. Properly label all recovery cylinders, tanks and drums in accordance with applicable regulations. Operate the vacuum pump for a sufficient period to completely evacuate systems (containers, supply lines, etc.) prior to disconnecting from the system.

4. All activities associated with the removal and reclamation of refrigerant gases shall be in accordance with Section 608 of the Federal Clean Air Acts Amendment of 1991.

5. The Contractor shall utilize trained and certified technicians who have been properly trained in the use of equipment for handling the refrigerants.

6. After removal of all refrigerant, transport reclaimed vessels for proper disposal/recycling in accordance with applicable regulations. Certificates of reclamation/recycling shall be submitted to the Awarding Authority within 20 days of completion. Additionally, provide documentation to include technician licensing, quantity, transporter and destination facilities.

E. Oils

1. The Contractor shall properly remove and dispose (recycle) oils throughout the Subject Site. These oils include, but are not limited to;

   a. Hydraulic oil in door closers
   b. Diesel oil in emergency generator tank and lines
   c. Hydraulic oil associated with boiler room compressors and lines and associated containers
   d. Residual oil associated with boiler oil burner and associated lines and containers
   e. Miscellaneous (loose) oil containers stored throughout subject site
   f. Residual oil in above ground storage tanks (ASTs) – boiler room

2. Remove and dispose above ground storage tanks (ASTs) in accordance with State and local regulations. Coordinate inspections, removal and

disposal of ASTs with the Awarding Authority and Local Fire Department requirements.

3. Completely drain, containerize and dispose (recycle) oils from each tank, system and associated lines from each oil containing system.

4. Door closer reservoir units may be removed whole, intact, as an alternative, from the door closers.

5. Collect, characterize, and drum all fluids/reservoirs by compatible classification (i.e., hydraulic, diesel, antifreeze, etc.), including decontamination fluids from the above described equipment and piping. Label drums and containers for transport and recycling/disposal.

6. After removal of hazardous components, dispose of remaining equipment carcasses and piping in accordance with applicable regulations. Contractor shall submit documentation verifying testing, removal, transportation, and disposal at the approved disposal facilities.

F. Batteries

1. Batteries associated with miscellaneous sources shall be properly and safely collected, packaged and disposed (recycled).

2. Batteries and components associated with emergency light fixtures, emergency exit lights, smoke detectors, alarm systems and other sources batteries will be carefully removed and packaged for recycling using DOT approved containers.

G. Miscellaneous Waste Materials

1. All remaining miscellaneous hazardous building materials shall be characterized and disposed of in accordance with applicable State and Federal regulations. These waste materials may include but are not limited to, lead acid batteries, cleaning compounds and boiler treatment chemicals. Disposal manifests shall be provided for all regulated and universal waste disposal streams generated.

2. The Contractor shall remove miscellaneous hazardous building materials not previously removed by the Awarding Authority. These HBMs may include, but are not limited to:

   a. Boiler treatment chemicals – boiler room, mechanical rooms, storage rooms, etc.
   b. Fire Extinguishers – throughout the Subject Site
   c. Cleaning compounds – throughout the Subject Site
   d. Miscellaneous paints and oil based products (including outside storage room).

3. The Contractor shall remove and recycle each regulated waste item and associated components that require removal per Massachusetts regulations to allow for building demolition.

3.3 PCB COMPLIANCE GUIDANCE

A. This limited remediation compliance guidance has been developed for the remediation of the identified bulk product waste including caulk materials containing concentrations of PCBs ≥50 ppm and adjacent building materials with PCB concentrations ≥1 ppm, and disposal requirements for excluded PCB Bulk Products (materials containing concentrations of PCBs <50 ppm).

1. The Contractor is responsible for proper PCB waste compliance including sampling, analysis, waste determination, packaging, disposal, etc. in accordance with EPA RCRA requirements.

B. Under 40 CFR Part 761 and given the detected PCB concentrations (> 50 ppm), the building caulk and adjacent building materials, once removed, will be classified as a PCB Bulk Product Waste per 40 CFR 761.62 and, as such, will be managed accordingly. Adjacent building materials impacted with PCBs will also be considered bulk product waste per EPA's "PCB Bulk Product Waste Reinterpretation" released October 2012, unless determined otherwise by sample analysis. Under the reinterpretation of 40 CFR 761, building materials contaminated by the migration of PCBs from PCB bulk product waste may be handled and disposed of as PCB bulk product waste, provided building material is designated as such at the time the abatement plan is prepared.

C. Site Preparation, Controls, and Worker Protection

1. A Health & Safety Plan will be developed specific to the work activities. All workers will follow applicable federal and State regulations regarding the work activities, including but not limited to Occupational Safety and Health Administration (OSHA) regulations, fall protection standards, respiratory protection, ladder/scaffolding safety, personal protective equipment, etc.

2. Powered tools used for the remediation will be equipped with appropriate tool guards and dust/debris collection systems (i.e., high efficiency particulate air [HEPA] filters). No grinding and saw-cutting of PCB-containing caulk and glaze is permissible.

3. Prior to exterior work, ground cover consisting of minimum 6-mil polyethylene sheeting or equivalent will be placed along the building walls and ground to a minimum of ten (10) feet beyond the work area to serve as containment for any and all debris or building materials removed.

4. PCB work areas will be HEPA vacuumed following remediation activities both prior to and after removing critical barriers.

5. Solids generated from decontamination activities and abatement controls (i.e., polyethylene sheeting, etc.) will be disposed of as >50 ppm PCB waste with the solids generated during remediation. Waste water will be containerized and characterized prior to disposal at an approved facility.

D. Worker Training and Protection

1. Work will be performed as described in the scope of work by qualified, trained and licensed personnel in accordance with all OSHA, EPA, and Massachusetts Department of Environmental Protection (MassDEP) requirements. For work crews performing PCB remediation, the crew foreman will have successfully completed 40-Hour Hazardous Waste Operations (HAZWOPER) training in accordance with 29CFR 1910.120.

2. A three-stage personnel decontamination area will be set up for personnel exiting the remediation containment. Decontamination procedures will include vacuuming loose debris from protective clothing, rinsing and scrubbing with brushes external protective coverings, removing external protective coverings, and rinsing the respirator. All PPE and waste water will be disposed of as hazardous waste.

E. PCB Bulk Product Waste Removal

1. Aluminum / Metal Window Units - The caulk between the glazing and first course of building façade (brick/concrete) and window sill material contain PCBs greater than 50 ppm. No attempt will be made to separate the caulk from the adjacent material; rather, the materials will be removed together and transported off site for disposal in accordance with 40 CFR 761.62 as a bulk product waste.

2. PCB containing caulking at concentrations ≥ 50 ppm will be designated for disposal as PCB Bulk Product Waste in accordance with 40 CFR 761.62 (this material may also be asbestos containing material);

3. PCB impacted building materials removed in conjunction with the PCB Bulk Product waste will be designated for disposal as PCB Bulk Product Waste in accordance with 40 CFR 761.62 and the October 2012 interpretation;

4. Waste materials may be placed in a temporary lined container (cubic yard box, drum, or similar container) at the point of generation and transferred from the remediation area to the waste containers or trucks along a designated route following the completion of each phase of activity in each

area to be remediated. All containers and the storage areas will be properly labeled and marked in accordance with 40 CFR 761.40;

5. Manufactured PCB products containing less than 50 ppm will be handled with general demolition debris and disposed of as Excluded PCB Product waste at an approved disposal facility, transported under a Bill of Lading;

6. Contactor is responsible for all packaging, labeling, transport, disposal, and record keeping associated with PCB waste in accordance with all federal, State and Local regulations. No “back hauling” will be permitted;

7. Contractor is responsible for identifying, labeling, manifesting, transporting, and disposing of at approved facilities, PCB waste streams that also contain asbestos in accordance with all Federal, State and Local regulations.

3.4 DISPOSAL

A. Waste removal procedures shall be conducted in accordance with local, state and federal regulations.

B. The Contractor shall provide proof that disposal sites for all waste materials have current and valid permits to accept specific wastes at the time of the pre-construction meeting.

C. Receipts shall be obtained by the Contractor from the disposal/recycling site(s), and submitted to the Awarding Authority upon request for final payment.

D. The Contractor shall be responsible for all necessary precautions to prevent pollution by spilling during the performance of services and shall assume full responsibility for all Contractor-caused spills, which shall be cleaned up at the Contractor's expense.

E. Drums containing PCB/DEHP components shall contain a material profile which includes the name, address and telephone number of the waste generator; the date on which the materials were removed; a description of the material, i.e., discarded light ballasts; and the new DOT Shipping Description, (RQ, Polychlorinated Biphenyls, 9, UN2316, PGII).

F. Provide a Massachusetts Department of Environmental Protection (MassDEP) Hazardous Waste Manifest and/or the federal Uniform Hazardous Waste Manifest, as appropriate, with each shipment.

G. Drums and bulk items shall be transported by a Massachusetts-licensed hazardous waste hauler, unless leaking ballasts are involved, in which case a registered PCB hauler shall be utilized.

H. Drums and bulk items shall be transported from the work site in an orderly manner upon completion of removal and packing. Materials are to be temporarily stored at the site.

I. Ballasts, small capacitors and contaminated light fixture components shall be disposed at an approved Recycling/Incineration facility and/or in accordance with any waste hauler special requirements. MassDEP regulations prohibit disposal at landfills.

J. Dispose of all mechanical equipment and any PCB-contaminated concrete debris generated in accordance with U.S. EPA, MassDEP and waste hauler requirements.

K. Bulbs shall be transported and disposed of at an approved Recycling facility in accordance with any waste hauler special requirements. MassDEP regulations prohibit disposal at landfill.

END OF SECTION

SECTION 02 81 00 - WASTE MANAGEMENT AND DISPOSAL

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Description of Work

C. References

D. Submittals

E. Waste Categories

1.2 RELATED SECTIONS

A. Section 00 52 00 – General Conditions

B. Section 01 35 29 – Health, Safety, and Emergency Response Procedures for Contaminated Sites

C. Section 01 35 43 – Environmental Procedures

D. Section 01 35 43.13 – Environmental Procedures for Hazardous Materials

E. Section 01 35 53 – Security Procedures

F. Section 01 55 26 – Traffic Control

G. Section 01 57 16 – Temporary Project Controls

H. Section 02 41 00 – Demolition

I. Section 02 81 00 – Asbestos Abatement – Prepared by PMEC

J. Section 02 82 00 – Hazardous Building Material Remediation – Prepared by PMEC

1.3 DESCRIPTION OF WORK

A. The Contractor shall furnish all labor, materials, tools, equipment, and supervision for containerization, characterization, on-Site management, transportation, and incidentals necessary to transport and dispose/recycle all waste generated as a result of the Work to a facility permitted to accept the waste and approved by the Owner. Waste includes, but is not limited to, residual liquids, solids and sludge located in process piping, pits, trenches and sumps, demolition debris, PCB containing demolition debris, , asbestos waste, hazardous materials, unsuitable Site materials,

suitable Site materials, solid waste, debris generated during the Work (i.e., used health and safety equipment, decontamination and storage pad materials, polyethylene sheeting), and decontamination and wash liquids.

B. The Contractor shall arrange and pay for all testing necessary to properly characterize wastes for disposal at the selected, permitted, and Owner-approved facility in accordance with facility requirements. All waste characterization samples shall be analyzed by a State of Massachusetts certified laboratory.

C. Contractor shall segregate each of these material types by hazardous or non-hazardous waste classification, as determined by results of samples collected. It is Owner's intention to obtain waste classification of non-hazardous for as much of the waste as practicable, to recycle whenever possible, and to minimize the amount of materials disposed of off-Site.

D. The Contractor will be responsible for preparation of the final waste profiles, BOLs, manifests, and other shipping documents. The Engineer/Owner will assist the Contractor as necessary in preparation of all required waste profiles, BOLs, manifests, and other shipping documents as required per the Owner-approved facilities. The Contractor shall allow a minimum of 5-days for review, and two days for review of all revisions to initial submittals. The Contractor shall allow for a minimum of two days for approval and signature of all finalized disposal documentation requiring Owner signature.

E. The Contractor shall arrange for off-Site transportation of all materials to the Owner-approved facilities and pay all necessary taxes, surcharges, transportation and tipping fees.

F. Owner or Owner's designee will sign all necessary waste profiles and shipping documents as the Generator.

1.4 REFERENCES

A. Section 00 52 00 – General Conditions

B. OSHA Standards and Regulations contained in Title 29, Code of Federal Regulations (CFR), Parts 1910 and 1926, including amendments as stated in Federal Register, March 6, 1989, Final Rule, 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response"

C. USEPA Guidance

D. MassDEP Rules and Regulations

E. 40 CFR 761.61

F. Federal Resource Conservation and Recovery Act, as amended.

G. USEPA 40 CFR 268

H. Posted weight limitations on roads and bridges

I. Applicable USEPA Analytical Methods

J. Code of Federal Regulations – Protection of the Environment, Sub-chapter I – Solid Wastes

K. 40 CFR 122 National Pollutant Discharge Elimination System Standards

L. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste

M. 40 CFR – Transportation, Sub-chapter B – Hazardous Materials Transportation and Pipeline Safety

N. 40 CFR 761 – Polychlorinated biphenyls (PCBs) manufacturing, processing, distribution

O. 49 CFR 106 Rule-making Procedures

P. 49 CFR 107 Hazardous Materials Program Procedures

Q. Code of Federal Regulations – Transportation, Sub-chapter C, Hazardous Materials Regulations

R. 49 CFR 171 General Information, Regulations, and Definitions

S. 49 CFR 172 Hazardous Materials Tables and Hazardous Materials Communications Regulations

T. 49 CFR 177 Carriage by Public Highway

U. 49 CFR 178 Specifications for Packaging

V. 49 CFR 180 Continuing Qualification and Maintenance of Packaging

W. Code of Federal Regulations – National Pollutant Discharge Elimination System permit

X. Clean Water Act, Section 301 (a)

Y. 40 CFR 122.28 Remediation & Miscellaneous Contaminated Sites General Permit (RGP). See also: http://www.epa.gov/region01/npdes/rgp.html.

1.5 SUBMITTALS

A. Prepare and submit to Engineer and Owner within 5 days of Notice to Proceed, a project-specific waste management and disposal section for inclusion in the Project

Work Plan outlining procedures to be used in management of waste materials generated during the Work. The waste management and disposal section shall address, at a minimum, the Contractor's intended methods for removing, characterizing, handling, preparing, storing, treating, shipping, and disposing of all excess materials and outline the areas of the Site in which waste handling activities will occur. Contractor shall identify and make arrangements with all, permitted and Owner-approved off-Site reuse, salvage, recycling, and disposal facilities to be used. The Contractor shall not remove any materials from the Site until the Project Work Plan has been approved by the Owner. If, following approval of the Project Work Plan, the Contractor desires or identifies a need to use any facility not included in the Project Work Plan, he/she must submit all the information as required by this paragraph, and receive approval for same from the Owner, prior to such use. The waste management and disposal section of the Project Work Plan shall, at a minimum, contain the following:

1. List of proposed disposal facilities for each anticipated waste stream. The Contractor shall identify facilities that are permitted to accept these waste streams with their bids. All material shall be disposed of or recycled at a facility permitted to accept these waste streams.
2. Name, title, and telephone number of contact person for each recycling/disposal facility to be used.
3. Lists matching each facility with the materials it will accept for this project, and specifying whether the facility is a recycling, treatment, storage, or disposal facility.
4. Confirmation from the facility(ies) that they are permitted to and will accept the type and quantities of materials. Provide copies of all applicable permits.
5. Description of Contractor's procedures to manage and track materials and example of Contractor's material tracking log.
6. Estimated volumes of waste expected to be generated including demolition debris streams.
7. Hauling company(s) name(s) and address(es).
8. Name, title, and telephone number of contact person for each hauling company to be used.
9. Provide copy of MCS-90 endorsement for haulers of hazardous waste.

B. If the Engineer or Owner finds that the submitted waste management and disposal section of the Project Work Plan does not comply with specified requirements, the corrective revisions will be noted on the submittal copy returned to the Contractor.

C. Revisions to the accepted waste management and disposal section of the Project Work Plan may be made only with the written approval of the Owner. A change affecting the contract value of any activity including the contract time may be made only in accordance with applicable provisions of the Contract Documents.

D. Contractor shall submit daily disposal truck logs to the Engineer. Log shall include date, waste characterization, transporter, disposal facility identification and location, bill of lading or manifest number, vehicle number, driver, and approximate volume and/or weight of waste.

E. Contractor shall submit certificate of recycle for materials transported for recycle to the Engineer. Certificate shall include date, recycle facility, identification and location, approximate volume and/or weight of material, and description of recycled methods.

F. Submit the following upon completion of activities.

1. Recorded actual quantities of materials removed on a volume and/or mass basis and provide copies of profile forms, and shipping papers.

2. Copies of all waste manifests for hazardous waste shipments, bills of lading for nonhazardous waste shipments, certificates of destruction, and certificates of recycle for all recycled materials generated during course of Work.

1.6 WASTE CATEGORIES

A. The following is a listing of the waste categories anticipated for the Work. Contractor shall segregate and dispose of all materials based on these categories and the results of analytical testing required by the Owner-approved receiving facilities. Contractor shall make every effort to segregate waste streams during execution of the Work.

1. Residual Liquids and Solids in Process Piping, Pits and Trenches – non-hazardous/hazardous residual liquid and solids in process piping shall include all liquids, sludge and solids within process piping located within the interior of the buildings scheduled for demolition. Residuals liquids are considered incidental to the work.

2. Asbestos Remediation Waste – materials shall include all building materials and debris containing or impacted by asbestos. Contractor is responsible for removal of all material identified or encountered during demolition activities. Information and quantiles included in Specifications is provided for reference only and work shall include but not limited to all items as outlined in Table No. 1 – Confirmed Asbestos Containing Materials included in Attachment A and any additional materials identified by the Contractor. This category also includes all residual ACMs from pre-cleaning and final cleaning activities, and used PPE and enclosure materials.

Work shall be performed as required and as outlined in specifications provided by PMEC included herein

3. Hazardous Materials/Universal Waste – materials shall include all items as outlined in Table No. 2 – Contractor is responsible for removal of all material identified or encountered during demolition activities.

4. Information and quantiles included in contract documents are provided for reference only and work shall, include but not be limited to Hazardous Materials Inventory Included in Attachment A or an additional materials identified by the Contractor. This category also includes all sampling, reporting or PPE and enclosure materials. Work shall be performed as required and as outlined in specifications provided by PMEC included herein

5. Demolition Debris/Solid Waste – demolition debris/solid waste materials shall include non-contaminated waste materials, including but not limited to, all non-asbestos impacted building materials removed as part of the Work (wood, insulation, drywall, roofing, etc.), interior furnishings, trash, waste packaging materials, scrap metal, asphalt, non-contaminated debris, and other non-contaminated solid wastes generated by Contractor in connection with the Work.

6. PCB Bulk Product Waste–The Contractor is responsible for separating and segregating PCB-containing materials from non-impacted materials or disposal of entire system as a PCB Bulk Product Waste to an approved facility in accordance with contractor approved work plan and as outlined in specifications provided by PMEC included herein.

7. Unsuitable Site Materials - materials include soil and subsurface debris generated from on-Site sources that are classified by the Engineer as visually and olfactory impacted.

8. Suitable Site Materials – materials include soil and subsurface debris generated from on-Site sources that are classified by the Engineer as suitable for reuse as backfill and restoration activities on-Site.

9. Decontamination Liquids – non-hazardous decontamination liquids generated during the Work.

10. Wash and cleaning liquids– non-hazardous or hazardous cleaning liquids generated during the Work.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.1 SECTION INCLUDES

A. Coordination

B. Materials Handling and Off-Site Transportation

C. General Waste Handling and Disposal Procedures

D. Scrap Steel Handling Procedures

E. Liquid Waste Material and Decontamination Fluids

F. Labeling of Waste Containers

3.2 COORDINATION

A. Contractor shall notify the Engineer and Owner prior to sampling for waste characterization for off-Site disposal. The Engineer will observe all sampling activities performed by the Contractor. Any sampling performed without the knowledge of the Engineer/Owner must be repeated by the Contractor to the satisfaction of the Engineer.

B. Contractor shall coordinate the removal, processing (if applicable), and off-Site transportation of all materials and debris with the Engineer.

3.3 MATERIALS HANDLING AND OFF-SITE TRANSPORTATION

A. Contractor shall perform the following tasks for the proper handling of materials that will be transported to the identified Owner-approved off-Site disposal facilities:

1. Pack and label materials for transportation following all USEPA, IEPA and USDOT and IDOT regulations.
2. Pending the approval of the Owner, the Contractor may transport the material from the Site to the approved recycling/disposal facility in appropriate containers or trucks.
3. Manage excess liquids in accordance with regulations and disposal facility requirements governing transportation and disposal.
4. Coordinate and manage the custody of necessary waste profiles, BOLs, hazardous/non-hazardous waste manifests, and labels, as required. Prepare final waste profiles and shipping documents for review by the Engineer and Owner, and signature by the Owner as the Generator. The Contractor shall allow a minimum of 5-days for review, and two days for review of all revisions

to initial submittals. The Contractor shall allow for a minimum of two days for approval and signature of all finalized disposal documentation requiring Owner signature.

5. Engage a licensed transporter.

3.4 GENERAL WASTE HANDLING AND DISPOSAL PROCEDURES

A. The Contractor shall arrange and pay for all testing necessary to properly characterize wastes for disposal at the selected Owner approved facility in accordance with facility requirements. Contractor shall segregate each of these material types by hazardous or non-hazardous waste classification, as determined by results of samples collected. It is Owner's intention to obtain waste classification of non-hazardous for as much of the waste as practicable, to recycle whenever possible, and to minimize the amount of materials disposed of off the Site.

B. All characterization sampling of waste for disposal or for potential recycling and reuse shall be performed by the Contractor in accordance with all applicable federal, State, and local regulations and individual waste transporters and disposal facility requirements. Any additional sampling or characterization will be performed by Contractor.

C. Waste shall be transported in lined and covered DOT-approved containers to be provided by waste transporter(s) or drums to be provided by Contractor and staged for waste classification sampling. Containers shall meet all USDOT shipping requirements. Shipping containers shall be filled to within legal weight and height limits for shipping. Waste shall be contained to comply with all approved disposal facility requirements. The Contractor shall be responsible for temporarily staging waste in an area designated in the Owner approved on-Site area.

D. Care should be taken not to overload waste containers. Debris shall be sized, as necessary, and placed in transport containers to achieve appropriate minimum densities.

E. All demolition debris stockpiles comprised of material capable of becoming airborne or generating dust shall be covered with plastic sheeting at all times. Contractor shall be responsible for maintaining plastic sheeting on stockpiles or transport containers.

F. The Contractor shall coordinate, manage, and pay for (as a part of the bid price) all waste handling activities including all necessary notifications, permitting and transportation to the approved receiving facilities.

G. Contractor shall schedule all waste shipments, in coordination with the Engineer, and with the Owner identified as Generator.

H. Any demurrage costs and taxes associated with transportation shall be borne by Contractor at no additional cost to Owner.

I. Contractor shall be responsible for transportation of all waste to Owner -approved disposal facilities unless otherwise noted in these Specifications. Contractor shall provide weight tickets for all waste disposal using portable on-Site scale with current calibration records. Failure to properly weigh and record wastes transported for disposal will result in non-payment by the Owner.

J. The Contractor shall maintain a daily log of each truck's weight and all waste shipped off the Site.

K. All solid waste material, containment system components, used personal protective equipment and any additional media generated during the work (which will not be decontaminated), shall be placed directly in appropriate waste receptacles immediately upon removal. Suitable waste receptacles may consist of enclosed roll-off containers or DOT-approved 55-gallon drums, and shall be supplied by the Contractor.

L. If roll-off containers are to be utilized for containerization of contaminated Work wastes, the following shall apply:

1. All roll-off containers or similar vessels utilized shall be watertight and lined with 6-mil polyethylene sheeting or equivalent impermeable lining, and equipped with a secured, lockable, and impermeable cover.

2. The impermeable cover shall remain securely in place at all times when material is not being actively placed in the vessels. The Contractor shall be responsible for ensuring that the cover remains securely intact and locked until the container is removed from the Site.

M. If 55-gallon drums are to be utilized for waste containerization, the drums shall consist of suitable DOT-approved 55-gallon drums that are watertight and free of corrosion, perforations, punctures, or other damage. All drums shall be securely covered and sealed at the conclusion of each work day. All drums shall be labeled in accordance with the requirements of this Section and meet the following specifications.

1. Waste disposal drums: Provide DOT 17-H Open – Top Drums (55 gallon) in accordance with DOT regulation title 49 CFR Parts 173, 178, and 179.

2. Fiberboard Drums of Equivalent: Provide sufficient quantity of fiber board drums or equivalent (as determined by Engineer) for packaging of ACMs with rough edges.

N. Disposal bags to be utilized shall be 6 mil (0.15mm) thick leak-tight polyethylene bags.

O. A waste staging area shall be designated by the Contractor prior to initiation of Work, and approved by Engineer.

3.5 SCRAP STEEL HANDLING PROCEDURES

A. Scrap steel shall be transported to a steel processor for smelting and a certificate of destruction/recycling provided.

B. Recycle/salvage of all scrap steel generated as a result of Work shall be in accordance with all applicable federal, State, and local regulations.

C. Contractor shall perform characterization of all scrap steel as necessary for recycle. This may consist of additional lead-based paint analysis if required by the steel management company.

D. Contractor shall be responsible for managing any scrap steel that contain lead-based paint that is in poor condition and is not acceptable for recycle. Any lead-based paint debris and lead-containing waste shall be characterized and properly disposed. All lead-based paint management must be performed in accordance with applicable federal, State, and local regulations.

3.6 LIQUID WASTE MATERIAL AND DECONTAMINATION FLUIDS

A. Under no circumstances shall decontamination fluids or liquid waste be discharged to the ground surface or subsurface at the Site.

B. Liquid materials, including equipment or personal decontamination fluids or similar liquids generated during work at the Site shall be placed directly into appropriately sized and sealed vessels, supplied by the Contractor.

C. Acceptable vessels for the storage of liquid waste may include DOT-approved 55-gallon drums, fractionation tanks, or steel or polyethylene tanks. All proposed vessels shall be compatible with the intended liquid contents.

D. All storage vessels to be used in the containerization and transportation of liquid waste materials shall be free of corrosion, perforations, punctures or other conditions that may impair its ability to securely contain liquid.

E. All liquid storage vessels utilized and staged at the Site shall be stored in an area on the property that will not interfere with normal flow of vehicle or pedestrian traffic, and in a manner that will minimize the potential for tipping, vandalism or damage by vehicular traffic.

F. Disposal of all liquid waste generated at the Site during Work activities shall be a proper waste treatment/disposal facility that is pre-approved by Owner or if acceptable at the Owners on-site waste water system (AAO) See Attachments H for AAO Acceptance procedures.

3.7 LABELING OF WASTE CONTAINERS

A. All waste containers must be labeled with the name of the waste contained; the date in which the first material was placed in the vessel; and the last date at which addition of waste occurred.

B. All waste containers containing hazardous waste generated during the Work shall be labeled as follows:

1. HAZARDOUS WASTE-Federal law prohibits improper disposal
   If found, contact nearest police or public safety authority or
   The U.S. Environmental Protection Agency.
   Generator's Name: _____
   Manifest Document No: _____

Such marking must be durable, in English and printed on or affixed to the surface of the package or label, tag or sign; displayed on a background of sharply contrasting color; unobscured by labels or attachments and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

C. Provide leak-tight waste bags or containers for disposal of ACMs with labels in accordance with OSHA, USEPA, MADEP, and the latest revisions to USDOT requirements, not limited to material identification number (#NA2212), material packaging group (PGIII), and labels.

D. containers.

END OF SECTION

DIVISION 31
EARTHWORK

SECTION 31 00 00 – EARTHWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Description

C. References and Standards

D. Quality Assurance

E. Line and Grade Control

F. Submittals

G. Job Conditions

H. Coordination

I. Subsurface Soil Data

1.2 RELATED SECTIONS

A. Section 01 11 00 - Summary of Work

B. Section 01 33 00 - Submittal Procedures

C. Section 01 35 43 - Environmental Procedures

D. Section 01 35 43.13 - Environmental Procedures for Hazardous Materials

E. Section 01 50 00 - Temporary Facilities and Controls

F. Section 01 50 10 – Temporary Water Control

G. Section 01 55 26 - Traffic Control

H. Section 01 57 13 - Temporary Erosion and Sediment Control

I. Section 01 57 16 - Temporary Project Controls

J. Section 01 74 23 - Final Cleaning

K. Section 02 41 00 – Demolition

L. Section 31 05 13 – Soils and Aggregates for Earthwork

1.3 DESCRIPTION

A. This Section specifies requirements for the earthwork activities necessary to complete the Work.

B. Contractor shall examine all Drawings and all other Sections of the Specifications for requirements therein affecting the Work of this Section.

C. Contractor shall be responsible for performing all appropriate subsurface utility mark outs prior to performing any intrusive Work and shall provide sufficient notification to as required by Massachusetts state law. Contractor shall provide the DigSafe notification number to the Engineer along with documentation of clearance at least 5 days prior to the performance of any intrusive activities.

D. The Work shall be carried out in such manner as to prevent undermining or disturbing any existing utilities, poles, catch basins, culverts, buildings, fences, or other structures at or adjacent to the Site (unless otherwise scheduled to be removed and/or replaced as part of the Work). Contractor shall be responsible for the repair of any damage to existing utilities, structures, or other features as a result of his/her operations to the satisfaction of the Engineer at no additional cost to Owner.

E. Excavations shall be made in such manner and to such a width as required to give suitable room for laying and jointing piping in the case of trenching/utility Work or for construction of structures and removal of structures and impacted or deleterious materials as necessary to complete the Work, and as further shown on the Drawings.

F. All excavation Work shall comply with the requirements of OSHA excavation safety standards (29 CFR Part 1926.650 Subpart P) and all other applicable federal, State or local requirements. Where conflict between OSHA and State regulations exists, the more stringent requirements shall apply.

G. Erosion and sedimentation controls shall be installed and maintained as specified in Section 01 57 13 – Temporary Erosion and Sediment Controls and as shown on the Drawings prior to initiation of any earthwork activities.

H. Dust and odor suppression, noise and vibration control, and all monitoring shall be performed by Contractor as required in accordance with Contract documents including Section 01 35 29 – Health, Safety and Emergency Response Procedures for Contaminated Sites, Section 01 35 43 – Environmental Procedures, and Section 01 57 16 – Temporary Project Controls.

I. Contractor shall be responsible for the handling, management, temporary stockpiling, loading, transportation, and off-Site disposal/recycling at Owner-approved facilities of Unsuitable Site Materials, as well as all other excess building materials and debris in accordance with Section 02 81 00 – Waste Management and Disposal.

J. Contractor shall be responsible for the removal, off-Site disposal, and replacement of any non-impacted material (soil and groundwater) that becomes impacted with contaminants as a result of Contractor's activities or Work procedures at no additional cost to Owner.

K. Contractor shall furnish all labor, equipment, materials, tools, supervision, and transportation necessary to perform all earthwork necessary to complete the Work consistent with this Section and as shown on the Drawings. These earthwork activities include, but are not limited to, the following:

1. Excavation of Suitable and Unsuitable Site Materials to remove concrete foundations two feet below ground surface, remove concrete slabs, cap and/or terminate utilities, demolish/remove other features and achieve the grades indicated on the Drawings.

2. Management of all excavated materials consistent with Section 02 81 00 – Waste Management and Disposal.

3. Re-use and backfill of excavations, depressions, pits, trenches, sumps, and basements with Suitable Site Materials to the maximum extent practical as directed by the Engineer to the lines and grades indicated on the Drawings. The Owner may elect to alter the final grades depicted on the Drawings to maximize the re-use of Suitable Site Materials and minimize off-Site disposal and the amount of imported fill. The Engineer shall approve the import fill prior to delivery to the Site.

4. All other earthwork activities necessary to perform the Work.

L. Contractor shall perform all Work necessary to support earthwork and other Site activities, including but not limited to the following:

1. Limited clearing and removal (or protection) of trees and vegetation within the Limits of Work as necessary to complete the Work.

2. Saw cutting and removal of asphalt and concrete surfaces as shown on the Drawings.

3. Protection and preservation of all existing fencing, buildings, pavements, wells, walls, stairs, utilities, and miscellaneous Site features not scheduled for demolition or removal.

4. Obtaining all required permits, licenses, and approvals of appropriate local, state and federal utility authorities, prior to commencing the Work of this Section.

5. Providing products in sufficient quantities to meet the Project requirements, and maintaining reasonable availability as necessary to eliminate construction delays.

6. Dust and sediment control and maintenance of the Site and adjacent streets and sidewalks in a clean and unencumbered state as described in these Specifications or as required by the Town.

7. Subgrade preparation and placement of backfill to grades shown on the Drawings, and as further specified herein.

8. Contractor is responsible for off-Site disposal of Suitable Site Materials that are made unsuitable for re-use due to Contractor's mismanagement at no additional cost to the Owner.

9. Control and management of stormwater flows and run-off as required to complete the Work. It is the intent of these Specifications to limit the flow of stormwater run-off into open excavations or Work areas.

10. Earthwork associated with Site restoration, including but not limited to, final grading prior to placement of topsoil and landscaped areas.

11. Repair/replacement of asphalt or concrete paved surfaces not scheduled for demolition/removal that are damaged as a result of the Contractor's activities at no additional cost to the Owner.

1.4 REFERENCES AND STANDARDS

A. All Work performed by Contractor shall be accomplished in accordance with all regulations and laws of local, State, and Federal agencies and utility companies.

B. Latest version of the American Society for Testing and Materials (ASTM) standards:

1. ASTM D422 – Standard Test Method for Particle-Size Analysis of Soils.

2. ASTM 698 – Test for Moisture - Density Relations of Soils – Standard Proctor Method.

3. ASTM D1557 – Test for Moisture - Density Relations of Soils Using 10 lb Hammer and 18-inch Drop (Modified Proctor).

4. ASTM D2216 – Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil.

5. ASTM D2487 – Standard Practice for Classification of Soils for Engineering Purposes.

6. ASTM D2922 – Test for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

7. ASTM D3017 – Test for Water Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

8. ASTM D4318 – Test for Plastic Limit, Liquid Limit, and Plasticity Index of Soils.

C. Latest version of the American Association of State Highway and Transportation Officials (AASHTO) standards:

1. AASHTO T88 – Particle Size Analysis of Soils.

2. AASHTO T180 – Standard Specification for Moisture-Density Relations of Soils Using a 10 lb. Hammer and 18-inch Drop.

3. AASHTO T 215 – Standard Method of Test for Permeability of Granular Soils (Constant Head).

D. MassDOT Drainage and Erosion Control Chapter 8 - 2016

E. Massachusetts State Building Code 8th Edition (International Building Code, 2009 edition)

F. MassDEP's NPDES Stormwater General Permit

G. MassDEP Soil Erosion and Sediment Control Guidelines dated 2003.

H. OSHA – Regulation 29 Code of Federal Registrar (CFR) Part 1926 – Occupational Safety and Health.

I. OSHA Regulations Part 29 CFR 1926.651 and 1926.652 for trench and excavation safety.

J. Where reference is made to one of the above standards the revision in effect at the time of the bid opening shall apply.

1.5 QUALITY ASSURANCE

A. Engineer or Owner will perform certain testing and inspections in the field to check compliance of the Work and materials with the Specifications. In the event these tests or inspections indicate non-compliance, Contractor shall be responsible for correcting, repairing, or replacing the deficiency at no additional cost to Owner.

B. Contractor shall inspect all materials prior to installation. Any materials that are defective, deteriorated, damaged or inconsistent with these Specifications or Drawings shall be replaced by Contractor at no additional cost to Owner.

C. Contractor shall not place any fill or prepare any subgrades without approval of Owner or Engineer is present. Contractor shall keep Owner and Engineer informed of the Project schedule and planned activities to avoid potential delays in the Work. Any delays caused by Contractor's failure to communicate with Owner or Engineer shall be the sole responsibility of Contractor.

D. Engineer may perform in-place field density testing consistent with ASTM D2922 and 3017. If test results indicate density not in compliance with this Section, the materials shall be re-compacted by Contractor until the design density is achieved at no additional cost to Owner.

E. Contractor shall perform the required Work in compliance with applicable requirements of governing authorities having jurisdiction.

F. Contractor is responsible for conducting chemical and geotechnical laboratory quality control testing during the construction according to the requirements outlined in Section 31 05 13 – Soils and Aggregates for Earthwork.

G. Neither the presence of Owner or Engineer, nor any observations and testing performed by Engineer, nor any notice of failure to give notice shall excuse Contractor from defects discovered in his/her Work.

1.6 LINE AND GRADE CONTROL

A. Contractor shall be responsible for establishing and maintaining line and grade control for all aspects of the Work and as specified on the Drawings. All survey Work conducted on the Project shall correspond to the Site coordinate system and vertical datum as shown on the Drawings.

B. Tolerances for subgrade and final grades shall be as follows:

1. Horizontal tolerance: to the nearest 0.1 feet

2. Vertical tolerance: to the nearest 0.1 feet

C. Engineer may perform spot survey checks of finish grades to verify the design grades have been established. Any data conflicts shall be addressed and corrected by Contractor at no additional cost to Owner.

1.7 SUBMITTALS

A. Contractor shall prepare an excavation and backfill section for the Project Work Plan consistent with Section 01 33 00 – Submittal Procedures. This section of the Project Work Plan shall describe means and methods, sequencing, duration, materials, equipment and labor required to complete all earthwork activities associated with the Work. At a minimum, the following shall be included in this section of the Project Work Plan:

1. A Drawing showing all planned material stockpile and staging areas.

2. A description of materials and methods for protecting open excavation areas during working and non-working hours, including temporary barriers, road plates, flashing warning lights, and trespasser ingress prevention methods.

3. Identification of noise and vibration generating activities associated with earthwork with a description of monitoring and mitigation measures that will be implemented, consistent with the requirements of Section 01 57 16 – Temporary Project Controls.

4. Description of planned temporary earth support systems (as necessary).

5. Description of all backfill placement procedures, including but not limited to, placement methods, lift thicknesses, and compaction means and methods for all backfill Work.

B. Product Data: Provide manufacturer product data submittals describing all materials specified in Part 2 of this Section to Engineer at least 14 days prior to performing that phase of the Work and consistent with Section 01 33 00 – Submittal Procedures.

1.8 JOB CONDITIONS

A. Coordinate Work with that of other trades affecting or affected by Work of this Section and cooperate with such trades to assure the steady progress of the Work.

B. Visit the Site to review all details of the Work and working conditions and to verify dimensions in the field including headroom and interferences from adjacent structures and utilities. Notify Owner in writing of any discrepancy before performing any Work.

C. Consult official records of existing utilities, both surface and subsurface, and their connection, to be fully informed on all existing conditions and limitations as they apply to this Work and its relation to other Work.

D. Field-locate and protect existing underground and overhead utilities to remain within the Limits of Work. If utilities are to remain in place, provide adequate means of protection during earthwork and construction operations including all coordination and costs associated with temporary support, disconnection, or re-routing of utilities. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult Engineer immediately for direction. Cooperate with Owner in keeping services and facilities in operation. Repair damaged utilities to satisfaction of the Owner. Do not interrupt existing utilities serving facilities occupied and used by others.

E. Protection of persons and property: Barricade open excavations as part of the Work and post with warning signs and lights. Operate warning lights during hours from

dusk to dawn each day and as otherwise required. Protect structures, utilities, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, dust, washout and other hazards created by earthwork operations.

1.9 COORDINATION

A. Contractor shall be responsible for notifying Engineer at least 72 hours prior to the start of earthwork operations requiring observation and/or testing.

1.10 SUBSURFACE SOIL DATA

A. Contractor shall be aware of all relevant Site conditions, including subsurface geology, groundwater elevations, and soil, sediment and groundwater environmental chemistry data.

B. The available subsurface data is for general information and are accurate only at the particular locations and times the subsurface explorations were made. It is Contractor's responsibility to make interpretations and to draw conclusions based on the character of materials to be encountered and the impact to his/her Work based on his expert knowledge of the area and of earthwork techniques. The actual conditions are expected to vary substantially in some areas. Other interpretations of the subsurface data provided in the Specifications are possible.

C. After obtaining Owner's permission, Contractor shall take whatever additional subsurface explorations he deems necessary at no expense to Owner.

PART 2 MATERIALS

2.1 SECTION INCLUDES

A. Site Materials

B. Geotextile Filter Fabric

2.2 SITE MATERIALS

A. Suitable Site Materials: Suitable Site Materials consist of either:

1. Materials generated during excavation and grading to achieve elevations specified on the Drawings or during demolition activities that are deemed acceptable for re-use as on-Site fill by the Engineer; and/or,

2. Coated and uncoated brick, concrete, and masonry materials that are crushed on-Site to 3-inch minus and deemed acceptable for re-use as on-Site fill by the Engineer.

3. Contractor is required to obtain all approvals for on0site crushing and reuse of asphalt, brick or concrete. All crushing must be performed in

in accordance with the conditions at 16.03(2)(b)5 of Site Assignment Regulations for Solid Waste Facilities, 310 CMR 16.00.

4.

5. Contractor must make all required notification including MassDEP and local board of health at least 30 days prior to starting the crushing operation.

B. Unsuitable Site Materials: Unsuitable Site Materials consist of materials generated from on-Site sources that are classified by the Engineer either as not meeting the requirements of Suitable Site Materials as specified herein, or are visually and olfactory impacted. Unsuitable Site Materials include organic soils, saturated soils/sediments, subsoil, trash, frozen soil, ice or snow, stumps, debris, existing asphalt pavement, and material determined to be impacted. Identification of Unsuitable Site Materials will be at the sole discretion of Engineer. Unsuitable Site Materials shall be managed, handled, temporarily stockpiled, loaded, transported and disposed of off-Site in accordance with Section 02 81 00 – Waste Management.

2.3 GEOTEXTILE FILTER FABRIC

A. Geotextile Filter Fabric shall be polypropylene, needle punched, non-woven geotextile manufactured from continuous filaments, or Engineer-approved equal, and having properties that comply with the required property values listed in Table 1.

TABLE 1 - GEOTEXTILE FILTER FABRIC PROPERTY VALUE REQUIREMENTS

PROPERTIES	TEST METHOD	UNITS	QUALIFIER	SPECIFIED VALUE
Apparent Opening Size	ASTM D4751	MM	MARV	0.21
Permittivity	ASTM D4491	Sec-1	MARV	1.7
CBR Puncture Strength	ASTM D6241	lbs	MARV	310
Grab Tensile Strength	ASTM D4632	lbs	MARV	120

B. Geotextile Filter Fabric Manufacturer and/or Fabricator shall furnish materials whose "Minimum Average Roll Values" (MARV) meet or exceed the properties specified above, as well as a certification that the material properties meet or exceed the specified values. Geotextile Filter Fabric shall be stock products. Geotextile Filter Fabric Manufacturer and/or Fabricator shall not furnish products specifically manufactured to meet the Specifications of this Project unless authorized by Engineer.

C. Approved geotextile is Mirafi® 140N.

PART 3 - EXECUTION

3.1 SECTION INCLUDES

A. Excavation

B. Backfilling

C. Placement and Compaction

D. Compaction Requirements

E. Grading

F. Field Quality Control

G. Maintenance

3.2 EXCAVATION

A. GENERAL

1. Excavation includes clearing, grubbing and off-Site disposal of all trees, stumps, and vegetation necessary to perform the Work.

2. Perform all excavation necessary to complete the Work shown on the Drawings. Any unauthorized excavation shall be properly backfilled and compacted consistent with this Section and associated disposal cost for such excavated material shall be paid by Contractor at no additional cost to Owner.

3. Excavate to the minimum depths required to terminate, cap, or abandon utility systems necessary to complete the demolition Work.

4. Contractor shall limit the extent of open excavation areas within the Work limits and must at a minimum protect excavation areas left open during working and non-working hours with caution tape or safety fence.

5. Where soil has been softened or eroded by flooding, freeze/thaw, equipment traffic or placement prior to or during unfavorable weather, it shall be removed and replaced with suitable material as described herein at no cost to Owner.

6. Contractor shall perform the Work in a manner to maintain the stability of structures and utilities adjacent to the Work, insofar as structures or utilities may be jeopardized by excavation or associated Contractor operations. Contractor shall repair damage resulting from excavation or other

construction activities in support of the Work to the original condition prior to damage, and repair to a condition approved by Engineer. Owner shall bear no costs associated with damage to, and subsequent repair of, such structures and utilities.

7. Contractor shall construct temporary slopes and/or provide excavation support to protect all excavated areas, as required for safety or compliance with OSHA requirements at no additional cost to Owner.

8. Contractor shall not over excavate below proposed design grades for the purpose of obtaining borrow for use off-Site.

9. All excess material handling, management, and temporary stockpiling shall be performed consistent with the requirements of this Section, Section 02 41 00 – Demolition, and Section 02 81 00 – Waste Management and Disposal.

B. SUBGRADE PREPARATION AND PROTECTION

1. In areas to be filled, the land shall be cleared of vegetation and grubbed and existing asphalt shall be removed.

2. In areas to be filled, existing concrete surfaces shall be perforated to the satisfaction of the Engineer to promote infiltration.

3. Prior to fill placement, the subgrade shall be compact, dry, stable, and free from debris, organic material, ice, and snow.

4. The Site shall be properly graded to limit surface water from entering the Work areas or ponding on the exposed soil subgrade. The exposed soil subgrade may be sensitive to disturbance and strength degradation in the presence of excess moisture. Construction traffic over the exposed soil subgrade shall be limited to the extent practical. The subgrade should also be considered frost susceptible.

5. Above the groundwater table, excavations and backfilling shall be conducted in the dry.

6. Below the groundwater table, Contractor shall perform dewatering as necessary to perform the Work in dry and stable conditions.

7. Contractor shall excavate in such a manner as to minimize disturbance of the underlying natural ground. Deterioration of the subgrade between excavation and initial fill placement shall be the responsibility of Contractor and shall be repaired at Contractor's expense.

C. SLOPE STABILITY

1. Slope sides of manned excavations shall comply with OSHA requirements and local codes and ordinances having jurisdiction.

2. Shore and brace where sloping is not possible either because of space restrictions or stability of material excavated.

3. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

D. SHORING AND BRACING

1. Provide any other shoring and bracing necessary to comply with OSHA requirements and local codes and authorities having jurisdiction.

2. Coordinate shoring and bracing with the demolition to be performed.

3. Maintain shoring and bracing in excavations during all time periods when excavations are to be open. Extend shoring and bracing downward as excavation progresses.

E. DEWATERING

1. To the maximum extent practical, prevent surface water from flowing into excavations and from flooding Project Site and surrounding area.

2. To the extent practical, do not allow surface water to accumulate in excavations.

3. Dewater excavations to allow Work to be performed in dry conditions as necessary.

F. EXCAVATION FOR STRUCTURES

1. Conform to elevations and dimensions shown and extending a sufficient distance from foundations to permit placing and removal of concrete formwork, other construction, and inspection.

G. DISTURBED SUBGRADE

1. Should the subgrade become disturbed, saturated, or weave, Contractor shall take whatever means necessary to stabilize the subgrade at the discretion of the Engineer at no additional cost to Owner.

H. MATERIAL STOCKPILING AND HANDLING

1. All material including those originating from the Site and imported materials shall be managed and controlled in accordance with Section 01 35 43 – Environmental Procedures, Section 02 41 00 – Demolition, and Section 02 81 00 – Waste Management and Disposal.

2. It is the intent of these Specifications to reuse Suitable Site Materials to the maximum extent practical to limit the off-Site disposal of excess materials.

3. Unsuitable Site Materials as classified by Engineer shall not be used as fill to achieve elevations shown on the Drawings and shall be managed, temporarily stockpiled, loaded, transported and disposed off-Site at an Owner approved facility as described in Section 02 81 00 – Waste Management and Disposal.

4. Suitable Site Materials as directed by the Engineer shall be used to achieve elevations shown on the Drawings. Excess Suitable Site Materials shall be managed, temporarily stockpiled, loaded, transported and disposed off-Site at an Owner approved facility as described in Section 02 81 00 – Waste Management and Disposal.

5. Contractor shall be responsible for the management, loading, transportation, and off-Site disposal, at no additional cost to Owner, of any Suitable Site Materials that are re-classified as Unsuitable Site Materials due to Contractor's management procedures.

6. Maintain, clean, and repair staging areas consistent with Section 01 35 43 – Environmental Procedures and Section 02 81 00 – Waste Management and Disposal.

7. Individual stockpile sizes for all materials temporarily stored on-Site shall not exceed 500 cubic yards unless approved by Engineer.

8. Contractor shall conduct the transfer of materials to the stockpile areas in such a manner as to prevent loss of or spread of contaminated materials across the Site. Any contamination caused by the Contractor's management of materials shall be cleaned up consistent with all applicable laws and regulations at no additional expense to the Owner.

9. Contractor shall be responsible for all construction, protection, movement and maintenance of stockpiles for the duration of the Project Work or until directed otherwise by the Engineer.

I. COLD-WEATHER PROTECTION

1. Protect excavation bottoms and subgrades to be paved against freezing when atmospheric temperature is less than thirty-two (32) degrees Fahrenheit (°F).

3.3 BACKFILLING

A. GENERAL

1. Unless otherwise specified herein, place acceptable backfill materials in 12 inch, or less, lift thicknesses when compacted by a vibratory roller or 6-inch lift thicknesses when compacted by a plate compactor to the required subgrade elevations and compact each layer to the required degree of compaction.

2. Backfill shall not be placed over a subgrade covered with standing water or that is frozen unless approved by Engineer. If there is standing water on the subgrade, the water shall be removed from the surface and any soft and yielding soil shall be removed or allowed to dry prior to backfill placement. If the subgrade is frozen it shall be thawed and re-compacted prior to placement of backfill.

3. Owner may alter the grades depicted on the Drawings to minimize the amount of imported fill. Engineer shall approve the import of materials prior to delivery to the Site.

B. BACKFILL OPERATION

1. Backfill excavations promptly, but not until completion of the following:

a. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.

b. Removal of trash and debris.

3.4 PLACEMENT AND COMPACTION

A. GENERAL

1. Each lift shall be systemically compacted by approved compaction equipment to the density specified herein.

2. The Work area shall be graded, shaped and otherwise drained in such a manner as to minimize soil erosion, siltation of drainage channels, damage to existing vegetation and damage to property and waterways outside the Limits of Work.

3. Compaction equipment in open areas shall consist of a vibratory roller having a minimum drum weight of 10,000 pounds and a dynamic force of at least 20,000 pounds, unless otherwise approved by the Engineer.

4. Compaction equipment in confined areas (in trenches and adjacent to walls) shall be accomplished by hand-operated vibratory equipment with either a heavy plate compactor with 800-pound minimum force, or a double drum walk behind compactor with 1,000-pound minimum force, unless otherwise approved by the Engineer.

5. Contractor shall use mechanical equipment designed specifically for compaction. Engineer reserves the right to disapprove any device of inadequate capacity or, in his opinion of a type unsuited to the character of material being compacted.

6. Prior to the end of each Work shift, a layer of fill shall not be left uncompacted. Prior to terminating operations for the day, the final layer of fill shall be compacted with a smooth-drum roller to the required degree of compaction.

7. Contractor shall not place a layer of compacted fill on snow, ice or frozen soil. Removal of these unsatisfactory materials will be required as directed by the Engineer at no additional cost to Owner.

B. BACKFILL BELOW WATER

1. In excavations that extend below the groundwater table, a layer of Geotextile Filter Fabric shall be installed in the base of the excavation followed by the placement of ¾-inch Crushed Stone wrapped in Geotextile Fabric. The top surface of the ¾-inch Crushed Stone shall be compacted with a minimum of ten (10) passes of hand-operated vibratory compaction equipment approved by Engineer.

3.5 COMPACTION REQUIREMENTS

A. GENERAL

1. Backfill shall be compacted to the densities specified herein. Density is specified herein as a percentage of the maximum dry density achieved for a granular material when compacted as specified by ASTM D-1557, (Modified Proctor Test).

2. The density of stone aggregates shall not require measurement.

B. COMPACTION DENSITY REQUIREMENTS

1. Suitable Site Materials and Free Draining Materials: Compact to 92% of the maximum dry density.

2. All backfill materials placed on the sides of and within 12 inches above utilities shall be compacted to 92% maximum dry density. The remainder of the backfill above utilities shall also be compacted to 92% maximum dry density, except bituminous concrete base courses, which shall be compacted to 95% maximum dry density.

C. MOISTURE CONTROL

1. Where subgrade soil material must be moisture-conditioned before compaction, uniformly apply water to the surface as needed to obtain required compaction.

2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to the specified density.

3.6 GRADING

A. GENERAL

1. Uniformly grade areas within limits of grading, including adjacent transition areas. Smooth finish surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. COMPACTION

1. After grading, compact subgrade to the depth and density required, consistent with these Specifications.

3.7 FIELD QUALITY CONTROL

A. Quality control testing in the field during construction will be provided by Engineer. Contractor shall notify Engineer seventy-two (72) hours prior to any fill, backfill, or compaction operations. Emailed notification followed by confirmation of notification is satisfactory.

1. Contractor shall permit Engineer to observe all subgrades for each layer of fill or backfill. Additional fill or backfill shall not be placed unless Engineer has approved the subgrade and/or previous layer of fill.

2. When required or requested by Engineer, Contractor shall provide field elevations of the compacted subgrade or fill layer.

B. At the Contractor’s expense correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

C. Additional Tests: Additional testing, when test results indicate that the requirements specified herein have not been met, may be performed by Engineer at Contractor’s expense.

3.8 MAINTENANCE

A. PROTECTION OF GRADED AREAS

1. Protect newly graded areas from erosion, and keep free of trash and debris.

2. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. RECONDITIONING COMPACTED AREAS

1. Where previously compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.

END OF SECTION

SECTION 31 05 13 – SOILS AND AGGREGATES FOR EARTHWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Description

C. Compliance with Testing and Materials Standards

D. Submittals

1.2 RELATED SECTIONS

A. Section 01 11 00 - Summary of Work

B. Section 01 33 00 - Submittal Procedures

C. Section 01 35 43 - Environmental Procedures

D. Section 01 50 00 - Temporary Facilities and Controls

E. Section 01 50 10 – Temporary Water Control

F. Section 01 55 26 - Traffic Control

G. Section 01 57 13 - Temporary Erosion and Sediment Control

H. Section 01 57 16 - Temporary Project Controls

I. Section 01 74 23 - Final Cleaning

J. Section 02 41 00 – Demolition

1.3 DESCRIPTION

A. This Section includes descriptions of all soils and aggregate necessary to complete the Work outlined within the Specifications and Drawings.

B. Materials specified herein shall meet the excavation, backfilling, and compaction requirements within Section 31 00 00 – Earthwork and as described on drawings.

C. Contractor shall furnish all labor, materials, tools, supervision, and transportation necessary to perform soil and aggregate testing and analysis to meet the testing requirements specified herein.

D. The final approval of a source for all material will be at the discretion of Owner.

E. Imported soils must be free of chemical contamination and obtained from a source approved by the Owner. Imported material shall be sampled and tested by the Contractor, and approved by the Owner prior to delivery to the Site. Any change in source or material composition during the Work requires prior approval.

1.4 COMPLIANCE WITH TESTING AND MATERIALS STANDARDS

A. Comply with applicable provisions and recommendations of the latest version of the American Society for Testing and Materials (ASTM) standards:

1. ASTM C136 – Standard Test Methods for Particle Size Analysis of Nature and Man-Made Riprap materials

2. ASTM D422 - Standard Test Method for Particle-Size Analysis of Soils

3. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes

4. ASTM D2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

5. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)

B. Comply with applicable provisions and recommendations of the latest version of the American Association of State Highway and Transportation Officials (AASHTO) standards:

1. AASHTO T88 – Particle Size Analysis of Soils.

2. AASHTO T180 – Standard Specification for Moisture-Density Relations of Soils Using a 10 lb Hammer and 18-inch Drop.

3. AASHTO T 215 – Standard Method of Test for Permeability of Granular Soils (Constant Head).

C. Where reference is made to one of the above standards, the revision in effect at the time of the bid opening shall apply.

1.5 SUBMITTALS

A. Contractor shall perform chemical and physical properties testing as specified herein, and shall submit results confirming that the proposed materials meet the specified requirements, at least 14 days prior to delivery to the Site. Use of materials by Contractor prior to testing and approval or rejection shall be at Contractor's risk and at no additional cost to the Owner.

B. For each material, specified in Part 2 of this Section, the Contractor shall submit the following prior to delivery of any materials to the Site:

1. The proposed material source or sources, including name, address, and contact information.

2. Certification letter from the borrow source owner and/or operator that the borrow material does not contain oil or hazardous material, as supported by test data to be provided with certification letter.

3. The results of testing as specified in Part 3 herein for all materials proposed from each source.

4. A 5-lb sample for inspection by the Engineer.

C. Contractor shall document total amount and type of material imported to the Site. All import quantities shall be based on material weight slips.

PART 2 PRODUCTS

2.1 SECTION INCLUDES

A. Use of Materials

B. Materials

2.2 USE OF MATERIALS

A. The following summarizes a list of materials to be used during the Work.

1. Topsoil

2. Unsuitable Site Materials shall not be re-used on-Site as backfill.

2.3 MATERIALS

A. TOPSOIL

1. Topsoil shall be loose, friable, and free of refuse, stumps, roots, brush, weeds, frozen particles, and rock and stones as detailed on Drawing 8A.

B. SUITABLE SITE MATERIALS

1. Soil generated during demolition and excavation to achieve specified depths and deemed acceptable for re-use as on-Site fill by the Engineer.

2. Coated and uncoated brick, concrete, and masonry materials removed as part of the Work, crushed to 3-inch minus with reinforcing steel removed consistent with Section 02 41 00 – Demolition. All crushing must be

performed in in accordance with the conditions at 16.03(2)(b)5 of Site Assignment Regulations for Solid Waste Facilities, 310 CMR 16.00

C. UNSUITABLE SITE MATERIALS

1. Unsuitable Site Materials consists of soil generated from on-Site sources that are classified by Engineer either as visually, olfactory impacted and/or geotechnically unsuitable.

2. Unsuitable Site Materials shall be managed, handled, temporarily stockpiled, loaded, transported and disposed of in accordance with Section 02 81 00 – Waste Management and Disposal.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Material Testing Requirements

B. Laboratory Testing Requirements

3.2 MATERIAL TESTING REQUIREMENTS

A. CHEMICAL TESTING

Material	ETPH	VOCs	SVOCs	PP13 Metals + Barium	PCBS	PESTICIDES	Organic Content	pH
Topsoil	X	X	X	X	X	X	X	X

B. PHYSICAL TESTING

Material	Grain Size/Stone Size Analysis (D422/C136)	Material Classification (D2487)	Modified Proctor (D1557)	Moisture Content (D2216)	Weight Per Unit Volume Of Uncompacted Materials (ASTM-698)
Topsoil	X	X		X	X

3.3 LABORATORY TESTING REQUIREMENTS

A. Employ and pay for services of an independent laboratory acceptable to Owner and licensed in the State of Massachusetts to perform specified testing.

B. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent laboratory. Contractor shall

be responsible for payment for re-testing or re-inspection at no additional cost to the Owner.

C. Testing Agency/Laboratory Reports: After each test, promptly submit two copies of report to Engineer. When requested by Engineer, provide interpretation of test results. Include the following:

1. Date issued.
2. Project title and number.
3. Name of inspector.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Location in Project.
7. Type of inspection or test.
8. Date of test.
9. Results of tests.
10. Conformance with Contract Documents

END OF SECTION

DIVISION 32
EXTERIOR IMPROVEMENTS

SECTION 32 31 13 – FENCING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. References

C. Description of Work

D. Submittals

1.2 RELATED SECTIONS

A. Section 01 33 00 - Submittal Procedures

B. Section 01 35 29 - Health, Safety, and Emergency Response Procedures for Contaminated Sites

C. Section 01 35 43 – Environmental Procedures

D. Section 01 35 53 - Security Procedures

E. Section 01 50 00 – Temporary Facilities and Controls

F. Section 01 55 26 - Traffic Control

G. Section 01 57 13 – Temporary Erosion and Sediment Control

H. Section 01 66 00 – Product Storage and Handling Requirements

I. Section 02 81 00 - Waste Management and Disposal

J. Section 31 00 00 – Earthwork

K. Section 32 90 00 – Landscape Work

1.3 REFERENCES

A. ASTM A153 Standard Specification for Zinc Coating on Iron and Steel Hardware.

B. ASTM A123 Standard Specification for Zinc Coating on Iron and Steel Products.

C. AASHTO M180-12 Standard Specification for Corrugated Sheet Steel Beams for Highway Guardrail.

D. ASTM F567 Standard Practice for Installation of Chain Link Fence.

1.4 DESCRIPTION OF WORK

A. The Contractor shall be responsible for all labor, equipment, materials, and tools to furnish and install an operable and complete perimeter fencing system during the performance and upon completion of the Work as shown on the Drawings and in accordance with Section 01 35 53 – Security Procedures. Work includes, but is not limited to the following:

1. Install minimum 6-foot-high, temporary chain link fencing and gates as shown on the Drawings to secure the Site during the execution of the Work along the eastern, northern and western sides of the Site as shown on the Drawings.
2. Install minimum 8-foot-high, temporary chain link fencing and gates as shown on the Drawings to secure the Site during the execution of the Work along the front or southern side of the Site as shown on the Drawings.

B. All fencing shall receive green windscreen privacy panels of construction grade Contractor shall be responsible for the off-loading and storage of all delivered fencing in accordance with Section 01 66 00 – Product Storage and Handling Requirements.

C. Any soil or waste generated during the installation of the perimeter fencing and shall be managed in accordance with Section 02 81 00 – Waste Management and Disposal and Section 31 00 00 – Earthwork.

1.5 SUBMITTALS

A. Contractor shall prepare a perimeter fencing section for the Project Work Plan consistent with Section 01 33 00 – Submittal Procedures. This section of the Project Work Plan shall describe means and methods for installing the perimeter fencing. At a minimum, the following shall be included in this section of the Project Work Plan:

1. A written description of temporary fencing installation procedures.

PART 2 PRODUCTS

2.1 SECTION INCLUDES

A. Temporary Fencing

2.2 TEMPORARY FENCING

A. Temporary Fencing shall be minimum 6and 8 feet-high, No. 9 gauge, galvanized chain link fence with 2-inch diamond mesh lattice and vertical and horizontal bracing.

B. Temporary fence panels shall be installed with either:

1. Detachable concrete bases sized to have a minimum weight of 100 pounds; or,

2. Fabricated galvanized pipe frame with a minimum width of 36-inches and ballasted with two 50-pound (minimum) sand bags.

C. Additional weight may be required depending on wind loads and Site conditions. Contractor shall be responsible for assessing and supplying sufficient weight so that fencing is secure at all times.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. Installation of Temporary Fencing

3.2 INSTALLATION OF TEMPORARY FENCING

A. Temporary Fencing shall be installed at the locations shown on the Drawings.

B. Temporary Fencing shall be relocated or additional Temporary Fencing installed as needed to secure the Limits of Work during all phases of the Work.

C. Contractor shall set fence panels in ballasted stands or detachable concrete bases which shall be oriented perpendicular to the fence line. Fence panels shall be attached to each other using a minimum of two galvanized saddle clips.

D. The ends of Temporary Fencing shall be rigidly affixed to buildings or other Site features to mitigate potential unauthorized entry to the Work areas.

END OF SECTION

SECTION 32 90 00 - LANDSCAPE WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Related Sections

B. Description

C. References

D. Quality Assurance

E. Submittals

1.2 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work

B. Section 01 33 00 - Submittal Procedures

C. Section 01 35 29 – Health, Safety, and Emergency Response Procedures for Contaminated Sites

D. Section 01 35 43 – Environmental Procedures

E. Section 01 50 00 – Temporary Facilities and Control

F. Section 01 57 13 – Temporary Erosion and Sediment Control

G. Section 01 57 16 – Temporary Project Controls

H. Section 01 66 00 – Product Storage and Handling Requirements

I. Section 02 81 00 – Waste Management and Disposal

J. Section 31 00 00 – Earthwork

K. Section 31 05 13 – Soils and Aggregates for Earthwork

1.3 DESCRIPTION

A. Contractor shall provide all labor, materials, and equipment to install the following landscaping materials as shown on the Drawings:

1. Supply and install a 6-inch thick layer of topsoil in the areas indicated on the Drawings.

2. Supply and apply fertilizer and lime to the topsoil per soil testing recommendations.

3. Supply and spread grass seed and wood fiber mulch to the topsoil via hydroseeding.

4. Supply and install jute netting over seeded surfaces with 3:1 slopes or steeper.

5. Temporary stabilization of disturbed surfaces prior to final restoration in the event of a temporary Work shutdown.

1.4 REFERENCES

A. Massachusetts Department of Transportation (MassDOT) Project Development and Design – Chapter 13 Landscape and Aesthetics (Latest Edition).

B. Massachusetts Department of Energy and Environmental Protection's Guide for Planners, Designers, and Municipal Officals dated 2003.

C. Asphalt Institute Publication MS-22, Construction of Hot Mix Asphalt Pavements, Chapter 5.

D. American Society of Testing Materials (ASTM) D2950 – Standard Test Method for Density of Bituminous Concrete In Place by Nuclear Methods.

1.5 QUALITY ASSURANCE

A. CODES AND STANDARDS

1. All work and materials shall conform to the latest applicable sections under the State's various jurisdictions.

2. All work and materials shall be in full accordance with other State, Town of Holliston, and utility laws, rules, and regulations.

B. LINE AND GRADE CONTROL

1. Contractor shall be responsible for establishing and maintaining line and grade control for all aspects of the Work and as specified on the Drawings.

2. Grade tolerances for the landscape work shall be within the following:

i. Horizontal tolerance: 0.1 feet

ii. Vertical tolerance: 0.1 feet

1.6 SUBMITTALS

A. Submit the following information at least 14 days prior to delivery of the material to the Site. Use of materials by Contractor prior to testing and approval or rejection shall be at Contractor's risk and at no additional cost to the Owner.

1. Topsoil

a. Name of supplier and source history.

b. Sample of topsoil.

c. Analytical testing results consistent with Section 31 05 13 – Soils and Aggregates for Earthwork.

d. Soil analyses for organic content, pH, exchangeable acidity, extractable nutrients (phosphorus, potassium, calcium, magnesium, iron, manganese, zinc, copper, boron, and sulfur). Soil analyses shall include recommended rates and types of soil conditioners (fertilizer and lime).

2. Soil Conditioners: Manufacturer’s literature including but not limited to source information, chemical and physical testing results, for the recommended Soil Conditioners. Manufacturer shall also supply documentation showing state approval for intended use.

3. Seed mix: Affidavit and testing report for the seed mixture.

4. Jute Netting: Cut sheets and technical data from the manufacturer including installation instructions.

PART 2 PRODUCTS

2.1 SECTION INCLUDES

A. Topsoil

B. Grass Seed

C. Soil Amendments

D. Wood Fiber Mulch

E. Jute Netting

2.2 TOPSOIL

A. Topsoil shall be consistent with Part 2 of Section 31 05 13 – Soils and Aggregates for Earthwork.

2.3 GRASS SEED

A. Seed shall be fresh, clean, and new crop seed composed of the following varieties mixed in the specified proportion:

Creeping Red Fescue:	35 pounds per acre
Perennial Ryegrass:	30 pounds per acre
Red Top:	5 pounds per acre
Alsike Clover:	5 pounds per acre
Birdsfoot Trefoil:	5 pounds per acre
Lance-Leaved Coreopsis:	3 pounds per acre
Oxeye Daisy:	3 pounds per acre
Butterfly Weed:	3 pounds per acre
Blackeyed Susan	3 pounds per acre
Wild Lupine	3 pounds per acre

2.4 SOIL AMENDMENTS

A. FERTILIZER

1. Fertilizer shall be a complete fertilizer, the elements of which are derived from organic sources. Fertilizer shall be a standard product complying with state and federal fertilizer laws.

2. Percentages of nitrogen, phosphorus and potash shall be based on laboratory tests on soils outlined herein and approved by Engineer. For purpose of bidding, assume application of 10-10-10 fertilizer at a rate of 300 pounds per acre and limestone at a rate of 1-ton acre.

3. Fertilizer shall be delivered to the Site, mixed as specified, in the original unopened standard size bags showing weight, analysis and name of Manufacturer. Containers shall bear the Manufacturer's guaranteed statement of analysis, or a Manufacturer's certificate of compliance covering analysis shall be furnished to Engineer. Store fertilizer in a weatherproof place and in such a manner that it will be kept dry and its effectiveness will not be impaired.

2.5 WOOD FIBER MULCH

A. Wood Fiber Mulch shall be manufactured from coniferous or hardwood trees and shall be free from shavings, rot, mold, foreign material, or debris. Wood Fiber Mulch shall be of uniform texture and may contain a non-toxic marking dye. The moisture content of the material shall be less than 12% when delivered to the Site. Wood Fiber Mulch shall be capable of forming a homogenous slurry when mixed with water.

2.6 JUTE NETTING

A. Jute netting shall be a uniform, open, plain weave cloth of undyed and unbleached single jute yarn. The yarn shall be of a loosely twisted construction and it shall not vary in thickness more than one-half its normal diameter. Jute netting shall be furnished in rolled strips and shall meet the following requirements:

1. Width - 48 inches, plus or minus one inch

2. 78 warp - ends per width of cloth (minimum)

3. 41 weft - ends per yard (minimum)

4. Weight shall average 1.22 pounds per linear yard with a tolerance of plus or minus 5%.

B. Staples shall be U-shaped and shall be approximately six inches long and one inch wide. Machine made staples shall be of No. 11 gauge or heavier steel wire. Handmade staples shall be made from 12-inch lengths of No. 9 gauge or heavier steel wire.

PART 3 EXECUTION

3.1 SECTION INCLUDES

A. General

B. Job Conditions

C. Incorporation of Soil Amendments

D. Installation of Grass Seed

E. Installation of Jute Netting

F. Maintenance

G. Acceptance of Grass

3.2 GENERAL

A. Perform restoration Work in compliance with applicable requirements of governing authorities having jurisdiction and permits/approvals obtained to complete the Work.

3.3 JOB CONDITIONS

A. Coordinate all work of this Section with related Work of other Sections. Failure to coordinate properly will not reduce the obligation to meet the standards of acceptance of the various elements of work contained herein.

B. SEQUENCING AND SCHEDULING

1. No seed shall be placed until acceptance of grading by Owner.

2. All existing or new landscaped materials damaged by construction operations or other causes shall be repaired to Engineer's satisfaction, at no additional cost to Owner.

C. Plant grasses during recognized normal planting seasons.

3.4 INCORPORATION OF SOIL AMENDMENTS

A. FERTILIZER

1. Fertilizer rates of application shall be applied as per soil test recommendations.

B. LIME

1. Lime rates of application shall be applied as per soil test recommendations.

3.5 INSTALLATION OF GRASS SEED

A. GRASS SEED

1. The calendar dates for installing Grass Seed shall be:

i. Spring - March 15 to May 15

ii. Fall - August 15 to October 30

iii. Contractor shall temporarily stabilize landscaped areas if seeding is not performed within these windows to avoid erosion. Contractor is responsible for establishment of grass regardless of construction schedule. Temporary stabilization activities include seeding with winter rye grass seed. Jute netting shall be installed on 3:1 slopes or steeper.

2. Planting of Grass Seed:

   i. Grass Seed shall be placed on prepared soil that has been watered and is still moist. The soil shall not be worked when the moisture content is so great that excessive compaction will occur, or when it is so dry that a dust will form in the air or clods will not break readily. Water shall be applied, if necessary, to provide ideal moisture content for tilling and for planting as herein specified.

   ii. After completion of soil conditioning, landscaped areas shall be hydroseeded at the following rates:

      a. 6 pounds of Grass Seed per 1,000 square feet

      b. 40 pounds of Wood Fiber Mulch per 1,000 square feet

3. Protection - Erect barricades and warning signs as required to protect newly seeded areas. Install Jute Netting over the seeded areas consistent with this Section and maintain barricades until acceptance.

3.6 INSTALLATION OF JUTE NETTING

A. Install Jute Netting on 3:1 slopes or steeper within 48 hours of hydroseeding the areas specified on the Drawings.

B. Jute Netting shall be placed uniformly, in contact with the underlying soil.

C. The top edge of each strip shall be anchored by placing netting in a 6 inch deep by 6-inch wide trench. The netting shall extend approximately 12 inches beyond the up-slope portion of the trench. The netting shall be anchored in the trench with a row of staples approximately 12 inches apart.

D. Backfill trench with Topsoil, hand tamp, seed the trench and then wrap the 12-inches of netting back over the trench. Anchor the netting with a row of staples approximately 12-inches apart.

E. Edges of adjacent strips shall be overlapped 6 inches with a row of staples at a maximum interval of 3 feet in the lapped area.

F. Bottom edges shall be overlapped 12 inches over the next lower strip or buried as specified for top edges.

3.7 MAINTENANCE

A. Maintenance activities shall consist of the following elements:

1. Watering, fertilizing, weed control, disease control, insect control, mowing, trimming, and other operations such as rolling, regrading, replanting, as required to establish a smooth, acceptable lawn, free of eroded or bare areas.

2. Contractor shall guarantee work covered by this Section to the extent that all seeded areas shall be uniform in color, leaf texture and shoot density and be reasonably free of weeds, diseases and other visible imperfections at acceptance.

3. Contractor shall be responsible for the watering of all seeded areas. Watering should begin immediately after installation. The amount of water required will vary depending upon season, weather, temperature, wind, and slope. Engineer's opinion will prevail in the event that a dispute develops with Contractor as to whether or not seeded areas are moist.

   i. First Week: Contractor shall provide all labor and arrange for all watering necessary for rooting of the grass seed. Soil shall be kept moist at all times. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least 4 inches. Watering should be done during the heat of the day to prevent wilting.

4. Watering shall be done in a manner which will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surfaces due to the watering equipment. Contractor shall furnish sufficient watering equipment to apply one complete coverage to the seeded areas in an 8-hour period.

5. Contractor shall care for all of the seeded areas until the work has been accepted. Care shall include any re-grading, re-fertilizing, and re-seeding which may be necessary.

3.8 ACCEPTANCE OF GRASS

A. GENERAL

1. In order to achieve Substantial Completion, Contractor shall establish an acceptable and satisfactory stand of grass at all seeded areas.

2. Engineer will have final authority on the acceptance of grassed areas and the determination of an acceptable and satisfactory stand of grass. To be acceptable, all areas of grass shall be well-rooted, thick in growth, uniformly healthy in color, texture, and growth pattern, and shall meet the following criteria:

   i. No bare spots,

   ii. No annual, perennial, or noxious weeds shall be evident.

B. INSPECTIONS

1. After the establishment of a stand of grass within the areas indicated on the Drawings, Contractor shall make a written request to Owner for a formal inspection of the Work. If grass and workmanship are acceptable upon inspection, written notice will be given to Contractor stating that the work has received Final Acceptance.

2. If the inspection identifies deficiencies, Contactor shall be responsible for addressing them at no additional cost to the Owner. The Owner or Engineer will re-inspect the repaired areas upon written request by the Contractor.

END OF SECTION

ATTACHMENT A
TABLES

Table 1 Former Flagg School Building ACM Removal Summary		
ACM Type	**Location**	**Estimated Quantity**
Boiler Insulation	Boiler room – on HB Smith Boiler (note: include debris removal on floor)	25 SF
Interior boiler caulking, gaskets, packings, & linings. (include misc. ACM gasket box)	Boiler room – on HB Smith Boiler	1 boiler/entire boiler and base
Breeching insulation (and assoc. metal seam gaskets)	Boiler room – off boiler back side to chimney flue	300 SF
Tank insulation	Boiler room – back side	80 SF
Pipe insulation (each type) – including pipe fitting insulation	Boiler room – throughout	400 LF
Pipe insulation - (each type and assoc. pipe fittings and contaminated debris in soils)	Main pipe crawl space (under original middle wing – entire area)	2,250 LF (entire pipe space & surface area)
Pipe insulation (each type and assoc. pipe fittings, and ACM debris on dirt floor)	Small pipe tunnel extension on boiler room backside (under old locker rooms). Extensive ACM debris/soil at back end	250 LF (entire surface area)
Pipe insulation and pipe fitting insulation	Transformer room (former Edison/NSTAR room) (access @ front of building @/below areaway)	25 LF
9” x 9” floor tile (no floor mastic, exposed and under carpeting)	Throughout original building in hallways, classrooms and side rooms in Storage Wing, Classroom Wing, and Office Wing	16,000 SF
Cementitious pipe fitting insulation (on original piping)	Front Office Wing – Stage HVAC loft	~12 each
Pipe and pipe fitting insulation	Restroom pipe chases throughout building	200 LF
Roof drain pipe and pipe fitting insulation	Front office wing - maintenance shop (riser)	15 LF
Hard block pipe insulation & pressed paper pipe insulation (and associated pipe fitting insulation)	1st floor original bldg. – Front Storage wing (Rooms 101, 102, 103, 104, hallway @ 101) and Middle Classroom Wing (rooms 108, 109, 110, 111, 112, hallway outside 112, 113) (Present behind perimeter heater/univents, counters/cabinet, above suspended ceilings, and assumed under stage)	2,750 LF
12” x 12” brown floor tile and black floor mastic (exposed & under carpeting)	Front office wing - 1st floor offices, hallways, large meeting room, stairwell landings, and 2nd floor restrooms, New Back Wing - hallways and 1st two side rooms #115 & #116	5,000 SF

REFERENCE DOCUMENT ONLY

Table 1 - continued Former Flagg School Building ACM Removal Summary		
ACM Type	**Location**	**Estimated Quantity**
12" x 12" white floor tile and black floor mastic	Front Storage wing – 2 restrooms off hallway	5 SF
Transite cement ceiling board (building interior)	Classroom Wing – 2 restrooms, janitor closet, fire sprinkler room, supply storage room, & boiler room entrance Back New Wing - above entrance hallway, Rooms 115 & 116: ~2' strip above new wing corrugated steel deck	1,500 SF
Sheetrock wallboard systems: Joint compound – on sheetrock (gypsum) wallboard systems throughout building	Back New Wing – All rooms & hallways	10,000 SF
	Classroom Wing - back side hallway & room 110 corner chase	500 SF
	Front Office Wing – All 1st and 2nd floor rooms & areas (exclude foyer)	19,500 SF
	Note: Remove ACM debris and contaminated carpeting present in front offices, meeting room and former stage and new wing at chases	30,000 SF total
Black mastic – on/behind wood paneling, wallboard and wood framing/studs	Former classroom 107 – all walls and studs	1,200 SF
Sink black tar mastic undercoating (metal sinks)	Front Storage Wing – teachers room and Front Admin wing – maintenance rooms	~5 sinks
Red duct mastic	Front Office Wing - at upper level fan room off stage on metal HVAC ducting	100 SF
Flexible cloth duct connector	Front Office Wing - at upper level fan room (loft off stage)	1 connector 10 LF/SF
ACM debris on top of and in right side duct chase at stage	Stage loft and in vertical stage HVAC duct chase (entire vertical chase)	~150 SF
Fire doors – white interior block insulation (with small window)	Front Office Wing – 1st floor double doors 2nd floor – front & back stairwell doors	~5 doors
Cementitious/concrete fascia board panels (exterior)	Back New Wing – at perimeter roof level soffit vertical decorative panels (~2.5' wide)	750 SF
"Transite" asbestos cement board (exterior)	Back New Wing - on exterior perimeter roof level soffit underside (~2'-2.5' wide)	650 SF
"Transite" asbestos cement board (exterior)	Original building – on exterior roof level soffit undersides (up to ~2'- 2.5' wide) and on 1st floor and upper 2nd floor brick façade, and inside new wing on old soffit above corrugated steel deck.	2,500 SF
Exterior window glazing compound (on at sashes)	Throughout original and new wing exteriors (wood and aluminum window sashes) – Various sizes with multiple sashes per unit	~175 window units
Exterior gray window caulking compound	Throughout original building - lining windows at brick façade (gray caulk only)	1,250 LF

REFERENCE DOCUMENT ONLY

Table 1 - continued Former Flagg School Building ACM Removal Summary		
ACM Type	**Location**	**Estimated Quantity**
Exterior caulking material	Original building wings – on all exit door frames, block window frames, and metal vent frames at brick façade (each size)	500 LF
Black tar mastic compound - on copper/metal flashings and brick facade	Original building exterior upper façades, roof, chimney flue, 2nd floor lower façade, & above exterior doors	500 LF/SF
Tar mesh roof flashing material (~2-3 SF wide)	Original Wings on built up felt tar/gravel roofing perimeter and at central hood penetrations (1st & 2nd floors)	Estimated 2,000 LF or 5,000 SF
White and gray caulking	On roof top exhaust hoods metal ducting	each hood/ 150 SF
Additional Unit Cost Pricing		
Pipe insulation in pipe sleeve (estimated 3 separate lines)	Front Office Wing - under/in concrete floor slab in meeting room/offices (Note – under/in former old gym slab floor)	Est. 225 LF

End of Section

REFERENCE DOCUMENT ONLY

Table 2 - Summary of PCB Sample Analysis for Former Flagg School Sampled January 20, 2017			
Sample #s	**Suspect Material by Homogeneous Area**	**General Location**	**Highest Result in ppm for 9 PCB Aroclors**
Original Building Wing			
104-01	Exterior window glazing compound	Original Building – on wood window sash outside room 111	None Detected
104-02	Exterior window caulking	Original Building – under wood window unit framing at brick façade outside room 111	None Detected
104-03	Exterior window glazing compound	Original Building – on wood window sash outside room 111	None Detected
104-04	Exterior window caulking	Original Building – under wood window unit at brick façade outside room 101	None Detected
New Addition Building Wing			
104-05	Exterior window glazing compound	New Wing Building – on aluminum/metal window sash outside room 116	None Detected
104-06	Exterior window caulking	New Wing Building – on aluminum/metal window at brick facade outside room 116	Aroclor 1242 – 70.8 ppm
104-07	Exterior window glazing compound	New Wing Building – on aluminum/metal window sash outside room 117B	Aroclor 1242 – 0.747 ppm
104-08	Exterior window caulking	New Wing Building – on aluminum/metal window at brick facade outside room 117B	Aroclor 1242 – 1.82 ppm

Note: ** = 1,000 micrograms per kilogram (ug/Kg) = 1 part per million (ppm)*

REFERENCE DOCUMENT ONLY

REFERENCE DOCUMENT ONLY

Table 2 Summary of Miscellaneous Hazardous Building Materials			
Type/Component	Material	General Location	Est. Quantity
Fluorescent bulbs (lamps)			
1'x 4' fluorescent light fixtures (new)	Fluorescent Light Tubes – Mercury Vapor (2 bulbs each)	Throughout 1st floor – all wings	60 fixtures / 120 bulbs
1'x 4' fluorescent light fixtures (new)	Fluorescent Light Tubes – Mercury Vapor (1 bulb each)	Throughout 1st floor – all wings	175 fixtures / 175 bulbs
2'x 4' fluorescent light fixtures (new)	Fluorescent Light Tubes – Mercury Vapor (2-4 bulbs each)	Classroom wing and Admin. wing (1st fl.)	12 fixtures / 45 bulbs
2'x 2' fluorescent light fixtures (new)	Fluorescent Light straight & "U" tubes – Mercury Vapor (2 bulbs each)	Throughout 1st floor – all wings 1st floor	~45 fixtures / 90 bulbs
2'x 2' fluorescent light fixtures (new)	Fluorescent Light Tubes straight & "U" tubes – Mercury Vapor (2 bulbs each)	Throughout 2nd floor	~75 fixtures / 150 bulbs
High intensity light fixtures	Metal Halide – high intensity light tubes and bulb	Exterior upper roof façade	~ 10 fixtures
2' Miscellaneous circular fluorescent lights	Mercury vapor bulbs	2nd floor back stairwell landings	1 each
Ballasts			
Ballasts within fluorescent light fixtures	"Non PCB" and Potential PCB/DEHP containing ballasts	Throughout building (see fluorescent light fixture quantities above, 1 per fixture)	~375 each
Exit Signs			
Exit Signs	Lead acid and NiCad button batteries	Throughout building	12 each
Mercury-Containing Thermostats			
Newer wall mounted thermostats (rectangular type)	Liquid elemental mercury in glass ampules (2 per thermostat)	Throughout 2nd floor – office Admin. Wing	~ 10 Thermostats
Emergency Lights			
Emergency light fixtures/panels	Lead acid /NiCad battery and/or contact/bulb components	Throughout building – mounted on hallway walls and meeting	~20 panels - ~ 80 batteries
Misc. Air Conditioning units	Freon/refrigerant (CFCs)	Admin. Wing – roof top & Meeting Room & stage office units and @ back new wing univents	~100 lbs.

Table 2 - continued Summary of Miscellaneous Hazardous Building Materials			
Type/Component	**Material**	**General Location**	**Est. Quantity**
Refrigerants – CFCs			
Window mounted AC units and loose units on floor	Freon/refrigerant (CFCs)	Throughout Building	[illegible] units ~50 lbs
Loose refrigerators and freezers	Freon/refrigerant (CFCs)	Front Wing room 10[illegible] New Wing - room 116 on floor	15 units ~60 lbs
Oil Sources			
Hydraulic oil for 2 compressors and loose containers	Hydraulic Oil	Basement - boiler room	~ 5 gallons
Above ground storage tanks	Heating oil (residual)	Basement - boiler room in 2 - 275 gallon tanks	2 - 275 gal. tanks
Oil filled door openers (within cylinder arm mechanism)	Hydraulic type oil (6-12 ounces per opener)	Original Wings at hallway exits doors	2 each
Old boiler - oil burner	Heating oil (residual)	Basement Boiler room - old oil burner and supply lines	1 oil burner ~10 gallons
Other Materials			
Miscellaneous paints, oil based and various cleaners products	Oil based and latex paints and chemicals	Throughout building - Exterior storage room, Stage area, maintenance shops, middle storage room and in various classrooms	Not quantified
Various white goods and computer equip.	Copiers, computer CRTs, misc. hard drives, etc.	Throughout building - stage, classrooms 103/104, room 116, new wing back hallway,	Not quantified
Fire extinguishers	Suppression chemicals	Throughout building	Not quantified

REFERENCE DOCUMENT ONLY

ATTACHMENT B
Construction Documents

DEMOLITION AND ENVIRONMENTAL SERVICES

THE FORMER FLAGG SCHOOL BUILDING

100 LINDEN ROAD

HOLLISTON, MASSACHUSETTS

SITE VICINITY

BASE MAP FROM GOOGLE EARTH PROFESSIONAL

INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE
1	INDEX OF DRAWINGS AND LOCUS PLAN
2	SITE CONTROL PLAN
3	EROSION AND SEDIMENT CONTROL PLAN
4	EROSION AND SEDIMENT CONTROL PLAN DETAILS
5	DEMOLITION PLAN
6	RESTORATION PLAN (GRADING PLAN)

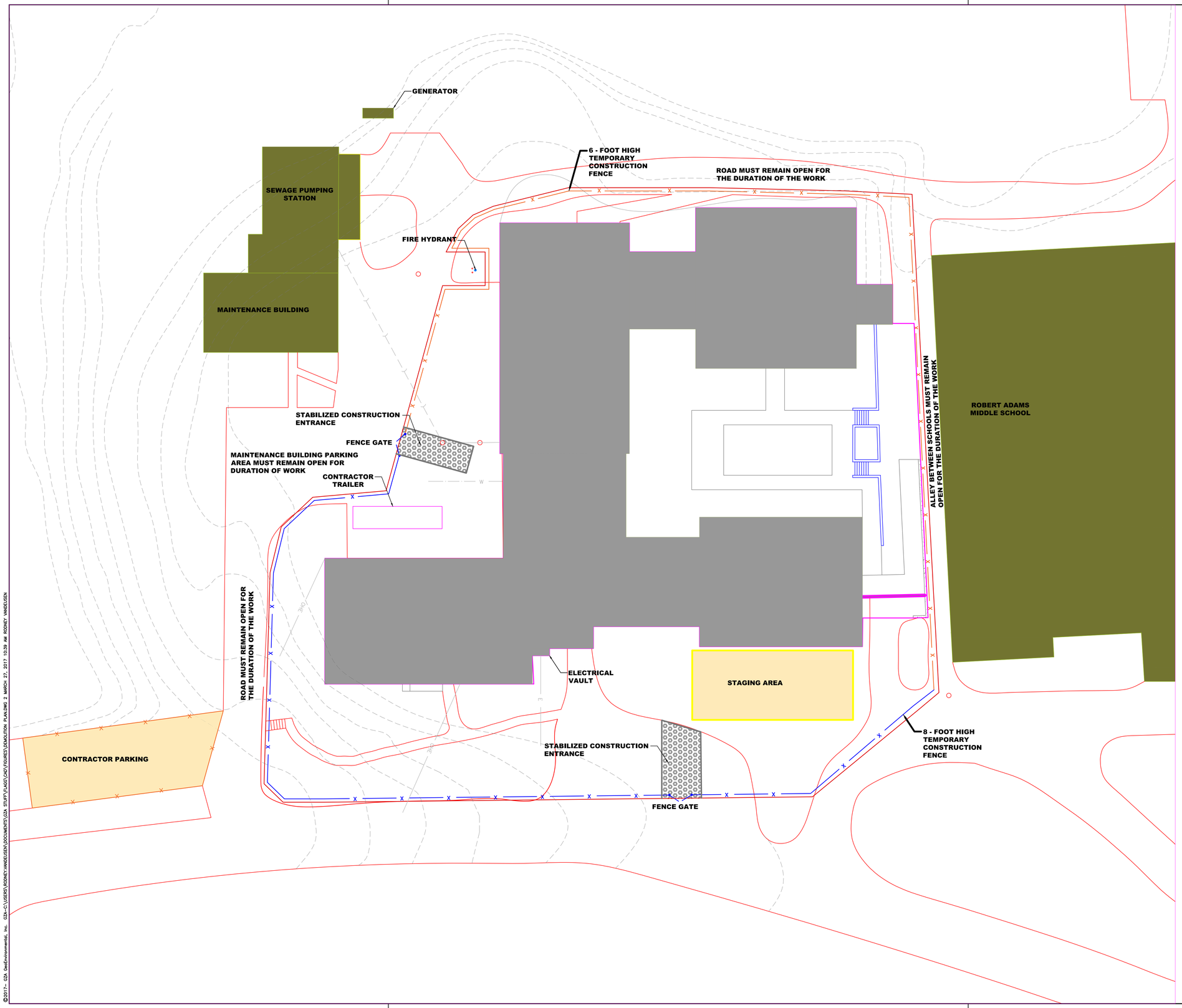
PREPARED FOR THE TOWN OF HOLLISTON

HOLLISTON, MASSACHUSETTS

PREPARED BY:

GZA
GeoEnvironmental, Inc.
5 COMMERCE PARK NORTH
BEDFORD, NEW HAMPSHIRE 03110
(603) 624-9463

ISSUED FOR BID: MARCH 27, 2017



GENERAL NOTES

A. CARE SHALL BE TAKEN TO AVOID DAMAGE TO NEARBY UTILITIES WHILE PERFORMING WORK.
B. COORDINATE ALL ACTIVITIES WITH THE OWNER.

LEGEND

- LIMITS OF WORK
- 8–FOOT CHAIN LINK FENCE
- 6–FOOT CHAIN LINK FENCE
- FIRE HYDRANT FOR CONTRACTOR USE

NOTES

1. THE BASE MAP WAS DEVELOPED FROM: A COPY OF THE ARCHITECTURAL AND ENGINEERING PLANS PREPARED BY CHARLES H. COLE 2nd ARCHITECT DATED 9–3–53 AND ARCHITECTURAL AND ENGINEERING DRAWINGS PREPARE BY PERLEY F. GILBERT ASSOCIATES DATED 3–27–70
2. LOCATIONS OF ALL UTILITIES AND SITE FEATURES ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR TO VERIFY LOCATIONS OF UTILITIES AND SITE FEATURES AS NEEDED TO COMPLETE THE WORK.
3. THIS DRAWING DOES NOT DEPICT ALL TRENCHES, PITS, AND CHASES WITHIN THE SLABS OF THE BUILDINGS (IF ANY).
4. CONTRACTOR TO INSTALL SITE PERIMETER FENCING AND GATES AS SHOWN PRIOR TO THE START OF DEMOLITION AND RELATED WORK.
5. CONTRACTOR TO PROVIDE SECURITY AND GATE CONTROL AS REQUIRED IN CONTRACT DOCUMENTS AND IN ACCORDANCE WITH OWNER REQUIREMENTS.
6. HYDRANT LOCATION IS APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD. CONTRACTOR IS TO MAINTAIN CLEAR ACCESS TO THE HYDRANT AT ALL TIMES.
7. CONTRACTOR TRAILER LOCATION IS SHOWN AS APPROXIMATE. CONTRACTOR SHALL COORDINATE LOCATION WITH OWNER.

N E S W

0 10' 20' 40' 60'
SCALE IN FEET 1" = 20'

NO.	ISSUE/DESCRIPTION	BY	DATE

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DEMOLITION AND ENVIRONMENTAL SERVICES OF
THE FORMER FLAGG SCHOOL BUILDING
HOLLISTON, MASSACHUSETTS

SITE CONTROL PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
TOWN OF HOLLISTON
703 WASHINGTON STREET
HOLLISTON, MASSACHUSETTS

PROJ MGR: RJVD	REVIEWED BY:	CHECKED BY: JCM	DRAWING 2
DESIGNED BY: RJVD	DRAWN BY:	SCALE: see above	
DATE: March, 2017	PROJECT NO. 04.0190622.00	REVISION NO.	SHEET NO. 2 OF 6

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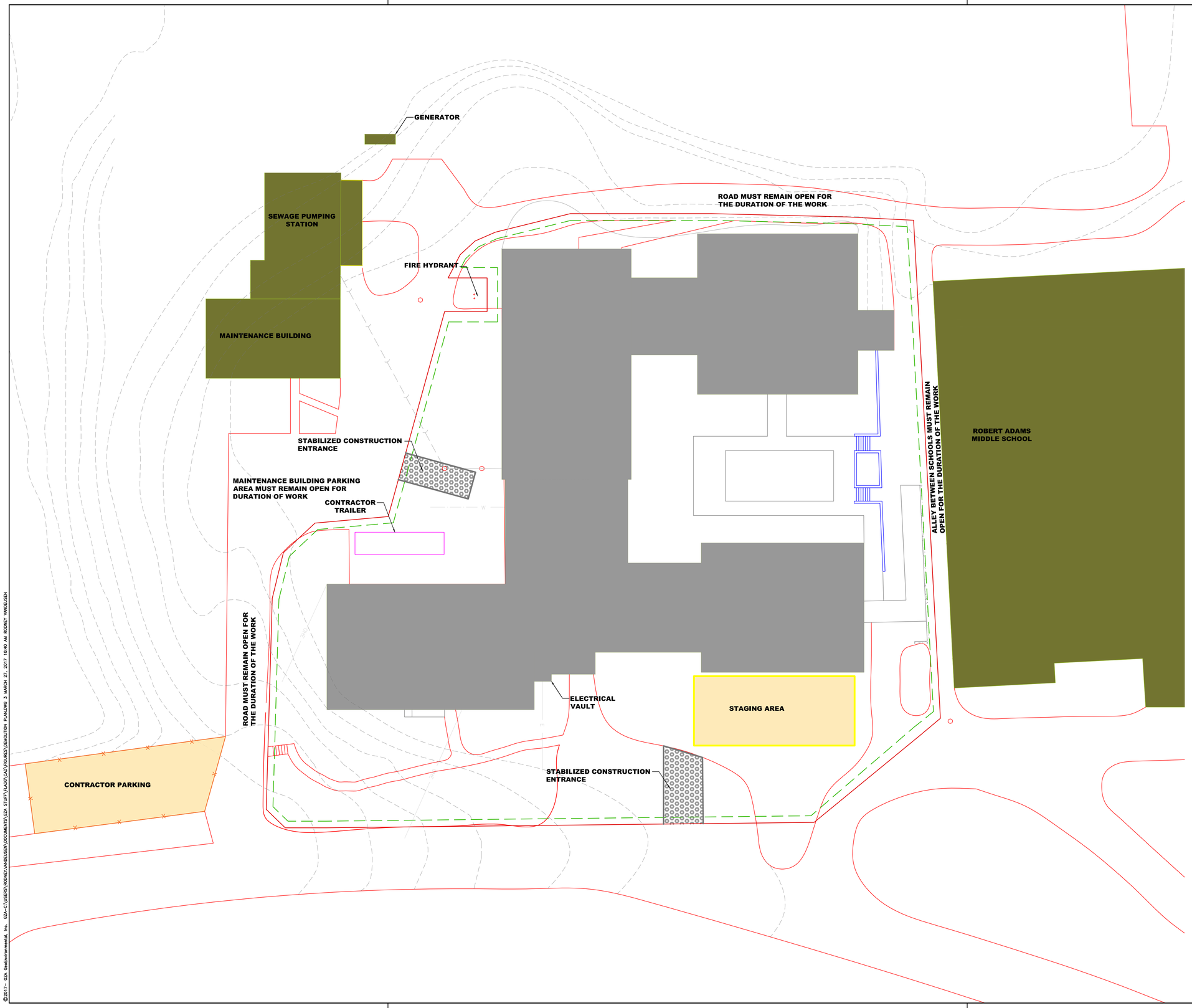

GENERAL NOTES

A. CARE SHALL BE TAKEN TO AVOID DAMAGE TO NEARBY UTILITIES WHILE PERFORMING WORK.
B. COORDINATE ALL ACTIVITIES WITH CATERPILLAR.

LEGEND

LIMITS OF WORK

STRAW BALE BARRIER OR SILT FENCE/STRAW BALE INSTALLATION (SEE DETAILS FOR INSTALLATION ON PAVED AREAS AND NON-PAVED AREAS)

NOTES

1. THE BASE MAP WAS DEVELOPED FROM: A COPY OF THE ARCHITECTURAL AND ENGINEERING PLANS PREPARED BY CHARLES h. COLE 2ND ARCHITECT DATED 9-3-53 AND ARCHITECTURAL AND ENGINEERING DRAWINGS PREPARED BY PERLEY F. GILBERT ASSOCIATES DATE 2-27-70.
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3. THIS DRAWING DOES NOT DEPICT ALL TRENCHES, PITS, AND CHASES WITHIN THE SLABS OF THE BUILDINGS.
4. EROSION CONTROL STABILIZED CONSTRUCTION ENTRANCE TO BE INSTALLED IN ACCORDANCE WITH CONTRACT DOCUMENTS PRIOR TO THE START OF DEMOLITION ACTIVITIES.

N
W E
S

0 10' 20' 40' 60'
SCALE IN FEET 1" = 20'

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DEMOLITION AND ENVIRONMENTAL SERVICES OF
THE FORMER FLAGG SCHOOL BUILDING
HOLLISTON, MASSACHUSETTS

EROSION AND SEDIMENT CONTROL PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
TOWN OF HOLLISTON
703 WASHINGTON STREET
HOLLISTON, MASSACHUSETTS

PROJ MGR: RJVD	REVIEWED BY:	CHECKED BY: JCM	DRAWING 3
DESIGNED BY: RJVD	DRAWN BY:	SCALE: see above	
DATE: March, 2017	PROJECT NO. 04.0190622.00	REVISION NO.	SHEET NO. 3 OF 6

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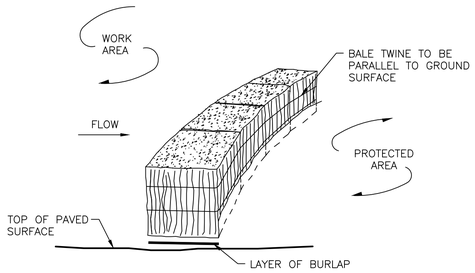
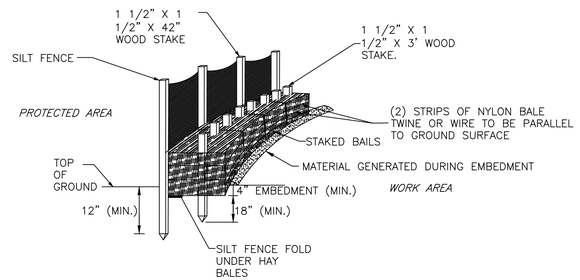


CONSTRUCTION SPECIFICATIONS

1. BALES SHALL BE PLACED WHERE SPECIFIED ON DRAWINGS IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE PLACED SO THE BINDINGS ARE HORIZONTAL.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

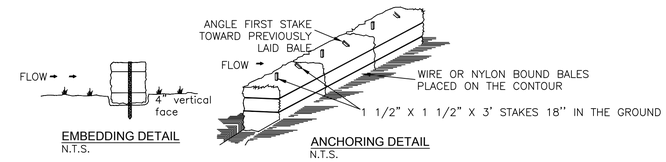
STRAW BALE BARRIER DETAIL (PAVED AREAS)

NOT TO SCALE



SILT FENCE / STRAW BALE INSTALLATION DETAIL (NON-PAVED AREAS)

NOT TO SCALE



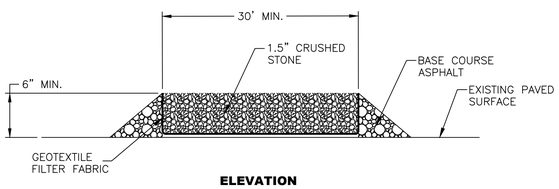
EMBEDDING DETAIL
N.T.S.

ANCHORING DETAIL
N.T.S.

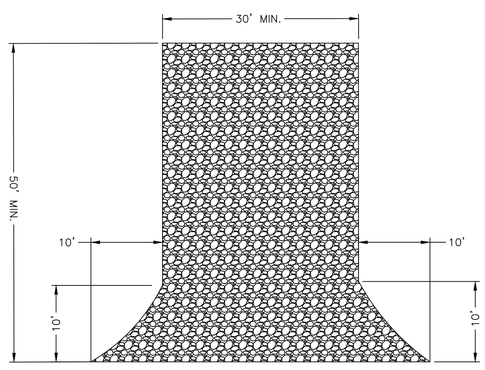
NOTE:

CONSTRUCTION SPECIFICATION

1. BALES SHALL BE PLACED IN A ROW WITH THE ENDS TIGHTLY ADJOINING.
2. EACH BALE SHALL BE EMBEDDED IN THE GROUND A MINIMUM OF 4 INCHES.
3. BALES SHALL BE ANCHORED IN PLACE BY AT LEAST TWO STAKES DRIVEN THROUGH THE BALE. THE STAKES SHOULD BE DRIVEN AT LEAST 18 INCHES INTO THE GROUND.
4. BARRIERS SHALL BE INSPECTED AFTER EVERY RAINFALL AND PROMPTLY REPAIRED OR REPLACED AS NECESSARY.
5. BALES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED OF PROPERLY.



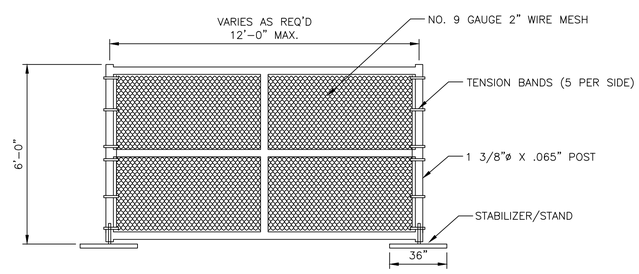
ELEVATION

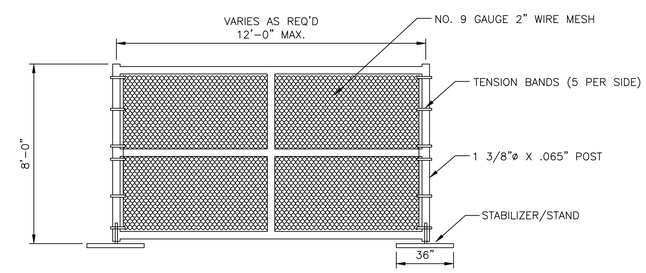


PLAN

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE





TYPICAL TEMPORARY CONSTRUCTION FENCE PANEL

NOT TO SCALE

TEMPORARY CONSTRUCTION FENCING NOTES:

1. FENCES SHALL BE CONSTRUCTED WITH A TOP AND BOTTOM RAIL.
2. GATES MUST REMAIN IN GOOD WORKING ORDER AND MUST BE CLOSED AND SECURED DURING NON-WORKING HOURS.
3. GATES SHALL BE CONSTRUCTED SO THAT THEY SWING IN TOWARDS THE CONSTRUCTION SITE.
4. GATES MUST BE CONSTRUCTED WITH THE SAME DESIGN CHARACTERISTICS AS THE TEMPORARY CONSTRUCTION FENCE.
5. FABRIC SHALL BE ANCHORED IN EACH GROMMET WITH ALUMINUM TIES.
6. STABILIZER/STAND SHALL BE BALLASTED WITH MINIMUM TWO 50-POUND SAND BAGS

NO.	ISSUE/DESCRIPTION	BY	DATE

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DEMOLITION AND ENVIRONMENTAL SERVICE OF
THE FORMER FLAGG SCHOOL BUILDING
HOLLISTON, MASSACHUSETTS

EROSION AND SEDIMENT CONTROL PLAN DETAILS

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
TOWN OF HOLLISTON
703 WASHINGTON STREET
HOLLISTON, MASSACHUSETTS

PROJ MGR: RJVD	REVIEWED BY: JCM	CHECKED BY: JCM	DRAWING 4
DESIGNED BY: RJVD	DRAWN BY:	SCALE: not to scale	
DATE: March, 2017	PROJECT NO. 09.0190622.00	REVISION NO.	SHEET NO. 6 OF 6

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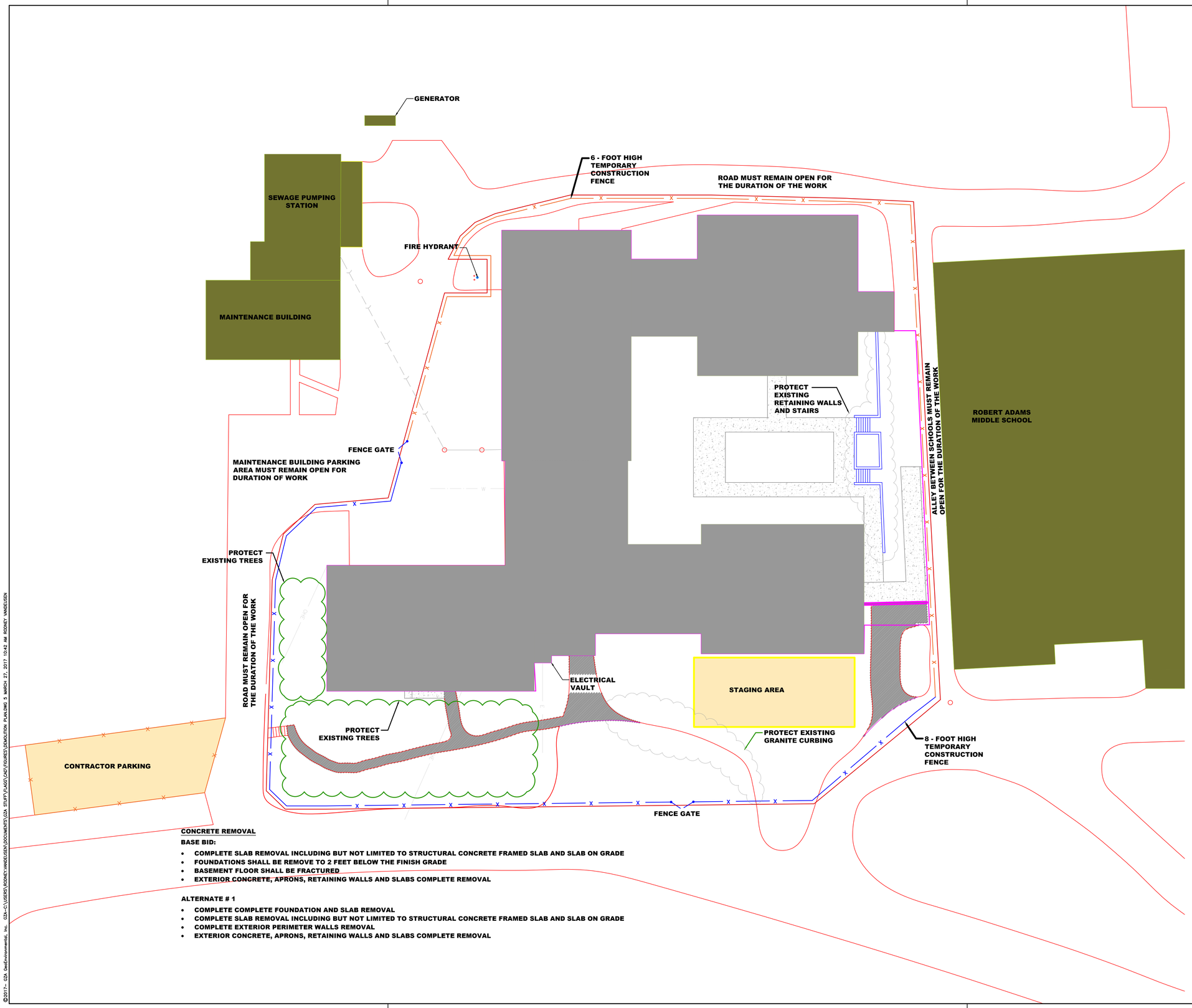

GENERAL NOTES

A. CARE SHALL BE TAKEN TO AVOID DAMAGE TO NEARBY UTILITIES WHILE PERFORMING WORK.
B. COORDINATE ALL ACTIVITIES WITH CATERPILLAR.

LEGEND

- LIMITS OF DEMOLITION
- LIMITS OF WORK
- CONTRACTOR SUPPLIED 8–FOOT CHAIN LINK FENCE
- CONTRACTOR SUPPLIED 6–FOOT CHAIN LINK FENCE
- CONCRETE SIDEWALKS, RAMPS AND SITE WALLS TO BE REMOVED
- ASPHALT SIDEWALKS TO BE REMOVED

NOTES

1. THE BASE MAP WAS DEVELOPED FROM: A COPY OF THE ARCHITECTURAL AND ENGINEERING PLANS PREPARED BY CHARLES H. COLE 2nd ARCHITECT DATED 9–3–53 AND ARCHITECTURAL AND ENGINEERING DRAWINGS PREPARED BY PERLEY F. GILBERT ASSOCIATES DATED 3–27–70.
2. LOCATIONS OF ALL UTILITIES AND SITE FEATURES ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR TO VERIFY LOCATIONS OF UTILITIES AND SITE FEATURES AS NEEDED TO COMPLETE THE WORK.
3. THIS DRAWING DOES NOT DEPICT ALL TRENCHES, PITS, AND CHASES WITHIN THE SLABS OF THE BUILDINGS.
4. PROTECT ALL SITE FEATURES TO REMAIN INCLUDING BUT NOT LIMITED TO BUILDING STRUCTURES, UTILITIES, FENCING, ASPHALT SURFACES AND MONITORING WELLS. CONTRACTOR SHALL REPAIR OR REPLACE IN KIND ALL DAMAGE UTILITIES, MONITORING WELLS AND OTHER SITE FEATURES AT NO ADDITIONAL COST TO THE OWNER.
5. TEMPORARY WORK PLATFORMS AND STAGING AREAS TO BE CONSTRUCTED BY CONTRACTOR, WITHIN THE LIMITS OF WORK, AS NEEDED FOR TEMPORARY FACILITIES, UTILITIES, EQUIPMENTS, MATERIAL STOCKPILES, DEBRIS LOADING, AND BUILDING ACCESS.
6. CONTRACTOR SHALL ONLY CLEAR AND GRUB AREAS WITHIN THE LIMITS OF WORK AS SHOWN OR AS NEEDED TO ACCESS WORK. DEBRIS SHALL BE DISPOSED OF OFF–SITE AT A FACILITY PRE–APPROVED BY OWNER.
7. PRIOR TO THE START OF DEMOLITION ACTIVITIES CONTRACTOR SHALL COMPLETE TERMINATION OF ALL UTILITIES IN ACCORDANCE WITH REQUIREMENTS OF AND COORDINATION WITH LOCAL UTILITY PROVIDERS, AND THE TOWN OF HOLLISTON, CONTRACTOR SHALL COMPLETE REMOVAL OF ABOVEGROUND UTILITY WIRES, AND APPURTENANCES WITH LIMITS OF WORK ASSOCIATED WITH ALL TERMINATED UTILITIES.
8. PRIOR TO THE START OF DEMOLITION ACTIVITIES CONTRACTOR SHALL COMPLETE REMOVAL OF ALL ASBESTOS CONTAINING AND HAZARDOUS MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS.
9. CONTRACTOR IS RESPONSIBLE FOR CAPPING AND REMOVING ALL ACTIVE AND INACTIVE UTILITIES TO A MINIMUM OF 30–INCHES BELOW FINISH GROUND SURFACE, FLUSH WITH ADJACENT BUILDING WALL TO REMAIN, OR FLUSH WITH CONCRETE SLABS TO REMAIN IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
10. CONTRACTOR SHALL PROVIDE SHORING, BRACING, PROTECTION, OR BUILDING MODIFICATIONS AS NECESSARY FOR PROTECTION OF STRUCTURES TO REMAIN DURING BUILDING SEPARATION ACTIVITIES.
11. CONTRACTOR TO PROVIDE SECURITY AND GATE CONTROL AS REQUIRED IN CONTRACT DOCUMENTS AND IN ACCORDANCE WITH OWNER REQUIREMENTS.
12. CONTRACTOR SHALL CUT AND CAP SANITARY LINE IN ACCORDANCE WITH OWNER REQUIREMENTS. SCHEDULE SHALL BE COORDINATED WITH OWNER.
13. THE CONTRACTOR SHALL COORDINATE WITH EVERSOURCE TO DISCONNECT AND REMOVE THE EQUIPMENT WITHIN THE VAULT PRIOR TO THE START OF DEMOLITION.

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0 10' 20' 40' 60'
SCALE IN FEET 1" = 20'

CONCRETE REMOVAL

BASE BID:

- **COMPLETE SLAB REMOVAL INCLUDING BUT NOT LIMITED TO STRUCTURAL CONCRETE FRAMED SLAB AND SLAB ON GRADE**
- **FOUNDATIONS SHALL BE REMOVE TO 2 FEET BELOW THE FINISH GRADE**
- **BASEMENT FLOOR SHALL BE FRACTURED**
- **EXTERIOR CONCRETE, APRONS, RETAINING WALLS AND SLABS COMPLETE REMOVAL**

ALTERNATE # 1

- **COMPLETE COMPLETE FOUNDATION AND SLAB REMOVAL**
- **COMPLETE SLAB REMOVAL INCLUDING BUT NOT LIMITED TO STRUCTURAL CONCRETE FRAMED SLAB AND SLAB ON GRADE**
- **COMPLETE EXTERIOR PERIMETER WALLS REMOVAL**
- **EXTERIOR CONCRETE, APRONS, RETAINING WALLS AND SLABS COMPLETE REMOVAL**

NO.	ISSUE/DESCRIPTION	BY	DATE

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DEMOLITION AND ENVIRONMENTALSERVICES OF
THE FORMER FLAGG SCHOOL BUILDING
HOLLISTON, MASSACHUSETTS

DEMOLITION PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
TOWN OF HOLLISTON
703 WASHINGTON STREET
HOLLISTON, MASSACHUSETTS

PROJ MGR: RJVD	REVIEWED BY:	CHECKED BY: JCM	DRAWING 5
DESIGNED BY: RJVD	DRAWN BY:	SCALE: see above	
DATE: March, 2017	PROJECT NO. 04.0190622.00	REVISION NO.	SHEET NO. 5 OF 6

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GENERAL NOTES

A. CARE SHALL BE TAKEN TO AVOID DAMAGE TO NEARBY UTILITIES WHILE PERFORMING WORK.
B. COORDINATE ALL OUTAGES WITH CATERPILLAR PRIOR TO DISCONNECTING PIPING.

LEGEND

490 — PROPOSED MINOR GRADING CONTOURS (1' INTERVALS)

EXISTING MINOR CONTOURS (1' INTERVALS)

NOTES

1. THE BASE MAP WAS DEVELOPED FROM: A COPY OF THE ARCHITECTURAL AND ENGINEERING PLANS PREPARED BY CHARLES H. COLE 2nd ARCHITECT DATED 9-3-53 AND ARCHITECTURAL AND ENGINEERING DRAWINGS PREPARED BY PERLEY F. GILBERT ASSOCIATES DATED 3-27-70.
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3. ALL WORK IS TO CONFORM TO THE PROJECT SPECIFICATIONS INCLUDING SECTION 32 90 00.
4. THE CONTOURS AND ELEVATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR IS TO VERIFY THE ELEVATIONS PRIOR TO THE START OF WORK.
5. OWNER MAY ELECT TO ALTER THE FINAL GRADES DEPICTED ON THE DRAWING TO MAXIMIZE THE RE-USE OF SUITABLE SITE MATERIALS AND MINIMIZE OFF-SITE DISPOSAL AND THE AMOUNT OF IMPORTED FILL.
6. ALL AREAS WITH IN THE DEMOLITION LIMITS SHALL BE SEEDED PER THE PROJECT SPECIFICATIONS

0 50' 100' 200' 300'
SCALE IN FEET 1" = 100'

NO.	ISSUE/DESCRIPTION	BY	DATE

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DEMOLITION AND ENVIRONMENTAL SERVICES OF
THE FORMER FLAGG SCHOOL BUILDING
HOILLISTON, MASSACHUSETTS

GRADING PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
TOWN OF HOLLISTON
703 WASHINGTON STREET
HOLLISTON, MASSACHUSETTS

PROJ MGR: RJVD	REVIEWED BY: JCM	CHECKED BY: JCM	DRAWING 6
DESIGNED BY: JCM	DRAWN BY:	SCALE: see above	
DATE: March, 2017	PROJECT NO. 04.0190622.00	REVISION NO.	SHEET NO. 5 OF 6

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ATTACHMENT C
Prevailing Wage and Bond Forms

Contractor's Indemnity Form

INDEMNITY: Damage by CONTRACTOR to OWNER's Property

The CONTRACTOR shall compensate the OWNER for all damages of any nature to the OWNER's property arising out of the CONTRACTOR's work. INDEMNITY: Legal Liability

The CONTRACTOR shall indemnify, defend and save harmless the OWNER, (and its elected and appointed officials, employees, and agents) for any and all suits, actions, legal or administrative proceeding, claims, demands, damages, liabilities, interest, attorney's fees, costs and expenses of whatsoever kind or nature, whether arising before or after final acceptance and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part by reason of any act, error or omission, fault or negligence whether active or passive by the CONTRACTOR, or any one acting under the CONTRACTOR's direction, control or on the CONTRACTOR's behalf in connection with or incident to the CONTRACTOR's work or performance thereof.

INDEMNITY: Workers Compensation

The CONTRACTOR agrees to comply with the MA Workers' Compensation Act. The CONTRACTOR shall indemnify, defend and save harmless the OWNER, (and its elected and appointed officials, employees, and agents) for any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, interest, attorney's fees, costs and expenses of whatsoever kind or nature, arising out of bodily injury and/or death and/or injury to the CONTRACTOR (if an individual) or to CONTRACTOR's employees (if there are any) or to any person acting under the CONTRACTOR's direction, control or on the CONTRACTOR's behalf in connection with or incident to the work or performance thereof.

ACCEPTED BY THE CONTRACTOR

_____

Signature Date

CONTRACTOR's NAME & ADDRESS

_____

_____

_____

TOWN OF HOLLISTON

Board of Selectmen

PAYMENT BOND

BOND NUMBER_____

KNOW ALL MEN BY THESE PRESENTS: That we,

_____

(Name of Contractor)

_____

(Address of Contractor)

_____

(Corporation, Partnership, or Individual , hereinafter called Principal,

_____

(Name of Surety)

_____

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the Board of **SELECTMEN**,

of the Town of **HOLLISTON**, Massachusetts, hereinafter called OWNER, in the penal sum of

_____

_____ Dollars, ($_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and liberally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with

the OWNER, Dated the _____ day of _____ , 2015, a copy of which is heretoattached and made a part hereof for the construction described as follows:

Flagg School Building Demolition

Contract 1710

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, Subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such contract, and any authorized extension or modification therefore, including all amounts due for materials, lubrications, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work, and all insurance premiums on said Work, and for all labor, performed in such Work whether by Subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any wise affect it's obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each of which shall be deemed an original, this the _____ day of _____, 2015.

ATTEST:

_____
(Principal)

(SEAL)

By: _____(s)

_____

_____

_____
Witness as to Principal

_____
(Address)

_____ _____

ATTEST: By: _____

Attorney - in - Fact

_____ _____

Witness as to Surety (Address)

_____ _____

_____

NOTE: Date of Bond must not be prior to date of Contract.

IF CONTRACTOR is Partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the United State where the Project is located.

TOWN OF HOLLISTON

Board of Selectmen

PERFORMANCE BOND

BOND NUMBER_____

KNOW ALL MEN BY THESE PRESENTS: That we,

_____

(Name of Contractor)

_____

(Address of Contractor)

_____

(Corporation, Partnership, or Individual , hereinafter called Principal,

_____

(Name of Surety)

_____

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the Board of **SELECTMEN** ,

of the Town of **HOLLISTON**, Massachusetts, hereinafter called OWNER, in the penal sum of

_____

_____ Dollars, ($_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and liberally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with

the OWNER, Dated the _____ day of _____ , 2015, a copy of which is heretoattached and made a part hereof for the construction described as follows:

Flagg School Building Demolition

Contract 1710

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, Subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such contract, and any authorized extension or modification therefore, including all amounts due for materials, lubrications, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work, and all insurance premiums on said Work, and for all labor, performed in such Work whether by Subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any wise affect it's obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each of which shall be deemed an original, this the _____ day of _____, 2015.

ATTEST:

_____
(Principal)

(SEAL)

By: _____(s)

_____

_____

_____
Witness as to Principal

_____
(Address)

_____ _____

ATTEST: By: _____
Attorney - in - Fact

Witness as to Surety (Address)

NOTE: Date of Bond must not be prior to date of Contract.

IF CONTRACTOR is Partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the United State where the Project is located.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF LABOR

DIVISION OF OCCUPATIONAL SAFETY

PREVAILING WAGE PROGRAM

www.mass.gov/dos/pw
19 Staniford Street C 2nd Floor
Boston, Massachusetts 02114
Tel: 617-626-6953
Fax: 617-626-6944

The Massachusetts Prevailing Wage Law

M.G.L. c. 149, §§26-27

NOTICE TO AWARDING AUTHORITIES

The enclosed wage schedule applies only to the specific project listed at the top of the schedule, and these rates will remain in effect for the duration of the project, except in the case of multi-year projects. For projects lasting longer than one year, awarding authorities must request updated rates.

You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.

The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.

Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

NOTICE TO CONTRACTORS

The enclosed wage schedule must be posted in a conspicuous place at the work site during the life of the project.

The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.

The enclosed wage schedule applies to all phases of the project, including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.

All apprentices must be registered with the Massachusetts Division of Apprenticeship Training (DAT) in order to be paid at the lower apprentice rates. All apprentices must keep his/her apprentice identification card on his/her person during all work hours. If a worker is not registered with DAT, they must be paid the "total rate" listed on the wage schedule regardless of experience or skill level. For further information, please call 617-626-5409, or write to: DAT, 19 Staniford Street, 1st Floor, P.O. Box 146759, Boston, MA
02114.

MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM

Company's Name:	Address:	Phone No.:	Payroll No.:

Employer's Signature:	Title:	Contract No:	Tax Payer ID No.	Work Week Ending:

Awarding Authority's Name:	Public Works Project Name:	Public Works Project Location:	Min. Wage Rate Sheet No.

General / Prime Contractor's Name:	Subcontractor's Name:

Employee Name & Complete Address	Employee is OSHA 10 Certified (?)	Work Classification:	Appr. Rate (%)	Hours Worked Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	Project Hours (A) / All Other Hours	Hourly Base Wage (B)	"Employer" Hourly Fringe Benefit Contributions: Health & Welfare Insurance (C')	ERISA Pension Plan (D)	Supp. Unemp. (E)	Total Hourly Prev. Wage (F) (B+C+D+E)	Project Gross Wages (G) (A x F) / Total Gross Wages	Check No. (H)

NOTE: Pursuant to MGL Ch. 149 s.27B, every contractor and subcontractor is required to submit a "true and accurate" copy of their weekly payroll records directly to the awarding authority. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

Date recieved by awarding authority
/ /

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 20_____

I, _____ , _____
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed

_____ by on the _____
(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty-nine of the General Laws.

Signature _____

Title _____

DIVISION OF OCCUPATIONAL SAFETY, 19 STANIFORD STREET, 2nd FLOOR, BOSTON, MA 02114

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

RONALD L. WALKER, II
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: Holliston Board of Selectmen

Contract Number: 17-10 **City/Town:** HOLLISTON

Description of Work: Flagg Building - Remove all asbestos/lead paint and demolish building and remove all materials

Job Location: 100 Linden Street

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.15	$10.91	$10.89	$0.00	$53.95
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.22	$10.91	$10.89	$0.00	$54.02
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.34	$10.91	$10.89	$0.00	$54.14
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$88.29	$9.80	$19.23	$0.00	$117.32
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.60	$13.00	$0.00	$53.25
	06/01/2017	$33.65	$7.60	$13.00	$0.00	$54.25
	12/01/2017	$34.28	$7.60	$13.00	$0.00	$54.88
	06/01/2018	$35.12	$7.60	$13.00	$0.00	$55.72
	12/01/2018	$35.96	$7.60	$13.00	$0.00	$56.56
	06/01/2019	$36.83	$7.60	$13.00	$0.00	$57.43
	12/01/2019	$37.69	$7.60	$13.00	$0.00	$58.29
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	12/01/2016	$33.90	$11.50	$7.10	$0.00	$52.50
	06/01/2017	$34.90	$11.50	$7.10	$0.00	$53.50
	12/01/2017	$35.90	$11.50	$7.10	$0.00	$54.50
	06/01/2018	$36.90	$11.50	$7.10	$0.00	$55.50
	12/01/2018	$37.90	$11.50	$7.10	$0.00	$56.50
	06/01/2019	$38.90	$11.50	$7.10	$0.00	$57.50
	12/01/2019	$39.90	$11.50	$7.10	$0.00	$58.50
	06/01/2020	$40.90	$11.50	$7.10	$0.00	$59.50
	12/01/2020	$41.90	$11.50	$7.10	$0.00	$60.50
ASPHALT RAKER *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.60	$13.00	$0.00	$53.25
	06/01/2017	$33.65	$7.60	$13.00	$0.00	$54.25
	12/01/2017	$34.28	$7.60	$13.00	$0.00	$54.88
	06/01/2018	$35.12	$7.60	$13.00	$0.00	$55.72
	12/01/2018	$35.96	$7.60	$13.00	$0.00	$56.56
	06/01/2019	$36.83	$7.60	$13.00	$0.00	$57.43
	12/01/2019	$37.69	$7.60	$13.00	$0.00	$58.29
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2017	$42.92	$6.97	$16.21	$0.00	$66.10

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$27.90	$6.97	$10.54	$0.00	$45.41
2	65	$27.90	$6.97	$10.54	$0.00	$45.41
3	70	$30.04	$6.97	$11.35	$0.00	$48.36
4	75	$32.19	$6.97	$12.16	$0.00	$51.32
5	80	$34.34	$6.97	$12.97	$0.00	$54.28
6	85	$36.48	$6.97	$13.78	$0.00	$57.23
7	90	$38.63	$6.97	$14.59	$0.00	$60.19
8	95	$40.77	$6.97	$15.40	$0.00	$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (LOWELL)*	03/01/2017	$48.66	$10.75	$18.62	$0.00	$78.03

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 Lowell*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.33	$10.75	$18.62	$0.00	$53.70
2	60	$29.20	$10.75	$18.62	$0.00	$58.57
3	70	$34.06	$10.75	$18.62	$0.00	$63.43
4	80	$38.93	$10.75	$18.62	$0.00	$68.30
5	90	$43.79	$10.75	$18.62	$0.00	$73.16

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2016	$37.45	$7.60	$14.35	$0.00	$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2016	$36.30	$7.60	$14.35	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2016	$36.30	$7.60	$14.35	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	03/01/2017	$38.77	$9.90	$17.00	$0.00	$65.67
	09/01/2017	$39.78	$9.90	$17.00	$0.00	$66.68
	03/01/2018	$40.78	$9.90	$17.00	$0.00	$67.68
	09/01/2018	$41.82	$9.90	$17.00	$0.00	$68.72
	03/01/2019	$42.85	$9.90	$17.00	$0.00	$69.75

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.39	$9.90	$1.63	$0.00	$30.92
2	60	$23.26	$9.90	$1.63	$0.00	$34.79
3	70	$27.14	$9.90	$12.11	$0.00	$49.15
4	75	$29.08	$9.90	$12.11	$0.00	$51.09
5	80	$31.02	$9.90	$13.74	$0.00	$54.66
6	80	$31.02	$9.90	$13.74	$0.00	$54.66
7	90	$34.89	$9.90	$15.37	$0.00	$60.16
8	90	$34.89	$9.90	$15.37	$0.00	$60.16

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.89	$9.90	$1.63	$0.00	$31.42
2	60	$23.87	$9.90	$1.63	$0.00	$35.40
3	70	$27.85	$9.90	$12.11	$0.00	$49.86
4	75	$29.84	$9.90	$12.11	$0.00	$51.85
5	80	$31.82	$9.90	$13.74	$0.00	$55.46
6	80	$31.82	$9.90	$13.74	$0.00	$55.46
7	90	$35.80	$9.90	$15.37	$0.00	$61.07
8	90	$35.80	$9.90	$15.37	$0.00	$61.07

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (LOWELL)*	01/01/2017	$41.72	$12.20	$19.41	$1.30	$74.63
	07/01/2017	$42.61	$12.20	$19.41	$1.30	$75.52
	01/01/2018	$43.28	$12.20	$19.41	$1.30	$76.19
	07/01/2018	$43.94	$12.20	$19.41	$1.30	$76.85
	01/01/2019	$44.61	$12.20	$19.41	$1.30	$77.52
	07/01/2019	$45.27	$12.20	$19.41	$1.30	$78.18
	01/01/2020	$45.94	$12.20	$19.41	$1.30	$78.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CEMENT MASONRY/PLASTERING - Lowell*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.86	$12.20	$12.41	$0.00	$45.47
2	60	$25.03	$12.20	$14.41	$1.30	$52.94
3	65	$27.12	$12.20	$15.41	$1.30	$56.03
4	70	$29.20	$12.20	$16.41	$1.30	$59.11
5	75	$31.29	$12.20	$17.41	$1.30	$62.20
6	80	$33.38	$12.20	$18.41	$1.30	$65.29
7	90	$37.55	$12.20	$19.41	$1.30	$70.46

Effective Date - 07/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.31	$12.20	$12.41	$0.00	$45.92
2	60	$25.57	$12.20	$14.41	$1.30	$53.48
3	65	$27.70	$12.20	$15.41	$1.30	$56.61
4	70	$29.83	$12.20	$16.41	$1.30	$59.74
5	75	$31.96	$12.20	$17.41	$1.30	$62.87
6	80	$34.09	$12.20	$18.41	$1.30	$66.00
7	90	$38.35	$12.20	$19.41	$1.30	$71.26

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$46.38	$10.00	$15.25	$0.00	$71.63
	06/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
	12/01/2017	$48.38	$10.00	$15.25	$0.00	$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$31.17	$10.00	$15.25	$0.00	$56.42
	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.71	$7.85	$0.00	$0.00	$33.56
2	55	$28.28	$7.85	$3.66	$0.00	$39.79
3	60	$30.85	$7.85	$3.99	$0.00	$42.69
4	65	$33.42	$7.85	$4.32	$0.00	$45.59
5	70	$35.99	$7.85	$14.11	$0.00	$57.95
6	75	$38.56	$7.85	$14.44	$0.00	$60.85
7	80	$41.13	$7.85	$14.77	$0.00	$63.75
8	90	$46.27	$7.85	$15.44	$0.00	$69.56

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 2*	12/01/2016	$36.50	$7.60	$14.15	$0.00	$58.25
	06/01/2017	$37.50	$7.60	$14.15	$0.00	$59.25
	12/01/2017	$38.35	$7.60	$14.15	$0.00	$60.10
	06/01/2018	$39.30	$7.60	$14.15	$0.00	$61.05
	12/01/2018	$40.25	$7.60	$14.15	$0.00	$62.00
	06/01/2019	$41.25	$7.60	$14.15	$0.00	$63.00
	12/01/2019	$42.25	$7.60	$14.15	$0.00	$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 2*	12/01/2016	$37.50	$7.60	$14.15	$0.00	$59.25
	06/01/2017	$38.50	$7.60	$14.15	$0.00	$60.25
	12/01/2017	$39.35	$7.60	$14.15	$0.00	$61.10
	06/01/2018	$40.30	$7.60	$14.15	$0.00	$62.05
	12/01/2018	$41.25	$7.60	$14.15	$0.00	$63.00
	06/01/2019	$42.25	$7.60	$14.15	$0.00	$64.00
	12/01/2019	$43.25	$7.60	$14.15	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 2*	12/01/2016	$37.25	$7.60	$14.15	$0.00	$59.00
	06/01/2017	$38.25	$7.60	$14.15	$0.00	$60.00
	12/01/2017	$39.10	$7.60	$14.15	$0.00	$60.85
	06/01/2018	$40.05	$7.60	$14.15	$0.00	$61.80
	12/01/2018	$41.00	$7.60	$14.15	$0.00	$62.75
	06/01/2019	$42.00	$7.60	$14.15	$0.00	$63.75
	12/01/2019	$43.00	$7.60	$14.15	$0.00	$64.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 2*	12/01/2016	$37.50	$7.60	$14.15	$0.00	$59.25
	06/01/2017	$38.50	$7.60	$14.15	$0.00	$60.25
	12/01/2017	$39.35	$7.60	$14.15	$0.00	$61.10
	06/01/2018	$40.30	$7.60	$14.15	$0.00	$62.05
	12/01/2018	$41.25	$7.60	$14.15	$0.00	$63.00
	06/01/2019	$42.25	$7.60	$14.15	$0.00	$64.00
	12/01/2019	$43.25	$7.60	$14.15	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 2*	12/01/2016	$37.25	$7.60	$14.15	$0.00	$59.00
	06/01/2017	$38.25	$7.60	$14.15	$0.00	$60.00
	12/01/2017	$39.10	$7.60	$14.15	$0.00	$60.85
	06/01/2018	$40.05	$7.60	$14.15	$0.00	$61.80
	12/01/2018	$41.00	$7.60	$14.15	$0.00	$62.75
	06/01/2019	$42.00	$7.60	$14.15	$0.00	$63.75
	12/01/2019	$43.00	$7.60	$14.15	$0.00	$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 2*	12/01/2016	$36.50	$7.60	$14.15	$0.00	$58.25
	06/01/2017	$37.50	$7.60	$14.15	$0.00	$59.25
	12/01/2017	$38.35	$7.60	$14.15	$0.00	$60.10
	06/01/2018	$39.30	$7.60	$14.15	$0.00	$61.05
	12/01/2018	$40.25	$7.60	$14.15	$0.00	$62.00
	06/01/2019	$41.25	$7.60	$14.15	$0.00	$63.00
	12/01/2019	$42.25	$7.60	$14.15	$0.00	$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$58.86	$9.80	$19.23	$0.00	$87.89
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$63.06	$9.80	$19.23	$0.00	$92.09
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$88.23	$9.80	$19.23	$0.00	$117.26
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) *ELECTRICIANS LOCAL 103*	03/01/2017	$48.33	$13.00	$17.45	$0.00	$78.78
	09/01/2017	$49.28	$13.00	$17.48	$0.00	$79.76
	03/01/2018	$50.48	$13.00	$17.51	$0.00	$80.99
	09/01/2018	$51.67	$13.00	$17.55	$0.00	$82.22
	03/01/2019	$52.87	$13.00	$17.59	$0.00	$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ELECTRICIAN *ELECTRICIANS LOCAL 103*	03/01/2017	$48.33	$13.00	$17.45	$0.00	$78.78
	09/01/2017	$49.28	$13.00	$17.48	$0.00	$79.76
	03/01/2018	$50.48	$13.00	$17.51	$0.00	$80.99
	09/01/2018	$51.67	$13.00	$17.55	$0.00	$82.22
	03/01/2019	$52.87	$13.00	$17.59	$0.00	$83.46

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$19.33	$13.00	$0.58	$0.00	$32.91
2	40	$19.33	$13.00	$0.58	$0.00	$32.91
3	45	$21.75	$13.00	$13.37	$0.00	$48.12
4	45	$21.75	$13.00	$13.37	$0.00	$48.12
5	50	$24.17	$13.00	$13.75	$0.00	$50.92
6	55	$26.58	$13.00	$14.11	$0.00	$53.69
7	60	$29.00	$13.00	$14.48	$0.00	$56.48
8	65	$31.41	$13.00	$14.85	$0.00	$59.26
9	70	$33.83	$13.00	$15.22	$0.00	$62.05
10	75	$36.25	$13.00	$15.60	$0.00	$64.85

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$19.71	$13.00	$0.59	$0.00	$33.30
2	40	$19.71	$13.00	$0.59	$0.00	$33.30
3	45	$22.18	$13.00	$13.39	$0.00	$48.57
4	45	$22.18	$13.00	$13.39	$0.00	$48.57
5	50	$24.64	$13.00	$13.76	$0.00	$51.40
6	55	$27.10	$13.00	$14.12	$0.00	$54.22
7	60	$29.57	$13.00	$14.50	$0.00	$57.07
8	65	$32.03	$13.00	$14.87	$0.00	$59.90
9	70	$34.50	$13.00	$15.25	$0.00	$62.75
10	75	$36.96	$13.00	$15.62	$0.00	$65.58

Notes: :

App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2017	$55.86	$15.28	$15.71	$0.00	$86.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.93	$15.28	$0.00	$0.00	$43.21
2	55	$30.72	$15.28	$15.71	$0.00	$61.71
3	65	$36.31	$15.28	$15.71	$0.00	$67.30
4	70	$39.10	$15.28	$15.71	$0.00	$70.09
5	80	$44.69	$15.28	$15.71	$0.00	$75.68

Notes:

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2017	$39.10	$15.28	$15.71	$0.00	$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2016	$41.37	$10.00	$15.15	$0.00	$66.52
	05/01/2017	$42.25	$10.00	$15.15	$0.00	$67.40
	11/01/2017	$42.98	$10.00	$15.15	$0.00	$68.13
	05/01/2018	$43.69	$10.00	$15.15	$0.00	$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2016	$42.82	$10.00	$15.15	$0.00	$67.97
	05/01/2017	$43.71	$10.00	$15.15	$0.00	$68.86
	11/01/2017	$44.44	$10.00	$15.15	$0.00	$69.59
	05/01/2018	$45.16	$10.00	$15.15	$0.00	$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2016	$21.98	$10.00	$15.15	$0.00	$47.13
	05/01/2017	$22.51	$10.00	$15.15	$0.00	$47.66
	11/01/2017	$22.93	$10.00	$15.15	$0.00	$48.08
	05/01/2018	$23.36	$10.00	$15.15	$0.00	$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 103*	03/01/2017	$48.33	$13.00	$17.45	$0.00	$78.78
	09/01/2017	$49.28	$13.00	$17.48	$0.00	$79.76
	03/01/2018	$50.48	$13.00	$17.51	$0.00	$80.99
	09/01/2018	$51.67	$13.00	$17.55	$0.00	$82.22
	03/01/2019	$52.87	$13.00	$17.59	$0.00	$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING *ELECTRICIANS LOCAL 103*	03/01/2017	$36.25	$13.00	$15.60	$0.00	$64.85
	09/01/2017	$36.96	$13.00	$15.62	$0.00	$65.58
	03/01/2018	$37.86	$13.00	$15.65	$0.00	$66.51
	09/01/2018	$38.75	$13.00	$15.67	$0.00	$67.42
	03/01/2019	$39.65	$13.00	$15.70	$0.00	$68.35
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$37.65	$10.00	$15.25	$0.00	$62.90
	06/01/2017	$38.49	$10.00	$15.25	$0.00	$63.74
	12/01/2017	$39.32	$10.00	$15.25	$0.00	$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 2*	12/01/2016	$20.50	$7.60	$13.00	$0.00	$41.10
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE I*	03/01/2016	$42.13	$9.80	$17.62	$0.00	$69.55

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.07	$9.80	$1.79	$0.00	$32.66
2	55	$23.17	$9.80	$1.79	$0.00	$34.76
3	60	$25.28	$9.80	$12.25	$0.00	$47.33
4	65	$27.38	$9.80	$12.25	$0.00	$49.43
5	70	$29.49	$9.80	$14.04	$0.00	$53.33
6	75	$31.60	$9.80	$14.04	$0.00	$55.44
7	80	$33.70	$9.80	$15.83	$0.00	$59.33
8	85	$35.81	$9.80	$15.83	$0.00	$61.44

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$31.17	$10.00	$15.25	$0.00	$56.42
	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 35 (ZONE 2)*	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.46	$7.85	$0.00	$0.00	$28.31
2	55	$22.50	$7.85	$3.66	$0.00	$34.01
3	60	$24.55	$7.85	$3.99	$0.00	$36.39
4	65	$26.59	$7.85	$4.32	$0.00	$38.76
5	70	$28.64	$7.85	$14.11	$0.00	$50.60
6	75	$30.68	$7.85	$14.44	$0.00	$52.97
7	80	$32.73	$7.85	$14.77	$0.00	$55.35
8	90	$36.82	$7.85	$15.44	$0.00	$60.11

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$24.96	$10.00	$0.00	$0.00	$34.96
2	60	$27.23	$10.00	$15.25	$0.00	$52.48
3	65	$29.50	$10.00	$15.25	$0.00	$54.75
4	70	$31.77	$10.00	$15.25	$0.00	$57.02
5	75	$34.04	$10.00	$15.25	$0.00	$59.29
6	80	$36.30	$10.00	$15.25	$0.00	$61.55
7	85	$38.57	$10.00	$15.25	$0.00	$63.82
8	90	$40.84	$10.00	$15.25	$0.00	$66.09

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$25.51	$10.00	$0.00	$0.00	$35.51
2	60	$27.83	$10.00	$15.25	$0.00	$53.08
3	65	$30.15	$10.00	$15.25	$0.00	$55.40
4	70	$32.47	$10.00	$15.25	$0.00	$57.72
5	75	$34.79	$10.00	$15.25	$0.00	$60.04
6	80	$37.10	$10.00	$15.25	$0.00	$62.35
7	85	$39.42	$10.00	$15.25	$0.00	$64.67
8	90	$41.74	$10.00	$15.25	$0.00	$66.99

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2017	$43.72	$11.45	$23.07	$2.35	$80.59
	08/01/2017	$44.82	$11.45	$23.07	$2.35	$81.69
	02/01/2018	$45.97	$11.45	$23.07	$2.35	$82.84
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 103*	03/01/2017	$48.33	$13.00	$17.45	$0.00	$78.78
	09/01/2017	$49.28	$13.00	$17.48	$0.00	$79.76
	03/01/2018	$50.48	$13.00	$17.51	$0.00	$80.99
	09/01/2018	$51.67	$13.00	$17.55	$0.00	$82.22
	03/01/2019	$52.87	$13.00	$17.59	$0.00	$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2017	$43.72	$11.45	$23.07	$2.35	$80.59
	08/01/2017	$44.82	$11.45	$23.07	$2.35	$81.69
	02/01/2018	$45.97	$11.45	$23.07	$2.35	$82.84
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PIPEFITTERS LOCAL 537*	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC *PIPEFITTERS LOCAL 537*	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.60	$13.00	$0.00	$53.25
	06/01/2017	$33.65	$7.60	$13.00	$0.00	$54.25
	12/01/2017	$34.28	$7.60	$13.00	$0.00	$54.88
	06/01/2018	$35.12	$7.60	$13.00	$0.00	$55.72
	12/01/2018	$35.96	$7.60	$13.00	$0.00	$56.56
	06/01/2019	$36.83	$7.60	$13.00	$0.00	$57.43
	12/01/2019	$37.69	$7.60	$13.00	$0.00	$58.29
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2016	$45.09	$11.75	$14.20	$0.00	$71.04
	09/01/2017	$47.09	$11.75	$14.20	$0.00	$73.04
	09/01/2018	$49.34	$11.75	$14.20	$0.00	$75.29
	09/01/2019	$51.84	$11.75	$14.20	$0.00	$77.79

Apprentice - *ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston*

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.55	$11.75	$10.45	$0.00	$44.75
2	60	$27.05	$11.75	$11.20	$0.00	$50.00
3	70	$31.56	$11.75	$11.95	$0.00	$55.26
4	80	$36.07	$11.75	$12.70	$0.00	$60.52

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.55	$11.75	$10.45	$0.00	$45.75
2	60	$28.25	$11.75	$11.20	$0.00	$51.20
3	70	$32.96	$11.75	$11.95	$0.00	$56.66
4	80	$37.67	$11.75	$12.70	$0.00	$62.12

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (WORCESTER AREA)*	03/16/2017	$44.35	$7.80	$20.85	$0.00	$73.00

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Worcester*

Effective Date - 03/16/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.61	$7.80	$20.85	$0.00	$55.26
2	70	$31.05	$7.80	$20.85	$0.00	$59.70
3	75	$33.26	$7.80	$20.85	$0.00	$61.91
4	80	$35.48	$7.80	$20.85	$0.00	$64.13
5	85	$37.70	$7.80	$20.85	$0.00	$66.35
6	90	$39.92	$7.80	$20.85	$0.00	$68.57

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79

For apprentice rates see "Apprentice- LABORER"

LABORER *LABORERS - ZONE 2*	12/01/2016	$31.90	$7.60	$13.00	$0.00	$52.50
	06/01/2017	$32.90	$7.60	$13.00	$0.00	$53.50
	12/01/2017	$33.53	$7.60	$13.00	$0.00	$54.13
	06/01/2018	$34.37	$7.60	$13.00	$0.00	$54.97
	12/01/2018	$35.21	$7.60	$13.00	$0.00	$55.81
	06/01/2019	$36.08	$7.60	$13.00	$0.00	$56.68
	12/01/2019	$36.94	$7.60	$13.00	$0.00	$57.54

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 2*

Effective Date - 12/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$19.14	$7.60	$13.00	$0.00	$39.74
2	70	$22.33	$7.60	$13.00	$0.00	$42.93
3	80	$25.52	$7.60	$13.00	$0.00	$46.12
4	90	$28.71	$7.60	$13.00	$0.00	$49.31

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$19.74	$7.60	$13.00	$0.00	$40.34
2	70	$23.03	$7.60	$13.00	$0.00	$43.63
3	80	$26.32	$7.60	$13.00	$0.00	$46.92
4	90	$29.61	$7.60	$13.00	$0.00	$50.21

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER *LABORERS - ZONE 2*	12/01/2016	$31.90	$7.60	$13.00	$0.00	$52.50
	06/01/2017	$32.90	$7.60	$13.00	$0.00	$53.50
	12/01/2017	$33.53	$7.60	$13.00	$0.00	$54.13
	06/01/2018	$34.37	$7.60	$13.00	$0.00	$54.97
	12/01/2018	$35.21	$7.60	$13.00	$0.00	$55.81
	06/01/2019	$36.08	$7.60	$13.00	$0.00	$56.68
	12/01/2019	$36.94	$7.60	$13.00	$0.00	$57.54
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 2*	12/01/2016	$31.90	$7.60	$13.00	$0.00	$52.50
	06/01/2017	$32.90	$7.60	$13.00	$0.00	$53.50
	12/01/2017	$33.53	$7.60	$13.00	$0.00	$54.13
	06/01/2018	$34.37	$7.60	$13.00	$0.00	$54.97
	12/01/2018	$35.21	$7.60	$13.00	$0.00	$55.81
	06/01/2019	$36.08	$7.60	$13.00	$0.00	$56.68
	12/01/2019	$36.94	$7.60	$13.00	$0.00	$57.54
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 2*	12/01/2016	$32.10	$7.60	$12.95	$0.00	$52.65
	06/01/2017	$33.10	$7.60	$12.95	$0.00	$53.65
	12/01/2017	$33.73	$7.60	$12.95	$0.00	$54.28
	06/01/2018	$34.57	$7.60	$12.95	$0.00	$55.12
	12/01/2018	$35.41	$7.60	$12.95	$0.00	$55.96
	06/01/2019	$36.28	$7.60	$12.95	$0.00	$56.83
	12/01/2019	$37.14	$7.60	$12.95	$0.00	$57.69
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 2*	12/01/2016	$31.90	$7.60	$13.00	$0.00	$52.50
	06/01/2017	$32.90	$7.60	$13.00	$0.00	$53.50
	12/01/2017	$33.53	$7.60	$13.00	$0.00	$54.13
	06/01/2018	$34.37	$7.60	$13.00	$0.00	$54.97
	12/01/2018	$35.21	$7.60	$13.00	$0.00	$55.81
	06/01/2019	$36.08	$7.60	$13.00	$0.00	$56.68
	12/01/2019	$36.94	$7.60	$13.00	$0.00	$57.54
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 2*	12/01/2016	$31.90	$7.60	$13.00	$0.00	$52.50
	06/01/2017	$32.90	$7.60	$13.00	$0.00	$53.50
	12/01/2017	$33.53	$7.60	$13.00	$0.00	$54.13
	06/01/2018	$34.37	$7.60	$13.00	$0.00	$54.97
	12/01/2018	$35.21	$7.60	$13.00	$0.00	$55.81
	06/01/2019	$36.08	$7.60	$13.00	$0.00	$56.68
	12/01/2019	$36.94	$7.60	$13.00	$0.00	$57.54
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2017	$38.78	$10.75	$17.67	$0.00	$67.20

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.39	$10.75	$17.67	$0.00	$47.81
2	60	$23.27	$10.75	$17.67	$0.00	$51.69
3	70	$27.15	$10.75	$17.67	$0.00	$55.57
4	80	$31.02	$10.75	$17.67	$0.00	$59.44
5	90	$34.90	$10.75	$17.67	$0.00	$63.32

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2017	$50.80	$10.75	$19.22	$0.00	$80.77

Apprentice - *MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile*

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.40	$10.75	$19.22	$0.00	$55.37
2	60	$30.48	$10.75	$19.22	$0.00	$60.45
3	70	$35.56	$10.75	$19.22	$0.00	$65.53
4	80	$40.64	$10.75	$19.22	$0.00	$70.61
5	90	$45.72	$10.75	$19.22	$0.00	$75.69

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) *MILLWRIGHTS LOCAL 1121 - Zone 2*	10/01/2016	$34.87	$9.90	$18.25	$0.00	$63.02
	04/01/2017	$35.72	$9.90	$18.25	$0.00	$63.87
	10/01/2017	$36.57	$9.90	$18.25	$0.00	$64.72
	04/01/2018	$37.42	$9.90	$18.25	$0.00	$65.57
	10/01/2018	$38.27	$9.90	$18.25	$0.00	$66.42
	04/01/2019	$39.12	$9.90	$18.25	$0.00	$67.27

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 2*

Effective Date - 10/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$19.18	$9.90	$5.17	$0.00	$34.25
2	65	$22.67	$9.90	$14.96	$0.00	$47.53
3	75	$26.15	$9.90	$15.91	$0.00	$51.96
4	85	$29.64	$9.90	$16.84	$0.00	$56.38

Effective Date - 04/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$19.65	$9.90	$5.17	$0.00	$34.72
2	65	$23.22	$9.90	$14.96	$0.00	$48.08
3	75	$26.79	$9.90	$15.91	$0.00	$52.60
4	85	$30.36	$9.90	$16.84	$0.00	$57.10

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$22.96	$10.00	$15.25	$0.00	$48.21
	06/01/2017	$23.47	$10.00	$15.25	$0.00	$48.72
	12/01/2017	$23.99	$10.00	$15.25	$0.00	$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$26.94	$10.00	$15.25	$0.00	$52.19
	06/01/2017	$27.54	$10.00	$15.25	$0.00	$52.79
	12/01/2017	$28.15	$10.00	$15.25	$0.00	$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.71	$7.85	$0.00	$0.00	$33.56
2	55	$28.28	$7.85	$3.66	$0.00	$39.79
3	60	$30.85	$7.85	$3.99	$0.00	$42.69
4	65	$33.42	$7.85	$4.32	$0.00	$45.59
5	70	$35.99	$7.85	$14.11	$0.00	$57.95
6	75	$38.56	$7.85	$14.44	$0.00	$60.85
7	80	$41.13	$7.85	$14.77	$0.00	$63.75
8	90	$46.27	$7.85	$15.44	$0.00	$69.56

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2017	$42.31	$7.85	$16.10	$0.00	$66.26

* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.16	$7.85	$0.00	$0.00	$29.01
2	55	$23.27	$7.85	$3.66	$0.00	$34.78
3	60	$25.39	$7.85	$3.99	$0.00	$37.23
4	65	$27.50	$7.85	$4.32	$0.00	$39.67
5	70	$29.62	$7.85	$14.11	$0.00	$51.58
6	75	$31.73	$7.85	$14.44	$0.00	$54.02
7	80	$33.85	$7.85	$14.77	$0.00	$56.47
8	90	$38.08	$7.85	$15.44	$0.00	$61.37

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$40.37	$7.85	$16.10	$0.00	$64.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.19	$7.85	$0.00	$0.00	$28.04
2	55	$22.20	$7.85	$3.66	$0.00	$33.71
3	60	$24.22	$7.85	$3.99	$0.00	$36.06
4	65	$26.24	$7.85	$4.32	$0.00	$38.41
5	70	$28.26	$7.85	$14.11	$0.00	$50.22
6	75	$30.28	$7.85	$14.44	$0.00	$52.57
7	80	$32.30	$7.85	$14.77	$0.00	$54.92
8	90	$36.33	$7.85	$15.44	$0.00	$59.62

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 2*	12/01/2016	$31.90	$7.60	$13.00	$0.00	$52.50
	06/01/2017	$32.90	$7.60	$13.00	$0.00	$53.50
	12/01/2017	$33.53	$7.60	$13.00	$0.00	$54.13
	06/01/2018	$34.37	$7.60	$13.00	$0.00	$54.97
	12/01/2018	$35.21	$7.60	$13.00	$0.00	$55.81
	06/01/2019	$36.08	$7.60	$13.00	$0.00	$56.68
	12/01/2019	$36.94	$7.60	$13.00	$0.00	$57.54

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.46	$7.85	$0.00	$0.00	$28.31
2	55	$22.50	$7.85	$3.66	$0.00	$34.01
3	60	$24.55	$7.85	$3.99	$0.00	$36.39
4	65	$26.59	$7.85	$4.32	$0.00	$38.76
5	70	$28.64	$7.85	$14.11	$0.00	$50.60
6	75	$30.68	$7.85	$14.44	$0.00	$52.97
7	80	$32.73	$7.85	$14.77	$0.00	$55.35
8	90	$36.82	$7.85	$15.44	$0.00	$60.11

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$38.97	$7.85	$16.10	$0.00	$62.92

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.49	$7.85	$0.00	$0.00	$27.34
2	55	$21.43	$7.85	$3.66	$0.00	$32.94
3	60	$23.38	$7.85	$3.99	$0.00	$35.22
4	65	$25.33	$7.85	$4.32	$0.00	$37.50
5	70	$27.28	$7.85	$14.11	$0.00	$49.24
6	75	$29.23	$7.85	$14.44	$0.00	$51.52
7	80	$31.18	$7.85	$14.77	$0.00	$53.80
8	90	$35.07	$7.85	$15.44	$0.00	$58.36

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2012	$30.28	$9.07	$8.00	$0.00	$47.35
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.02	$9.80	$19.23	$0.00	$50.05
2	60	$25.22	$9.80	$19.23	$0.00	$54.25
3	70	$29.43	$9.80	$19.23	$0.00	$58.46
4	75	$31.53	$9.80	$19.23	$0.00	$60.56
5	80	$33.63	$9.80	$19.23	$0.00	$62.66
6	80	$33.63	$9.80	$19.23	$0.00	$62.66
7	90	$37.84	$9.80	$19.23	$0.00	$66.87
8	90	$37.84	$9.80	$19.23	$0.00	$66.87

Notes:

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER *PIPEFITTERS LOCAL 537*	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PIPEFITTER - Local 537*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$20.48	$9.70	$7.50	$0.00	$37.68
2	45	$23.04	$9.70	$18.14	$0.00	$50.88
3	60	$30.71	$9.70	$18.14	$0.00	$58.55
4	70	$35.83	$9.70	$18.14	$0.00	$63.67
5	80	$40.95	$9.70	$18.14	$0.00	$68.79

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

PIPELAYER *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2017	$52.69	$11.32	$15.46	$0.00	$79.47

Apprentice - *PLUMBER/GASFITTER - Local 12*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$18.44	$11.32	$5.74	$0.00	$35.50
2	40	$21.08	$11.32	$6.49	$0.00	$38.89
3	55	$28.98	$11.32	$8.73	$0.00	$49.03
4	65	$34.25	$11.32	$10.23	$0.00	$55.80
5	75	$39.52	$11.32	$11.72	$0.00	$62.56

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic$58.50 Step5 with lic$65.36

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) *PIPEFITTERS LOCAL 537*	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER *LABORERS - ZONE 2*	12/01/2016	$32.90	$7.60	$13.00	$0.00	$53.50
	06/01/2017	$33.90	$7.60	$13.00	$0.00	$54.50
	12/01/2017	$34.53	$7.60	$13.00	$0.00	$55.13
	06/01/2018	$35.37	$7.60	$13.00	$0.00	$55.97
	12/01/2018	$36.21	$7.60	$13.00	$0.00	$56.81
	06/01/2019	$37.08	$7.60	$13.00	$0.00	$57.68
	12/01/2019	$37.94	$7.60	$13.00	$0.00	$58.54
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$31.17	$10.00	$15.25	$0.00	$56.42
	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER *TEAMSTERS LOCAL 170*	03/01/2017	$24.84	$9.96	$8.07	$0.00	$42.87
	04/01/2017	$24.88	$9.96	$8.17	$0.00	$43.01
	05/01/2017	$24.92	$9.96	$8.26	$0.00	$43.14
	12/01/2017	$24.95	$9.96	$8.26	$0.00	$43.17
	01/01/2018	$24.95	$10.24	$8.26	$0.00	$43.45
	02/02/2018	$25.01	$10.24	$8.36	$0.00	$43.61
	03/01/2018	$25.04	$10.24	$8.46	$0.00	$43.74
	05/01/2018	$25.09	$10.24	$8.56	$0.00	$43.89
	12/01/2018	$25.12	$10.24	$8.56	$0.00	$43.92
	01/01/2019	$25.12	$10.41	$8.56	$0.00	$44.09
	12/01/2019	$25.15	$10.41	$8.56	$0.00	$44.12
	01/01/2020	$25.15	$10.46	$8.56	$0.00	$44.17
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) *CARPENTERS -ZONE 2 (Residential Wood)*	06/01/2016	$25.32	$9.80	$16.82	$0.00	$51.94

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RESIDENTIAL WOOD FRAME CARPENTER **	10/01/2016	$25.69	$7.07	$7.18	$0.00	$39.94
** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. *CARPENTERS -ZONE 2 (Residential Wood)*	04/01/2017	$26.31	$7.07	$7.18	$0.00	$40.56
	10/01/2017	$26.93	$7.07	$7.18	$0.00	$41.18
	04/01/2018	$27.35	$7.07	$7.18	$0.00	$41.60
	10/01/2018	$27.77	$7.07	$7.18	$0.00	$42.02
	04/01/2019	$28.20	$7.07	$7.18	$0.00	$42.45
	10/01/2019	$28.63	$7.07	$7.18	$0.00	$42.88

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Apprentice - *CARPENTER (Residential Wood Frame) - Zone 2*

Effective Date - 10/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$15.41	$7.07	$0.00	$0.00	$22.48
2	60	$15.41	$7.07	$0.00	$0.00	$22.48
3	65	$16.70	$7.07	$7.18	$0.00	$30.95
4	70	$17.98	$7.07	$7.18	$0.00	$32.23
5	75	$19.27	$7.07	$7.18	$0.00	$33.52
6	80	$20.55	$7.07	$7.18	$0.00	$34.80
7	85	$21.84	$7.07	$7.18	$0.00	$36.09
8	90	$23.12	$7.07	$7.18	$0.00	$37.37

Effective Date - 04/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$15.79	$7.07	$0.00	$0.00	$22.86
2	60	$15.79	$7.07	$0.00	$0.00	$22.86
3	65	$17.10	$7.07	$7.18	$0.00	$31.35
4	70	$18.42	$7.07	$7.18	$0.00	$32.67
5	75	$19.73	$7.07	$7.18	$0.00	$33.98
6	80	$21.05	$7.07	$7.18	$0.00	$35.30
7	85	$22.36	$7.07	$7.18	$0.00	$36.61
8	90	$23.68	$7.07	$7.18	$0.00	$37.93

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2017	$41.36	$11.10	$13.80	$0.00	$66.26
	08/01/2017	$42.46	$11.10	$13.80	$0.00	$67.36
	02/01/2018	$43.61	$11.10	$13.80	$0.00	$68.51
	08/01/2018	$44.71	$11.10	$13.80	$0.00	$69.61
	02/01/2019	$45.86	$11.10	$13.80	$0.00	$70.76

Apprentice - *ROOFER - Local 33*

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.68	$11.10	$3.44	$0.00	$35.22
2	60	$24.82	$11.10	$13.80	$0.00	$49.72
3	65	$26.88	$11.10	$13.80	$0.00	$51.78
4	75	$31.02	$11.10	$13.80	$0.00	$55.92
5	85	$35.16	$11.10	$13.80	$0.00	$60.06

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.23	$11.10	$3.44	$0.00	$35.77
2	60	$25.48	$11.10	$13.80	$0.00	$50.38
3	65	$27.60	$11.10	$13.80	$0.00	$52.50
4	75	$31.85	$11.10	$13.80	$0.00	$56.75
5	85	$36.09	$11.10	$13.80	$0.00	$60.99

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive $1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	02/01/2017	$41.61	$11.10	$13.80	$0.00	$66.51
	08/01/2017	$42.71	$11.10	$13.80	$0.00	$67.61
	02/01/2018	$43.86	$11.10	$13.80	$0.00	$68.76
	08/01/2018	$44.96	$11.10	$13.80	$0.00	$69.86
	02/01/2019	$46.11	$11.10	$13.80	$0.00	$71.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2017	$43.72	$11.45	$23.07	$2.35	$80.59
	08/01/2017	$44.82	$11.45	$23.07	$2.35	$81.69
	02/01/2018	$45.97	$11.45	$23.07	$2.35	$82.84

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SHEET METAL WORKER - Local 17-A*

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.49	$11.45	$5.24	$0.00	$34.18
2	40	$17.49	$11.45	$5.24	$0.00	$34.18
3	45	$19.67	$11.45	$10.31	$1.24	$42.67
4	45	$19.67	$11.45	$10.31	$1.24	$42.67
5	50	$21.86	$11.45	$11.21	$1.34	$45.86
6	50	$21.86	$11.45	$11.46	$1.34	$46.11
7	60	$26.23	$11.45	$13.02	$1.52	$52.22
8	65	$28.42	$11.45	$13.93	$1.61	$55.41
9	75	$32.79	$11.45	$15.74	$1.80	$61.78
10	85	$37.16	$11.45	$17.05	$1.97	$67.63

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.93	$11.45	$5.24	$0.00	$34.62
2	40	$17.93	$11.45	$5.24	$0.00	$34.62
3	45	$20.17	$11.45	$10.31	$1.26	$43.19
4	45	$20.17	$11.45	$10.31	$1.26	$43.19
5	50	$22.41	$11.45	$11.21	$1.35	$46.42
6	50	$22.41	$11.45	$11.46	$1.36	$46.68
7	60	$26.89	$11.45	$13.02	$1.54	$52.90
8	65	$29.13	$11.45	$13.93	$1.64	$56.15
9	75	$33.62	$11.45	$15.74	$1.82	$62.63
10	85	$38.10	$11.45	$17.05	$2.00	$68.60

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SIGN ERECTOR *PAINTERS LOCAL 35 - ZONE 2*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SIGN ERECTOR - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$12.91	$7.07	$0.00	$0.00	$19.98
2	55	$14.20	$7.07	$2.45	$0.00	$23.72
3	60	$15.49	$7.07	$2.45	$0.00	$25.01
4	65	$16.78	$7.07	$2.45	$0.00	$26.30
5	70	$18.07	$7.07	$7.05	$0.00	$32.19
6	75	$19.36	$7.07	$7.05	$0.00	$33.48
7	80	$20.65	$7.07	$7.05	$0.00	$34.77
8	85	$21.94	$7.07	$7.05	$0.00	$36.06
9	90	$23.23	$7.07	$7.05	$0.00	$37.35

Notes:
Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.44	$10.91	$10.89	$0.00	$54.24
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.73	$10.91	$10.89	$0.00	$54.53
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1*	03/01/2017	$56.08	$8.77	$17.20	$0.00	$82.05

Apprentice - *SPRINKLER FITTER - Local 550 (Section A) Zone 1*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.63	$8.52	$8.70	$0.00	$36.85
2	40	$22.43	$8.52	$8.70	$0.00	$39.65
3	45	$25.24	$8.52	$8.70	$0.00	$42.46
4	50	$28.04	$8.52	$8.70	$0.00	$45.26
5	55	$30.84	$8.52	$8.70	$0.00	$48.06
6	60	$33.65	$8.52	$10.20	$0.00	$52.37
7	65	$36.45	$8.52	$10.20	$0.00	$55.17
8	70	$39.26	$8.52	$10.20	$0.00	$57.98
9	75	$42.06	$8.52	$10.20	$0.00	$60.78
10	80	$44.86	$8.52	$10.20	$0.00	$63.58

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 103*	03/01/2017	$36.25	$13.00	$15.60	$0.00	$64.85
	09/01/2017	$36.96	$13.00	$15.62	$0.00	$65.58
	03/01/2018	$37.86	$13.00	$15.65	$0.00	$66.51
	09/01/2018	$38.75	$13.00	$15.67	$0.00	$67.42
	03/01/2019	$39.65	$13.00	$15.70	$0.00	$68.35

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 103*

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$14.50	$13.00	$0.44	$0.00	$27.94
2	40	$14.50	$13.00	$0.44	$0.00	$27.94
3	45	$16.31	$13.00	$12.54	$0.00	$41.85
4	45	$16.31	$13.00	$12.54	$0.00	$41.85
5	50	$18.13	$13.00	$12.81	$0.00	$43.94
6	55	$19.94	$13.00	$13.09	$0.00	$46.03
7	60	$21.75	$13.00	$13.37	$0.00	$48.12
8	65	$23.56	$13.00	$13.65	$0.00	$50.21
9	70	$25.38	$13.00	$13.93	$0.00	$52.31
10	75	$27.19	$13.00	$14.21	$0.00	$54.40

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$14.78	$13.00	$0.44	$0.00	$28.22
2	40	$14.78	$13.00	$0.44	$0.00	$28.22
3	45	$16.63	$13.00	$12.55	$0.00	$42.18
4	45	$16.63	$13.00	$12.55	$0.00	$42.18
5	50	$18.48	$13.00	$12.82	$0.00	$44.30
6	55	$20.33	$13.00	$13.10	$0.00	$46.43
7	60	$22.18	$13.00	$13.39	$0.00	$48.57
8	65	$24.02	$13.00	$13.66	$0.00	$50.68
9	70	$25.87	$13.00	$13.95	$0.00	$52.82
10	75	$27.72	$13.00	$14.22	$0.00	$54.94

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2017	$49.70	$10.75	$19.22	$0.00	$79.67

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.85	$10.75	$19.22	$0.00	$54.82
2	60	$29.82	$10.75	$19.22	$0.00	$59.79
3	70	$34.79	$10.75	$19.22	$0.00	$64.76
4	80	$39.76	$10.75	$19.22	$0.00	$69.73
5	90	$44.73	$10.75	$19.22	$0.00	$74.70

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$37.70	$7.60	$14.35	$0.00	$59.65
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$36.42	$7.60	$14.35	$0.00	$58.37
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$36.30	$7.60	$14.35	$0.00	$58.25
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$33.02	$10.91	$10.89	$0.00	$54.82
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$48.58	$7.60	$14.75	$0.00	$70.93
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$50.58	$7.60	$14.75	$0.00	$72.93
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$40.65	$7.60	$14.75	$0.00	$63.00
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$42.65	$7.60	$14.75	$0.00	$65.00
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.44	$10.91	$10.89	$0.00	$54.24

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.15	$7.60	$13.00	$0.00	$52.75
	06/01/2017	$33.15	$7.60	$13.00	$0.00	$53.75
	12/01/2017	$33.78	$7.60	$13.00	$0.00	$54.38
	06/01/2018	$34.62	$7.60	$13.00	$0.00	$55.22
	12/01/2018	$35.46	$7.60	$13.00	$0.00	$56.06
	06/01/2019	$36.33	$7.60	$13.00	$0.00	$56.93
	12/01/2019	$37.19	$7.60	$13.00	$0.00	$57.79
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2017	$52.69	$11.32	$15.46	$0.00	$79.47
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$26.61	$7.50	$1.80	$0.00	$35.91
	09/03/2017	$27.14	$7.75	$1.81	$0.00	$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$37.70	$7.50	$8.87	$0.00	$54.07
	09/03/2017	$38.45	$7.75	$9.53	$0.00	$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$31.05	$7.50	$8.89	$0.00	$47.44
	09/03/2017	$31.66	$7.75	$9.44	$0.00	$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$24.39	$7.50	$1.73	$0.00	$33.62
	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$37.70	$7.50	$12.95	$0.00	$58.15
	09/03/2017	$38.45	$7.75	$13.61	$0.00	$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$33.26	$7.50	$9.63	$0.00	$50.39
	09/03/2017	$33.92	$7.75	$10.21	$0.00	$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$24.39	$7.50	$1.73	$0.00	$33.62
	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$19.96	$7.50	$1.60	$0.00	$29.06
	09/03/2017	$20.35	$7.75	$1.61	$0.00	$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$44.35	$7.50	$15.83	$0.00	$67.68
	09/03/2017	$45.23	$7.75	$16.61	$0.00	$69.59

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LINEMAN (Outside Electrical) - East Local 104*

Effective Date - 08/28/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.61	$7.50	$3.30	$0.00	$37.41
2	65	$28.83	$7.50	$3.36	$0.00	$39.69
3	70	$31.05	$7.50	$3.43	$0.00	$41.98
4	75	$33.26	$7.50	$5.00	$0.00	$45.76
5	80	$35.48	$7.50	$5.06	$0.00	$48.04
6	85	$37.70	$7.50	$5.13	$0.00	$50.33
7	90	$39.92	$7.50	$7.20	$0.00	$54.62

Effective Date - 09/03/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$27.14	$7.75	$3.31	$0.00	$38.20
2	65	$29.40	$7.75	$3.38	$0.00	$40.53
3	70	$31.66	$7.75	$3.45	$0.00	$42.86
4	75	$33.92	$7.75	$5.02	$0.00	$46.69
5	80	$36.18	$7.75	$5.09	$0.00	$49.02
6	85	$38.45	$7.75	$5.15	$0.00	$51.35
7	90	$40.71	$7.75	$7.22	$0.00	$55.68

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$28.98	$4.25	$3.12	$0.00	$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$27.31	$4.25	$3.07	$0.00	$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$27.31	$4.25	$3.07	$0.00	$34.63
TREE TRIMMER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$18.51	$3.55	$0.00	$0.00	$22.06

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.

TREE TRIMMER GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$16.32	$3.55	$0.00	$0.00	$19.87

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

ATTACHMENT D
REFERENCE DOCUMENTS

Attachment A

Annotated Floor Plans (pages 1-5)

Page 1 or 5
Flooring Locations

Page 2 or 5
Thermal System Insulation

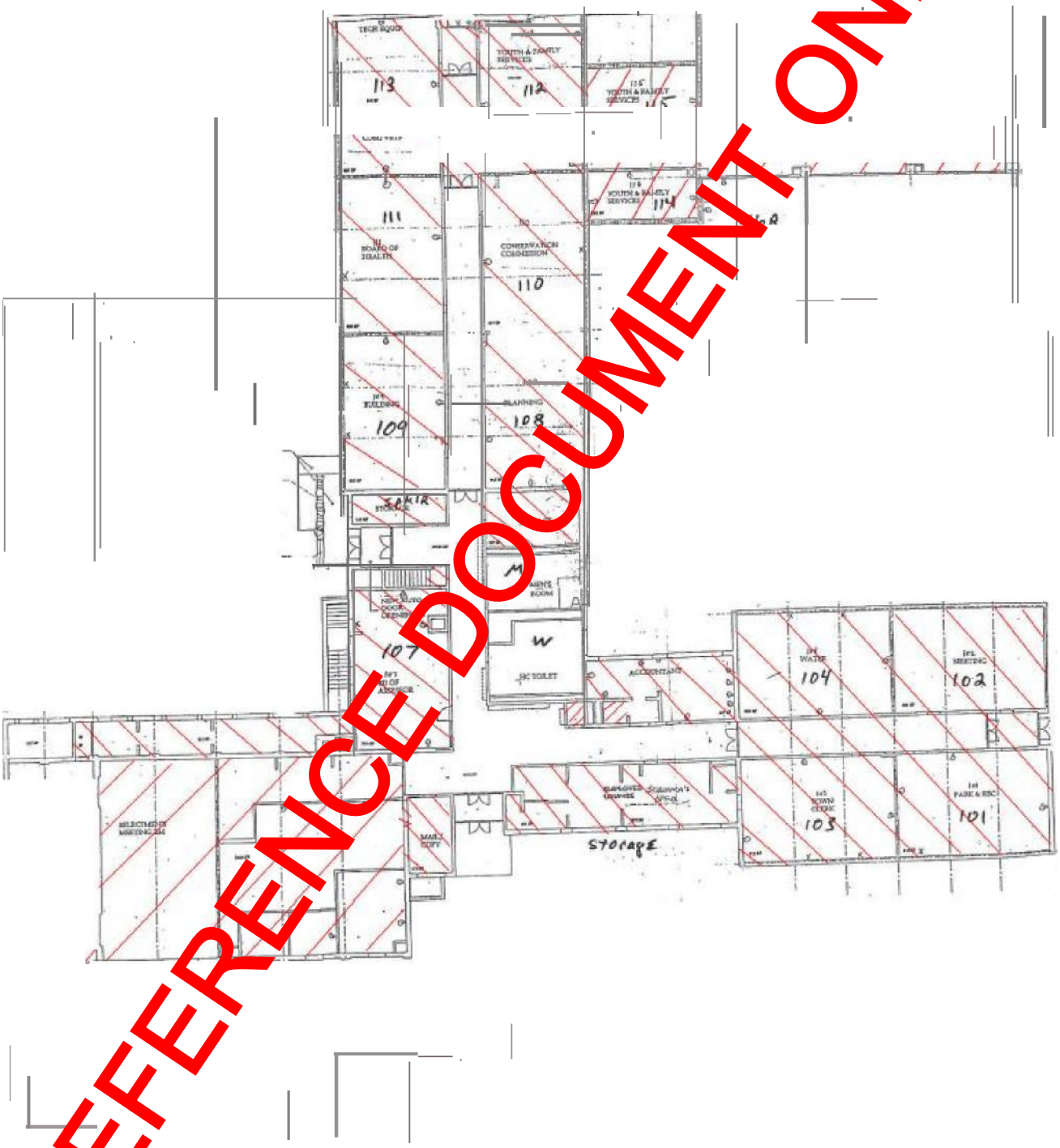
Page 3 or 5
Miscellaneous ACMs

Page 4 or 5
Roof level / Exterior ACMs

Page 5 or 5
Boiler room & pipe crawl spaces

Note: No Second Floor Plan is available. Remove 2nd floor ACMs as noted.

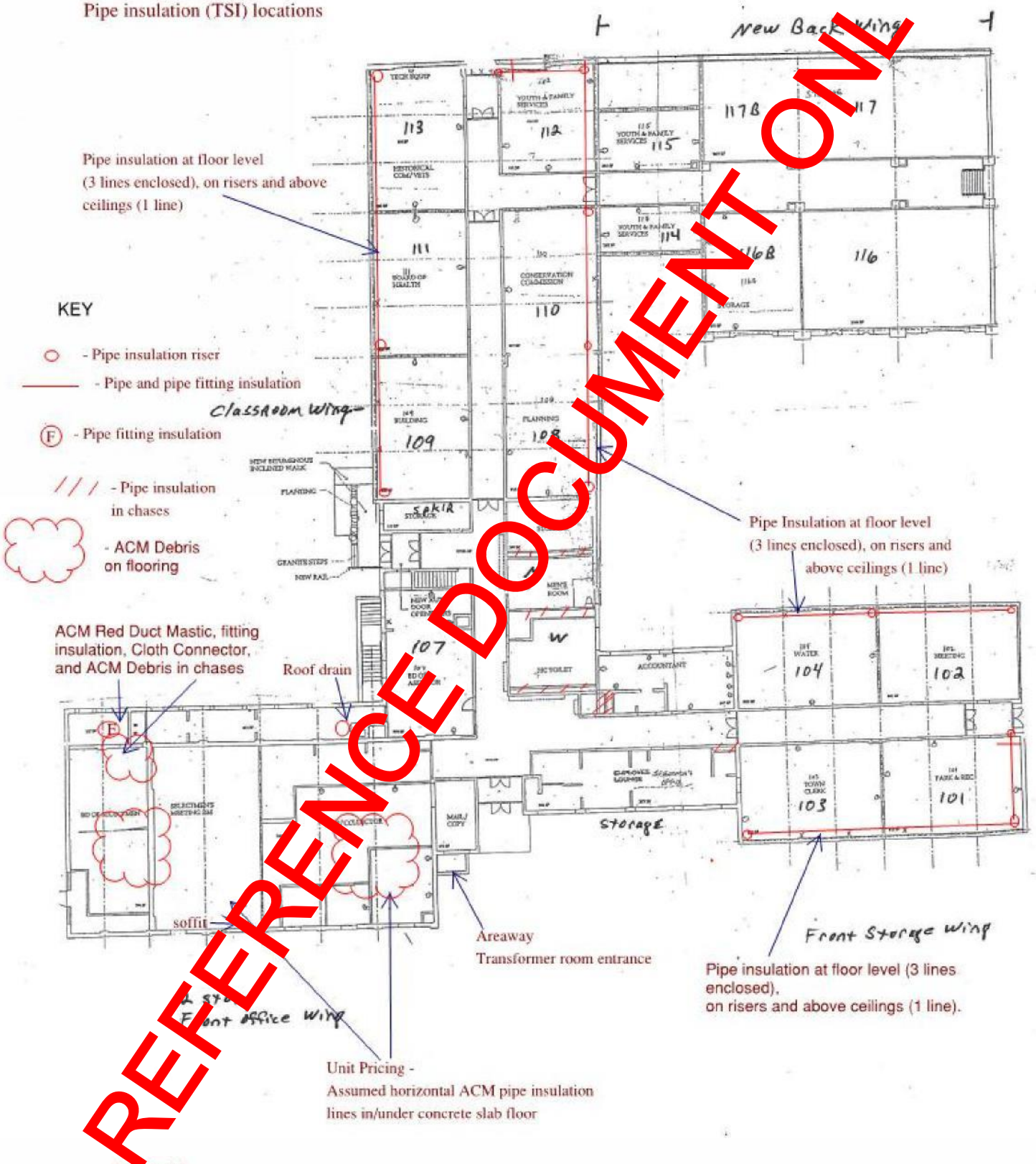
REFERENCE DOCUMENT ONLY



REFERENCE DOCUMENT ONLY

Former Flagg School Building

ACM Locations
Pipe insulation (TSI) locations



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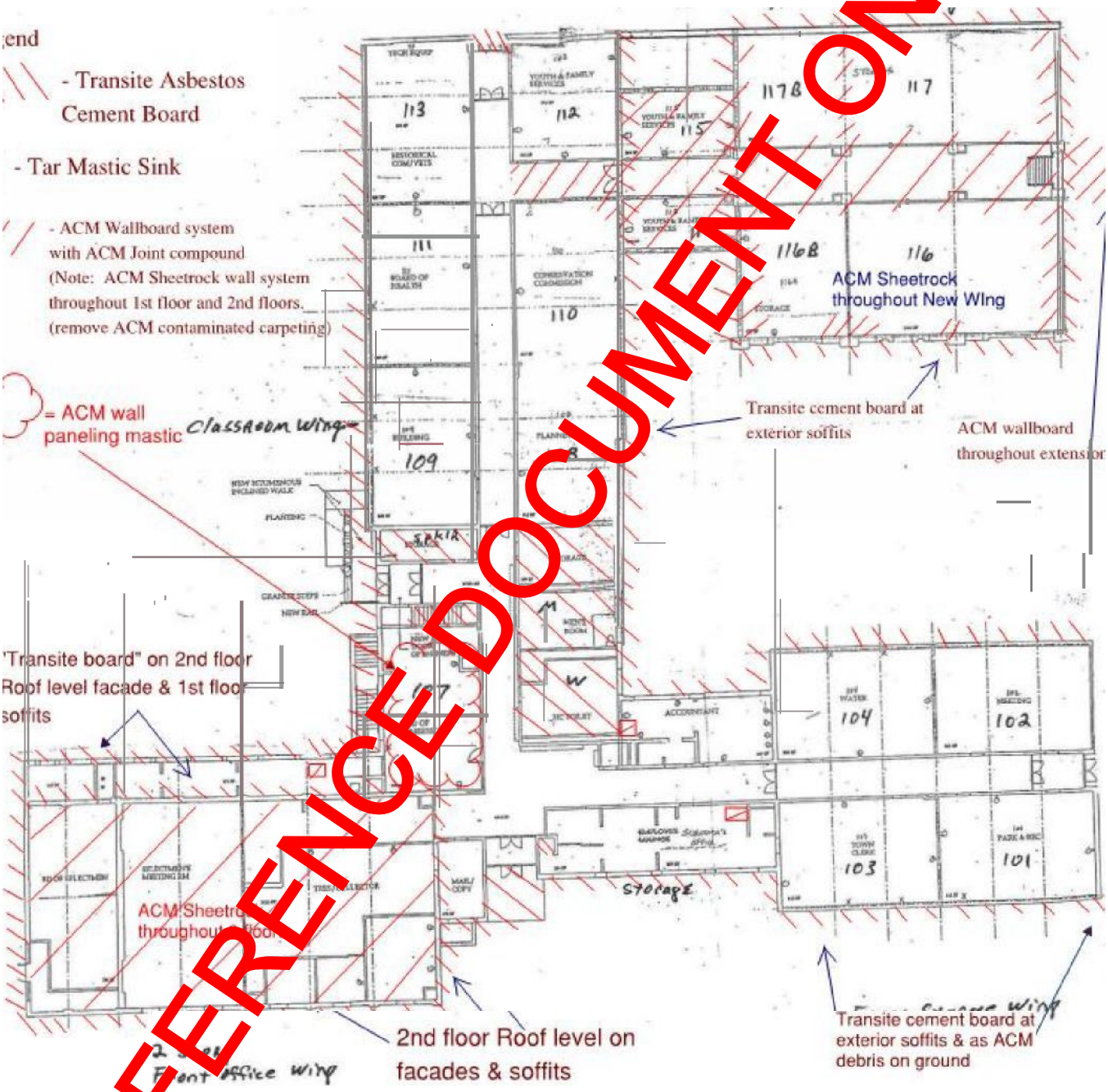
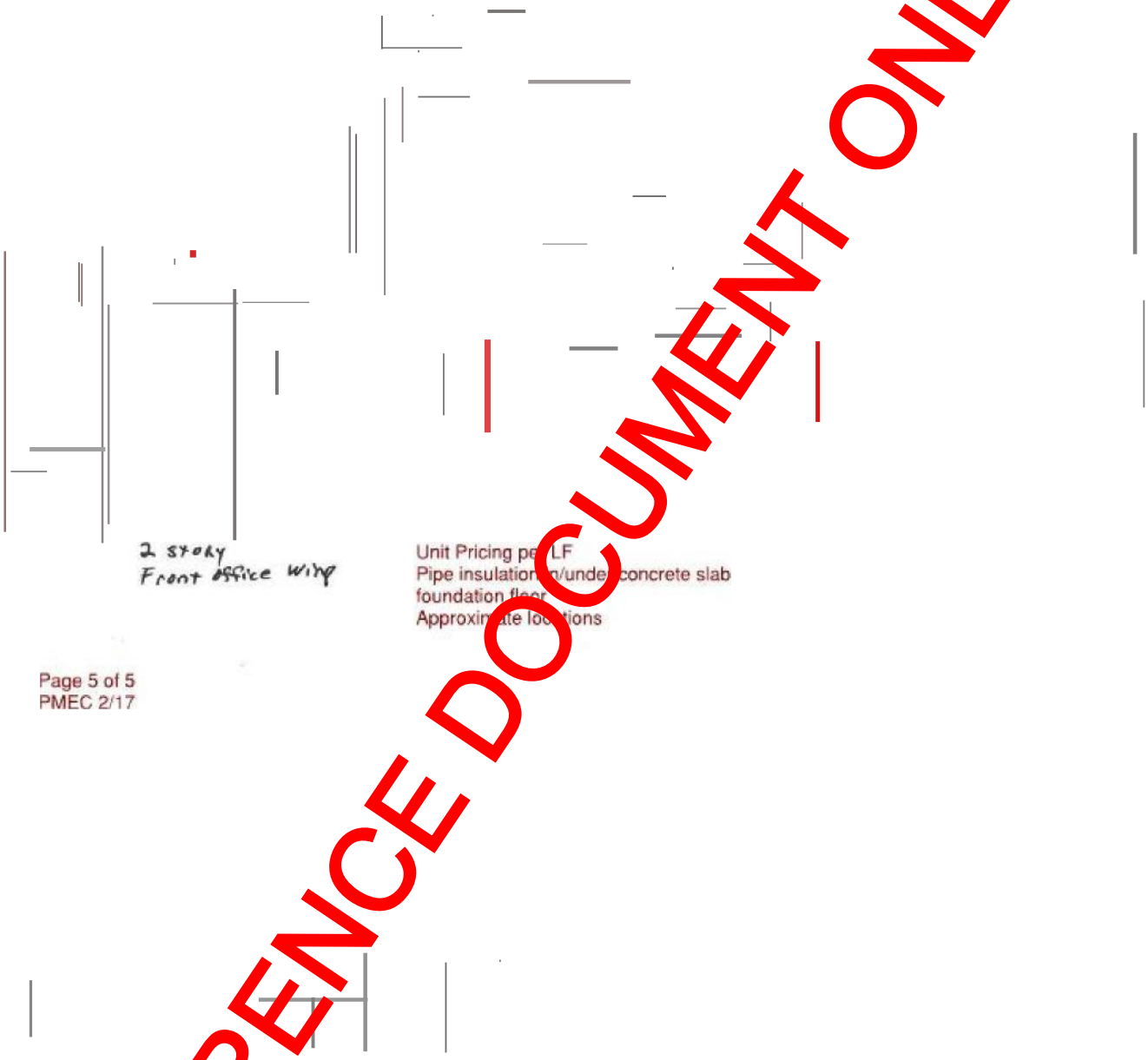


REFERENCE DOCUMENT ONLY

REFERENCE DOCUMENT ONLY

REFERENCE DOCUMENT ONLY
TECH EQUIP
YOUTH & FAMILY
113
112
115
117B
HISTORICAL COM/VETS
111
BOARD OF HEALTH
CONSERVATION COMMISSION
110
114
BUILDING
109
PLANNING
108
STORAGE
NEW AUTO DOOR OPENER
BD OF SELECTMEN
SELECTMEN'S MEETING ROOM
MAIL/ COPY
Storage
TOWN CLERK
03
PARK & REC
101



Unit Pricing per LF
Pipe insulation in/under concrete slab foundation floor
Approximate locations

REFERENCE DOCUMENT ONLY

Attachment A

Annotated Floor Plans (pages 1-5)

Page 1 or 5
Flooring Locations

Page 2 or 5
Thermal System Insulation

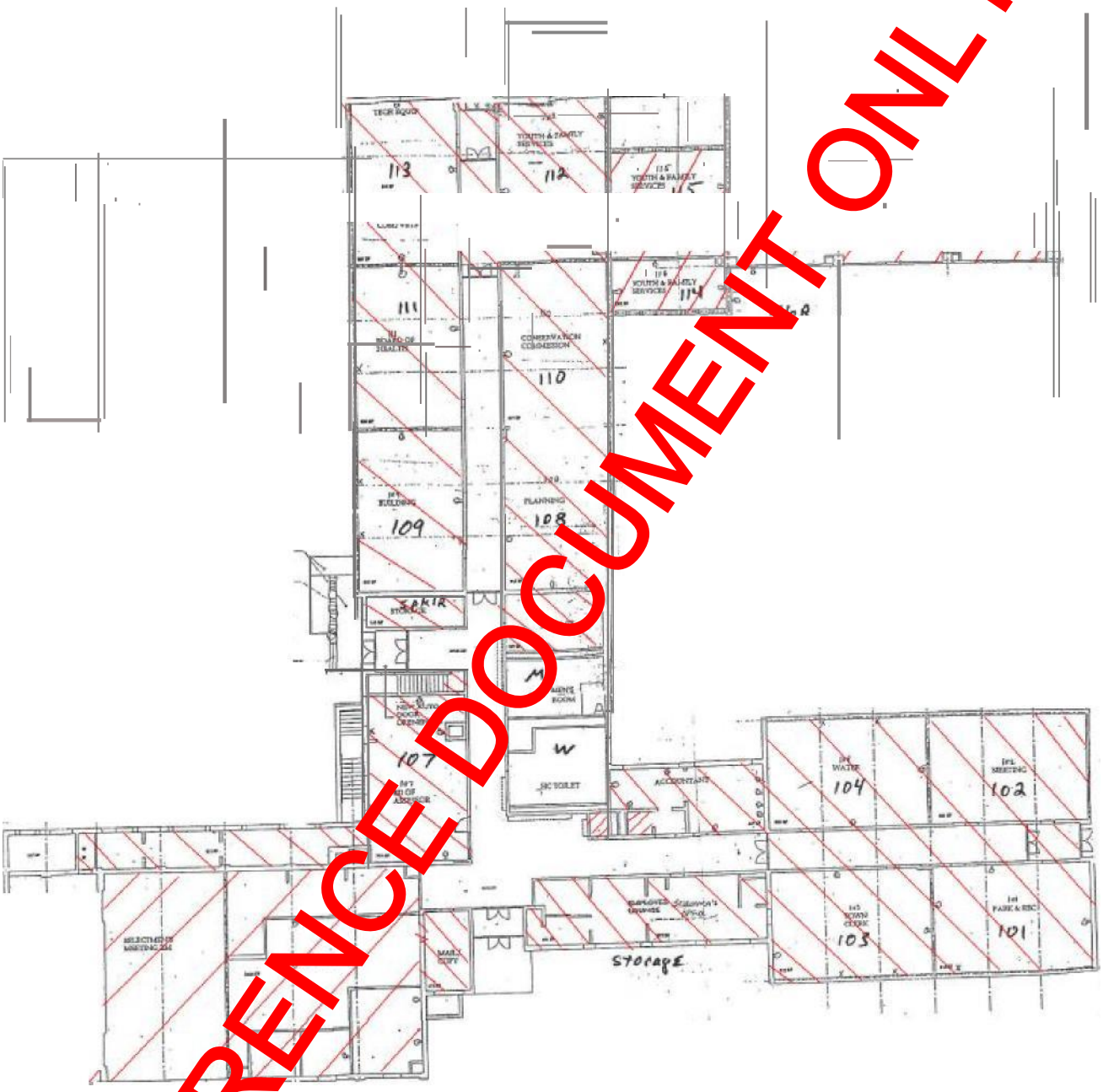
Page 3 or 5
Miscellaneous ACMs

Page 4 or 5
Roof level / Exterior ACMs

Page 5 or 5
Boiler room & pipe crawl spaces

Note: No Second Floor Plan is available. Remove 2nd floor ACMs as noted.

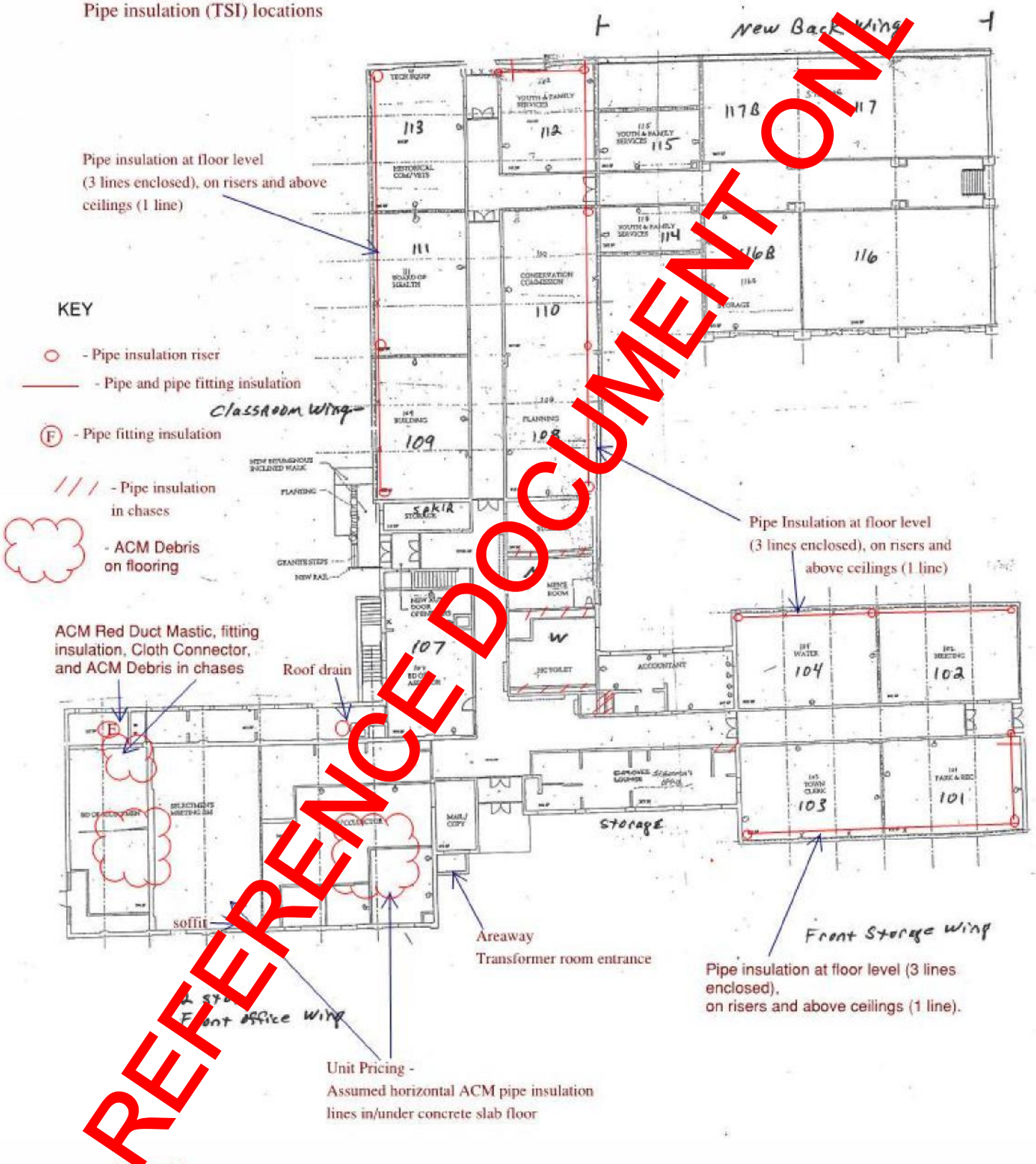
REFERENCE DOCUMENT ONLY



REFERENCE DOCUMENT ONLY

Former Flagg School Building

ACM Locations
Pipe insulation (TSI) locations



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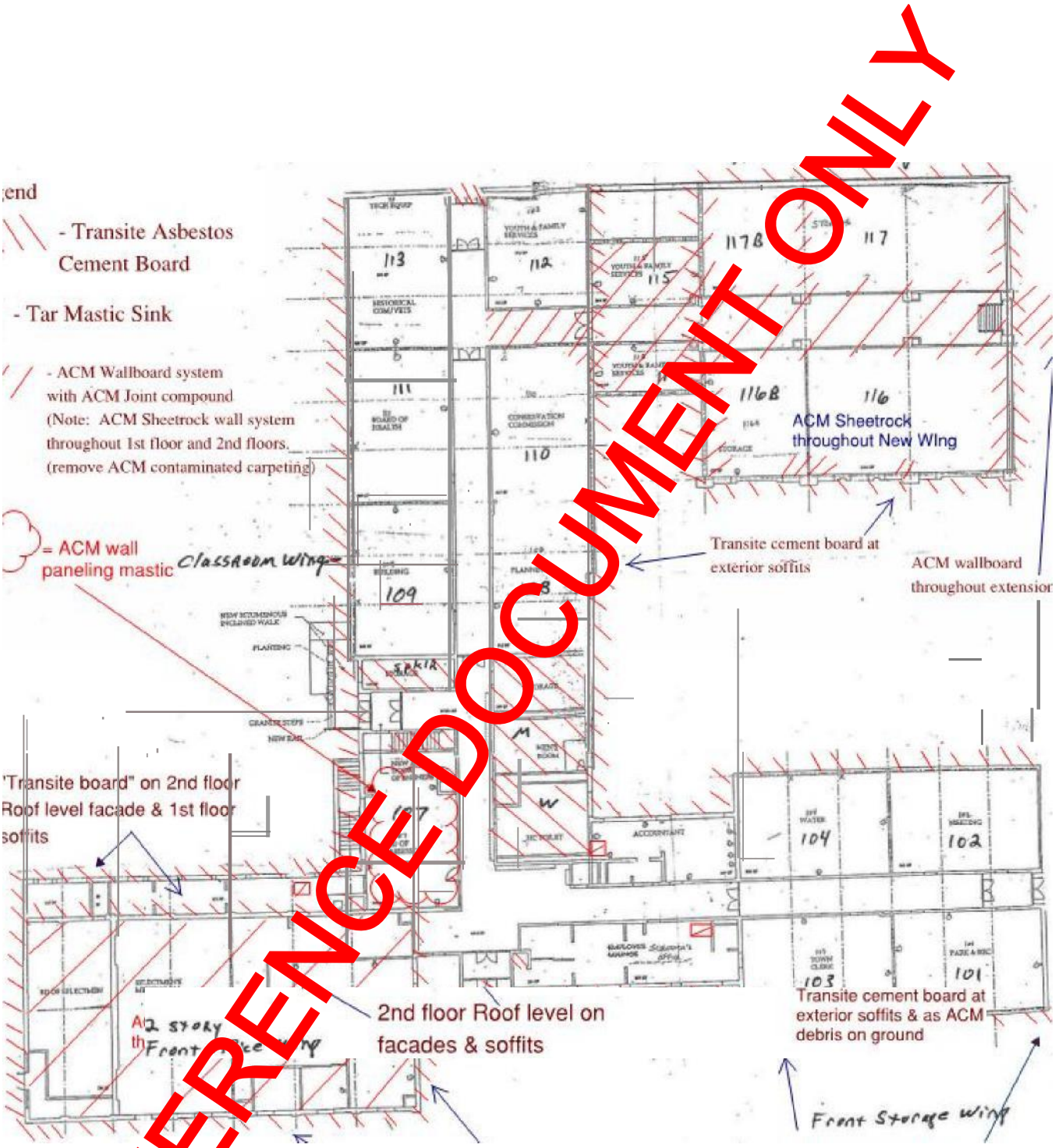

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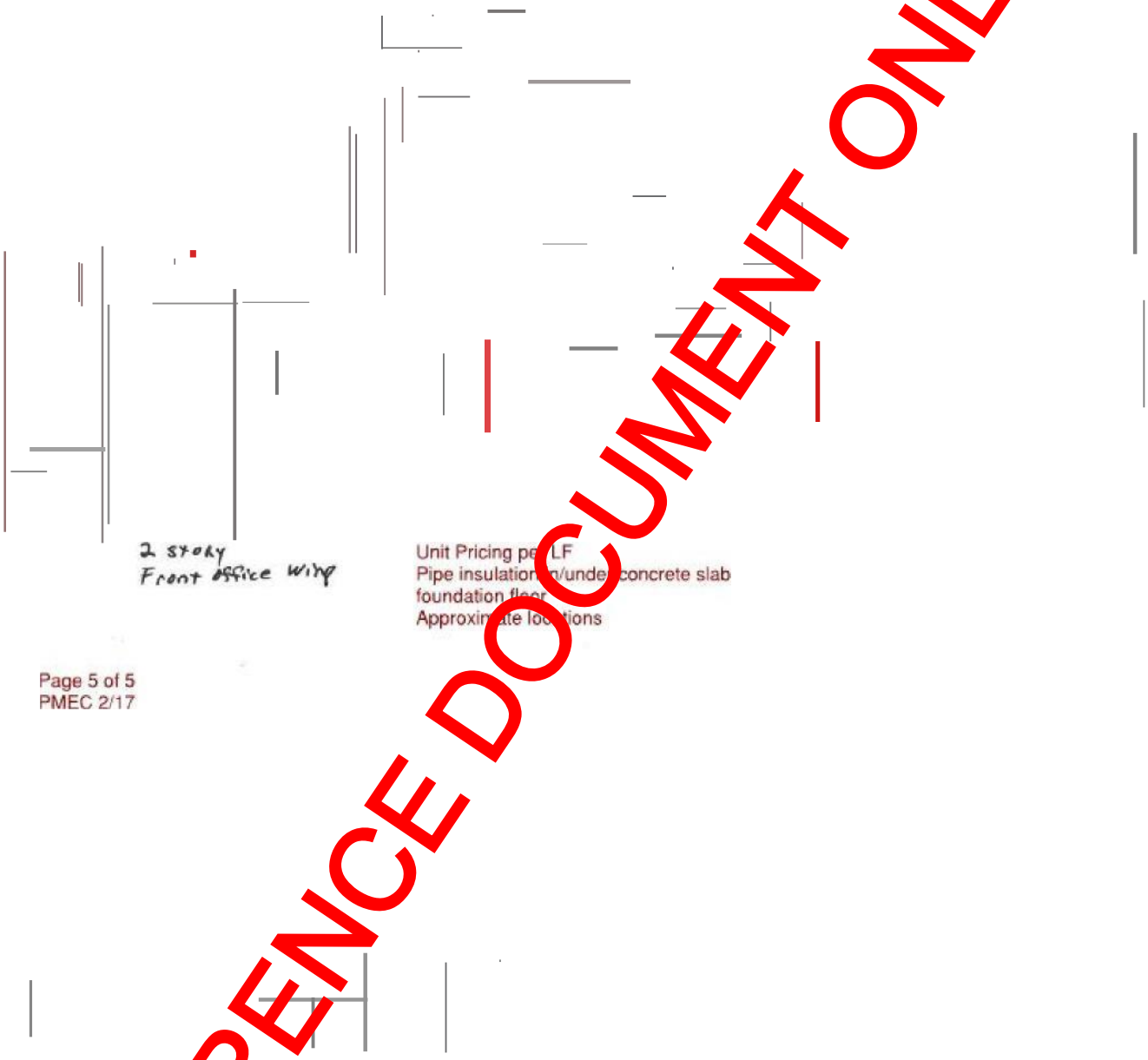

Unit Pricing per LF
Pipe insulation in/under concrete slab foundation floor
Approximate locations

REFERENCE DOCUMENT ONLY