

Department of Administration / Division of Purchases
One Capitol Hill, Providence, Rhode Island 02908-5855
Web Site: www.purchasing.ri.gov
17Dec 10
Addendum # 3

RFP # 7448088

Title: ARRA Cement Water Main Replacements and Water Booster Pump Station at RI College (Design-Build)

Submission Deadline: 20 January 11 @ 11:00 AM (EST)

- The q & a from the Dec 14th non-mandatory pre-proposal meeting
- Applicable Standards & Guidelines (signed by RI Analytical Laboratories)
- pdf drawings of lines to be replaced.
- Interested parties are encouraged to peruse this website, on a regular basis, for any additional information relating to this solicitation.

A handwritten signature in black ink, appearing to read "Jerome D. Moynihan".

Jerome D Moynihan, C.P.M., CPPO
Administrator of Purchasing Systems

Rhode Island College
Asbestos Cement Water Main Replacement
RFP #7448088
Pre-bid Questions and Answers
December 14, 2010

1. Clarification: Questions will be received until December 28, 2010 at 12 noon. Questions should be sent via email at questions@purchasing.ri.gov with reference to the RFP #
2. Q. The job will be multiple segments, but awarded to one contractor?
A. Yes.
3. Q. Can Pare Corp. be hired as part of a project team?
A. Yes.
4. Q. Is there any geotechnical information available?
A. No. Provide unit bid prices for rock and ledge. Contractor will be paid based on actual quantities.
5. Q. Will there be areas for stock pile material and staging? Will they be secure?
A. Yes. Contractor will need to secure.
6. Q. What is the time frame for Contractor selection?
A. The College will award as quickly as possible. An approximate timeframe is 10 weeks from the bid date.
7. Q. On page 10, section 3.22 there is a statement pertaining to the pavement, stating after 90 days temporary trench patch is to be replaced with permanent trench patch, that will put the job past September 2011.
A. Replace "90 days" with "30 days". In addition, all full-depth permanent trench patches shall be 4-inches in thickness.
8. Q. There really is not enough time to estimate this job, given the Holiday approaching, can we have an extension?
A. Yes, the State will provide approximately one extra week.
9. Q. Is the pump station manufacturer already aware of this job?
A. We have had some preliminary discussions with them but they are not aware of it in an official way.
10. Q. Who is responsible for marking out utilities?
A. Dig Safe will mark some areas. RIC (or their contractor) will mark the rest.

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11. Q. At the end of each day can we plate over the trench?
A. Contractor shall backfill the trench at the end of each work day. Contractor may use steel plates over the trench at termination points each day. Open excavations not in the roadway that are to remain open overnight shall be protected by temporary fence
12. Q. Will Contractor need to provide traffic control?
A. Contractor shall provide for one-lane of vehicular travel at all times unless written approval from RIC for variance is given. In addition, provide for four (4) foot wide pedestrian travel way. Contractor shall supply, install, and maintain signage, traffic cones. Contractor shall provide flaggers for traffic control (at least one(1) per roadway crew and two(2) on two-way roads)
13. Q. If all the work designed doesn't get constructed how will the Contractor re-capture design fees?
A. When award is made it will be for the design and construction.
14. Clarification on Project Segments – The project was originally one segment with one lump sum price. It has been modified (Addendum Dated December 10, 2010, 5 pages) to five(5) pipe segments and one piece for the two(2) pump stations. It is still RIC's intent to award the entire project. However, as the funding for this project ends on September 30, 2011, we will only award those aspects of the project that we expect can be completed in this timeframe. At the time of the award, RIC will award the design-build for one(1) to six(6) of the project pieces.
15. Q. The RFP indicates that 5,000 ft. of temporary water main and 2,500 ft. of asbestos cement pipe removal and disposal shall be assumed but the December 10, 2010, 5 page addendum has different assumptions. Please clarify.
A. The assumptions included in the 5 page document noted "Addendum December 10, 2010", should be the basis for the proposals.
16. Q. Will Providence Water need to review preliminary plans? Will we be tapping any Providence Water Mains?
A. Providence Water does need to review hydraulics of pump stations. RIC will forward them preliminary information in advance. They do not need to review or approve water main work. All work will occur on RIC water mains.
17. Q. How many crews can work on the job?

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- A It is anticipated that multiple crews will be working onsite. The specific number will depend on proposed construction activity and College activities scheduled.
18. Q. Are existing connections to lines available?
A They are listed on the addendum dated 12/10, buildings and connectors for each segment and we do have records on all buildings that will be available to look at but the package contains what is needed for bidding.
19. Q. Are there any concerns about the temporary main water system?
A Refer to Section 3.21 of RFP for guidance on temporary water mains. In addition, temporary water mains shall be installed in a manner to allow for normal passage of both pedestrian and car traffic.
20. Q. Is there SRF funding?
A No, this project is ARRA funded.
21. Q. Are there concerns about pressure or volume coming out of temporary water main fire ports compared to what is existing?
A Section 3.21 addresses that question.
22. Q. What is the retainage?
A 10%
23. Q. Can you explain the number of addendums?
A Addendum #1 is currently on the website. Addendum #2 (Asbestos Abatement Plan and Pipe Segments Map) has been passed out today and will be added to website, additionally the attendee sheet and Q & A's will be part of Addendum #2 or Addendum #3.
24. Q. There is no line for the contingency on the fee form, is it 10%?
A Contingency is 10%, a line will be added to the form and be part of the addendum. Contingency is to be used (upon owner approval) for unanticipated circumstances not covered in the RFP.
25. Q. How can we calculate the cost of ledge and rock?
A. Ledge and boulder removal will be paid on unit prices based on actual quantities.

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26. Q. If existing mains being removed and replaced are too shallow or sitting on ledge, are we to dig deeper?
A. Yes. Pipe must be properly bedded and have proper cover in accordance with Providence Water Supply Board Standards
27. Q. Would we consider insulation board rather than remove ledge to achieve proper cover?
A. Project should be bid with assumption that proper cover will be achieved.
28. Q. How much cover should there be over water mains?
A. Project shall be constructed in accordance with Providence Water Supply Board standards (part of RFP).
29. Q. Who will pay for water quality testing?
A. The College will arrange for and pay for the testing
30. Q. Will soil compaction test be required?
A. Yes. Compaction testing will be required for all backfilled trenches to ensure that required compaction is achieved (95% Standard Proctor). A minimum of one testing location shall be chosen for each 200 feet of water main installed. A separate test shall be performed for each two (2) feet of depth. The Contractor, shall contract the services of a qualified and approved geotechnical consultant to perform the compaction testing. All testing (and retesting) shall be at the contractor's expense
31. Q. Will Rhode Island Department of Health approval be necessary?
A. No
32. Q. Can there be a line item for refill materials?
A. Yes. It will be added to bid form. RIC will only pay for refill materials in the event of unsuitable materials or to replace excavated ledge/boulders.
33. Q. Will new mains follow existing route?
A. In general, yes. The one exception is the main that starts from the Providence Water meter located north of the running track and runs southerly under the bleachers and the running track and a field south of the track. This section shall be abandoned and the new pipe installed to the west of the track.
34. Q. Will College enforce parking restrictions?

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A. Yes. The College will coordinate with contractor and restrict parking where construction activity is to occur.

35. Q. Can trees be removed?

A. It should be assumed that trees will be preserved. In the event that a tree must be removed it would need to be approved in writing by the College.

36. Q. Is a pre-construction video required?

A. Yes, the contractor shall make a pre-construction video along the entire pipe route and supply a copy to RIC prior to construction beginning

37. Q. Can College mark existing water mains in advance of the proposal/bid?

A. No.

38. Q. Do new water mains get installed in the road?

A. The general intent is to locate the new water mains in the roadway areas (where the route parallels the road). In some instances this will not be possible because of existing utilities

39. Q. Will you make an AutoCAD file available?

A. PDF files will be posted for the water mains and for all utilities. These are reference documents only and not suitable for construction. The locations of the utilities are approximate.

40. Q. Does curbing that is disturbed need to be reset or replaced?

A. Curbing may be reset if it is not damaged or in poor condition per approval of RIC. Otherwise it shall be replaced in-kind.

41. Q. What does contractor need to do to restore paint markings in roadway?

A. Nothing. This will be addressed by the College.

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Fee Form

Lump Sum Fee – Segment 1	\$
<i>Contingency Segment 1 - (10%)</i>	\$
Lump Sum Fee – Segment 2	\$
<i>Contingency Segment 2 - (10%)</i>	\$
Lump Sum Fee – Segment 3	\$
<i>Contingency Segment 3 - (10%)</i>	\$
Lump Sum Fee – Segment 4	\$
<i>Contingency Segment 4 - (10%)</i>	\$
Lump Sum Fee – Segment 5	\$
<i>Contingency Segment 5 - (10%)</i>	\$
Lump Sum Fee – Two Pump Stations and Emergency Generator	\$
<i>Contingency Pump Stations and Emergency Generator - (10%)</i>	\$
Rock Removal (ledge)	\$ per cubic yard
Rock Removal (boulders)	\$ per cubic yard
Processed Gravel	\$ per cubic yard
Remove and dispose of AC water main – 8-inch diameter	\$ per linear foot

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Remove and dispose of AC water main – 10-inch diameter	\$	per linear foot
Remove and dispose of AC water main – 12-inch diameter	\$	per linear foot
Temporary water main – 6-inch diameter	\$	per linear foot
Temporary water main – 8-inch diameter	\$	per linear foot
Temporary water main – 10-inch diameter	\$	per linear foot
Temporary water main – 12-inch diameter	\$	per linear foot
Test Pits	\$	each

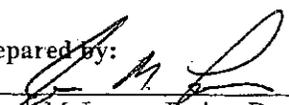
Note: Fees should be provided in numbers (i.e. \$100.00) and writing (i.e. one hundred dollars and zero cents).

Listing of Proposed Subcontractors

Company	Type of Work To Be Completed (i.e. role on project)	Approximate % of Total Fee

Abatement of Exterior Transite Piping
For the Water Main Replacement Project
Rhode Island College Campus
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Prepared by:


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PART I – GENERAL

1.00 APPLICABLE STANDARDS AND GUIDELINES

A. General Requirements

1. All work will be done in strict accordance with all applicable federal, state, and local regulations, standards and codes governing asbestos abatement and any other trade work done in conjunction with the abatement.
2. The most recent addition of any relevant regulation, standard, document or code shall be in effect. Where conflict among requirements or these specifications exist, the most stringent requirements shall be utilized. Copies of this specification as well as those documents listed under section 1 00-B shall be on the work site during the entire abatement project(s).
3. If any materials not identified for removal in this specification become damaged during any phase of the abatement, it is the responsibility of the contractor to immediately notify the Building owner/representative and Project monitor. The owner shall not be held responsible for any additional asbestos materials impacted by the Contractor.
4. All work and work areas will be in conformance with the requirements of NESHAPS regulations (40 CFR 61 Subpart M) OSHA regulations (29 CFR 1910.1001, 1926 1101 Asbestos Standards, and OSHA 1926 62 Lead Standards).

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B. Specific Requirements

1. The following documents shall be maintained on site easily accessible to the Consultant, building owner(s), engineering firm, abatement employees, and regulatory personnel
 - a. 29 CFR 1926.1101: The Construction Industry Standard (as amended)
 - b. 29 CFR 1910.1001: Asbestos Standard (as amended)
 - c. 29 CFR 1910.134: Respirator Protection Standard
 - d. 29 CFR 1910.145: Accident Prevention Standard
 - e. 29 CFR 1910.38: Asbestos Abatement Projects
 - f. 29 CFR 1910.22: Walking Working Surfaces
 - g. 40 CFR 61 Subparts A, B, and M (NESHAPS)
 - h. RI Analytical Laboratories, Inc. specifications

C. SUBMITTAL AND NOTICES

1. Prior to any removal or mobilization activity we will submit documentation indicating that each employee at the site is licensed, has current physical, and respirator fit tests.

In addition, during the abatement activities, the abatement contractor shall:

2. Post in the clean room area of the worker decontamination enclosure a list containing the names, addresses and telephone numbers of the Police Department, Fire Department, and Hospital.
3. The analytical data from the daily air compliance and personal air samples will be utilized to monitor work conditions and practices and ensure that the levels of airborne asbestos fibers do not exceed regulated OSHA limits. Any radical increases in area fiber concentrations will cause an immediate **STOP WORK ORDER** without repercussions to the building owner or the project monitor. The contractor will then be stopped while the project monitor inspects the work area and reviews work practices. The contractor may begin removal procedures when a written **RESUME WORK ORDER** has been given by the building representative(s).

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6. When the contractor receives the analytical results for the personal air samples (within 3 days after collection), a copy shall be submitted to RIC and posted at the General contractor construction site trailer.
- D. Workplace site safety and security:
1. It shall be the responsibility of the abatement contractor to maintain work/site security for the duration of the asbestos abatement activities.
 2. The asbestos abatement contractor will identify work zones (abatement zone, exclusion zone, & safe zone) within the work area. The abatement zone and exclusion zone will be designated by visible barrier tape or physical barriers.
 3. The work area at that point shall be restricted only to authorized, trained, and protected personnel.
 4. "Danger Asbestos" barrier tape will be placed along the work site perimeter for the entire duration of abatement activities.
 5. Because work is to take place outdoors, the contractor is required to identify the operating procedures for additional environmental hazards (i.e. heat stroke, sunburn, dehydration, poison ivy, burns, cuts, etc.)
- E. After Work Completion: upon completion of this project, the contractor shall submit the following documentation to the Building Owner/Representative:
1. A report that delineates any problems encountered, remedial actions taken, injury reports, equipment breakdown as well as a copy of the work place and pre-log book.
 2. Submit copies of all transport manifests, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area during the abatement process in a timely fashion.

1.02 **SCOPE OF WORK**

A **Description of Work**

The work involves the removal and disposal of approximately 2,500 linear feet of cement water pipe ranging in diameters of 8 inches to 12 inches. The quantity of material to be removed is a percentage of the 10,000 lf of pipe that is buried underground and loops around the RIC campus. The 25% (2,500 lf) that is slated for removal is transite piping that is in the path of the proposed new water main; the balance of the remaining transite line will be left in place and shall not be unearthed. Please refer to site drawings for location of existing asbestos cement water main.

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REFER TO PROJECT DRAWINGS

B **Asbestos-Containing Materials**

The following information describes those asbestos-containing or assumed asbestos-containing building materials to be removed under these specifications

Exterior Asbestos Abatement:

1. **Abatement of asbestos containing cement water lines**

The work area will be designated by "Danger Asbestos" barrier tape around the project site. A remote decontamination unit (consisting of a clean room, shower room, and equipment room) will be erected within the designed barrier taped area. Piping will be removed in lengths by either unfastening or breaking collars. Collars will be placed in the appropriate asbestos containers. The stacked and covered transite pipes will be hoisted with the excavator, placed on 6-mil poly, and then be wrapped and placed in a lined dumpster

Part II **PRODUCTS: MATERIALS AND EQUIPMENT**

2.01 **MATERIALS**

- A Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer, and the brand name.
- B. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.
- C. **Plastic (polyethylene) sheeting**, of 6-mil thickness or greater as specified, in sizes to minimize the frequency of joints.
- D. **Tape** - Capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water (Duct-tape typically serves this purpose satisfactorily) Spray-glue may be used in conjunction with tape
- E. **Surfactant (wetting agent)** - shall consist of 50 percent polyoxyethylene ether and 50 percent polyoxyethylene polyglycol ester, or equivalent, and shall be mixed with water to provide a concentration of one ounce surfactant to five (5) gallons of water, or as directed by manufacturer. A removal encapsulant may be utilized in lieu of amended water during removal, but containerized waste must be saturated with water
- F. **Impermeable container** - suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with OSHA 29 CFR 1926.1101).

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- G **Spray glue** - suitable adhesive in aerosol cans, which is specifically formulated to stick tenaciously to sheet polyethylene
- H **Disposal bags** - Provide 6 mil thick leak-tight polyethylene bags labeled as required by Federal and local Regulations. Each is labeled as follows:
 - 1. First Label

**CAUTION
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH**

- 2. Second Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

**DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE**

- 3. Third Label: Provide in accordance with U.S. Department of Transportation regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances: Final Rule Published November 21, 1986 and revised February 17, 1987:

**RQ HAZARDOUS
SUBSTANCE
SOLID, NOS,
ORM-E, NA 9188
(ASBESTOS)**

2.02 EQUIPMENT

- A Provide all workers with personally issued and marked respiratory equipment approved by NIOSH (half face respirators or PAPR's).
- B Non-permitted respirators: Do not use disposable or quarter face respirators.
- C Full body disposable protective clothing, including head, body, and foot coverings consisting of material impenetrable by asbestos fibers (Tyvek or equivalent) shall be provided to all workers and authorized visitors in sizes adequate to accommodate movement without tearing

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- D. Non-skid footwear shall be provided to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.
- E. A sufficient supply of disposable mops, rags, and sponges for work area decontamination shall be available.
- F. A sufficient supply of shovels, rakes, and hand tools (e.g. scrapers, wire cutters, brushes, utility knives, bone saws, etc.) shall be provided to the workers as needed by the abatement contractor.
- G. All tools used for clean up will be decontaminated or disposed as asbestos upon project completion.
- H. Brushes utilized for removing loose asbestos containing materials shall have nylon or fiber bristles, not metal.
- I. Sprayers for spraying amended water.
- J. A sufficient supply of HEPA filtered vacuum systems shall be available during clean up.
- K. Misting equipment shall be utilized on this project to help minimize the concentration of airborne asbestos fibers.

PART III WORK AREA PREPARATION AND ACTIVITIES

3.01 General

- A. Post caution signs meeting the specifications of OSHA 29 CFR 1926.1101 (k) at any location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the work area to permit persons to read the sign and take the necessary protective measures to avoid exposure.
- B. Alternative methods: There are no alternative work methods requested for this project, other than the work procedures outlined under this specification without discussion with the onsite RIC Representative, and approval from RI Analytical Project Designer.
- C. The general contractor shall be responsible for securing the electricity and water needed during abatement activities.
 - 1. The contractor shall always utilize ground-fault interrupter systems, if electricity is needed in the abatement area.

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3.02 Specific Preparation Activities

- A. A Rhode Island licensed asbestos abatement contractor must remove all asbestos containing material. All workers/supervisors must have successfully completed the OSHA and Rhode Island approved asbestos training course for their discipline.
- B. While removing asbestos containing material proper Personal Protective Equipment (PPE) must be worn. This includes respirators (per OSHA 1926.1101) and Tyvek suits.
- C. Signage must be utilized in accordance with 29 CFR 1926.1101 (k)(1)(ii).
- D. A remote three chamber with fully operational shower decontamination unit must be supplied for the workers use and must be used by the abatement workers.
- E. All required Rhode Island Regulations for the removal of asbestos must be followed as a guidance document.
- F. All Federal Regulations for Asbestos removal must be followed, this includes OSHA (29 CFR 1926.1101, 29 CFR 1910.1001), and EPA (NESHAPS 40 CFR 61 Subparts M).
- G. All material must be disposed of per Federal and Rhode Island Regulations.
- H. Following removal of all asbestos containing material:
 - 1. The consultant shall perform a thorough visual inspection of the entire area, until the area is cleaned to the satisfaction of the consultant.

3.03 CONTINGENCY PLAN FOR EMERGENCIES

A. Emergencies Inside the Work Area

Each worker shall "walk through" designated escape routes. A diagram will be posted outside the decontamination unit locating all emergency routes. Signs will be posted indicating emergency exits inside the work area through the duration of the abatement project. This will enable abatement workers to conduct a quick exit from the work area in the event of a respirator malfunction, medical emergency, accident, fire, or equipment malfunction.

B. Procedures for Shut Down

Should shut down be deemed necessary, each employee will exit through the decontamination unit in an orderly and prompt manner, showering and changing as expeditiously as possible. The contractor is expected to ensure that during an

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emergency, steps will be enforced to prevent asbestos fibers extending out of the work area

C. After Evacuation

After evacuation, each employee shall proceed to a prearranged meeting place for a head count and briefing, usually at the supervisor's discretion

D. Procedures for Rescue and Medical Duties

The abatement contractor shall provide at least one person trained in first aid and CPR per work crew. This person will be responsible for notifying the rescue squad and attending to the injured persons immediate needs. All workers shall be made aware of the location of a phone in case of fire. The building owners contact person shall be notified as soon as workers are out of immediate danger.

E. Telephone numbers to be posted on site in the clean room are as follows:

1. **RIC Representative**
2. **Rescue**
3. **Fire Department**
4. **Police Department**
5. **General Contractor**
6. **RI Analytical**
7. **Analytical Laboratory**

F. Major Hazards

(Refer to Section 1 Paragraph D item 5)

1. Heat Stress
2. Carbon Monoxide Poisoning
3. Falls/Slips
4. Electric Shock - Skin Burns

3.04 WORKER DECONTAMINATION ENCLOSURE

- A. Construct a remote worker decontamination enclosure system contiguous to the work area consisting of three totally enclosed chambers. The worker decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room each separated from each other by air locks of at least twelve (12") inches. Entry to and exit from all air locks and decontamination enclosure system chambers shall be through curtain doorways consisting of two layers of overlapping polyethylene sheeting. One sheet shall be secured at the top of the left side, the other sheet at the top and right side
- B. Clean room shall be sized to adequately accommodate the work crew. Postings shall be located in this area. This space shall not be used for storage of tools, equipment, or materials or as office space

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- C. The entire decontamination enclosure shall be constructed over a frame. The decon unit should be covered with opaque polyethylene for privacy.
- D. All workers and authorized personnel shall enter and exit the work area through the worker decontamination enclosure system.
- E. All personnel shall proceed first to the clean room remove all street clothes and appropriately don all respiratory protection (as deemed adequate for the job conditions) and disposable coveralls (Tyvek or equivalent), head coverings and foot coverings. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the work area.
- F. Personnel wearing designated personal protective equipment shall proceed to the work area, which shall be located contiguous to the decontamination chamber.
- G. Before leaving the work area, all personnel shall remove gross contamination from the outside of respirators and protective clothing by brushing and/or wet wiping procedures (small HEPA vacuums with brush attachments may be utilized for this purpose, however, larger machines may tear the suits).
- H. Personnel shall proceed to the equipment room where they shall remove all protective equipment, except respirators. Deposit disposable clothing into appropriately labeled containers, and proceed to take a cleansing shower utilizing soap and shampoo.
- I. Reusable contaminated footwear shall be stored in the equipment room when not in use in the work area (upon completion of the project rubber boots may be decontaminated for reuse).
- J. Water shall be made available in the equipment room for cleaning purposes. Workers shall clean the outside of the respirators and exposed face area under running water prior to removal of respirator.
- K. After drying off, workers shall proceed to the clean room and remove respirators.

3.05 MAINTENANCE OF WORKPLACE BARRIERS

- A. The barrier tape segregating the work area shall be inspected twice daily. In addition, all airlocks on the doors within the decontamination unit shall also be inspected twice daily, once prior to the start of each day's abatement activities, and at the end of the workday before exiting from site.
- B. Damage and/or defects in the enclosure system are to be repaired immediately upon discovery.
- C. At any time during abatement activities, after barriers have been erected; if visible material is observed outside of the work area, work shall immediately

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halt Debris and/or residue cleaned up using appropriate HEPA vacuuming and wet-wiping procedures.

- D If at any time air samples collected upwind or downwind of the work area during abatement activities indicate airborne fiber concentrations greater than 0.1 fibers/cc, work shall immediately stop for inspection. Clean-up if necessary, shall be determined by the consultant or his authorized representative on site
- D Clearly identify emergency and fire exits from the work area.

3.06 ASBESTOS REMOVAL PROCEDURES

A GENERAL

1. Follow all work procedures as stated in this asbestos Abatement Specification for removal requirements and alternate work procedures
2. Clean and isolate the area in accordance with section 3.01 and 3.02 of this document.
3. Spray the asbestos material with amended water or removal encapsulant using spray equipment capable of providing a mist application to reduce the release of fibers. Wetting of the soil and transite piping is to ensure no visible dust is generated.
4. Saturate the material to wet it to the substrate without causing excess dripping.
5. Spray the asbestos material repeatedly during the removal work process to maintain wet conditions and to minimize asbestos fiber dispersion
6. Maintain wetting the transite piping by misting or spraying to assist in fiber settling and reduce airborne concentrations. Wetting procedures are not equally effective on all types of asbestos containing materials. However, they shall none-the-less be used in all cases.
7. While removing the asbestos-containing material, the workers shall insure that all asbestos waste material is thoroughly wet. The material shall be placed directly in a 6-mil disposal bag or wrapped accordingly. All asbestos containing material will be carefully placed into 6-mil disposal bags or a lined dumpster for disposal.
8. At no time shall the removed asbestos containing material be allowed to accumulate on the ground within the abatement area, or on the drop cloth. All generated waste will be placed in the dumpsters daily

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3.07 CLEAN-UP PROCEDURE

- A. Remove and containerize all visible accumulations of asbestos containing material and asbestos contaminated debris. The utilization of shovels may be needed to collect debris caused from weather, and physical deterioration, around damaged lines
- B. Wet clean all surfaces using a hose, rags, mops and sponges as appropriate and HEPA vacuum items. This includes decontaminating hand tools and the excavator's bucket.
- C. All engineering controls shall remain in effect until the Consultant or his authorized representative has conducted a thorough visual inspection and has determined that no visible debris remains.

3.08 DISPOSAL PROCEDURE

- A. Disposal must occur at an authorized site in accordance with regulatory requirements of NESHAP and applicable state and local guidelines and regulations. All dump receipts, trip tickets, transportation manifests, and other documentation of disposal, shall be delivered to the building owner, in a timely fashion, for his records. A recommended record-keeping format utilizes a chain-of-custody form, which includes the names and addresses of the generator, contractor, pick-up site, and disposal site, the estimated quantity of the asbestos wastes and the type of containers used. The generator, the contractor and the disposal site operator as the responsibility for the material changes hands should sign the form. If a separate hauler is employed, his name, address, telephone number and signature should also appear on the form.
- B. RIC personnel, or representative will be called to inspect the disposal dumpster and sign the manifest before it leaves the site.
- C. The contractor must submit the appropriate information and receipts to RIC as soon as they are received, but no later than 30-days after completion of the removal.
- D. Transportation to the landfill:
 - 1. Once containerized waste has been removed from the work area, it shall be loaded into an enclosed truck for transportation
 - 2. Each dumpster or enclosed truck shall be lined with a minimum of two layers of six-mil poly
 - 3. Personnel loading asbestos containing waste shall be protected by disposable clothes including head, body, and foot protection and at a minimum a half face piece air purifying dual cartridge respirator equipped with high efficiency filters

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4. Any debris or residue observed on containers or surfaces outside of the work area resulting from clean up or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods as appropriate

3.09 **RE-ESTABLISHMENT OF AREA**

- A. Re-establishment of the work area shall only occur following the completion of clean-up procedures and after the final visual inspection has been performed and documented to the satisfaction of the building owner.
- B. The contractor and owner shall visually inspect the work area for any remaining visible residue. Evidence of contamination will necessitate additional cleaning requirements in accordance with section 3.07 of this specification.
- C. Following a satisfactory visual inspection of the work area, the barriers may be removed and disposed of as asbestos contaminated waste.

3.10 **ABATEMENT PROJECT COMPLETION**

- A. The abatement project shall be deemed completed by RIC representative(s) when the contractor has submitted ALL required documents (e.g., Landfill receipts, Project Logs, Consent of Surety, etc.) to RI Analytical and the owner and upon receipt of the owners Representative final asbestos abatement report.

Part IV **SUPPORTING ACTIVITIES**

4.01 **Abatement Project Monitoring**

1. REQUIREMENT

- A. Visual inspections to ensure that the contractor's performance is in accordance with the contract requirements, but not limited to the following:
 1. Air quality around work place shall be monitored. Air monitoring required by OSHA is work of the Contractor and is not covered in this section.
 2. Operating Procedures
 3. Abatement Process
 4. Packing of Asbestos Waste

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- B. Inspect barrier tape after installation
- C. Ensure appropriate warning signs are posted.
- D. After asbestos has been removed, check substrate surfaces to be sure no asbestos remains
- E. Determine that the worksite has been adequately cleaned of asbestos contamination
- F. Report any deviations in proper procedures by the contractor to the General Contractor, whom will then notify the RIC representative. The contractor shall then be stopped while the project monitor inspects the integrity of the containment area. Any delay due to safety and health considerations shall be the responsibility of the contractor, not the building owner, or the project monitor
- G. Should any of the above occur immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Owner's Representative

2. **Number of Air Samples Required:**

A. **Compliance Air Sampling**

- 1) At a minimum, two compliance air samples shall be collected outside the work area daily for the duration of the asbestos removal operations. The location of these samples shall be upwind and downwind of the work area.
- 2) Quantification Limit - 0.005 f/cc as calculated in accordance with the following:

$$Q.L. = \frac{10 \text{ fibers} \times FA \times IL}{100 \text{ fields} \times MFA \times 1000 \text{ cc}} \times \text{Volume}$$

EPA Publication EPA 560/5-83-002, March, 1983, Guidance for Controlling Friable Asbestos-Containing Materials in Buildings:

For Method 7400:

- Q.L. = Quantification limit in fibers/cubic centimeter.
- V = Volume of air sampled in liters.
- FA = Effective collecting area of the filter in square millimeters (385 mm² for 25 mm filters.)
- MFA = Microscopic field area in square millimeters

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B Final Visual Inspection:

- 3) Following removal of all asbestos containing material, the consultant shall perform a thorough visual inspection. Following successfully passing the consultant's visual inspection the area(s) the contractor may remove the decon and the barrier tape

3) STOP ACTION LEVELS

- a) Inside Work Area: Maintain an average airborne count in the work area of less than 0.1 fibers per cubic centimeter. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts. If the Time Weighted Average (TWA) fiber count for any work shift or 8-hour period exceeds 0.1 fibers per cubic centimeter, stop all work, and notify Owner's Representative. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Owner's Representative.
- b) Outside Work Area: If any air sample taken outside of the work area exceeds the base line established below, immediately and automatically stop all work except corrective action. The Owner's Representative will determine the source of the high reading and so notify the Contractor.
1. If the high reading was the result of a failure of Work Area isolation measures initiate the following actions (if feasible):
 2. Immediately extend new barrier tape to isolate the affected area from the remainder of the construction site
 3. Require that respiratory protection be worn in affected area until area is cleared for re-occupancy by non-trained personnel.
 4. If the high reading was the result of other causes, initiate corrective action as determined by the Owner's representative.
 5. Complete corrective work with no change in the Contract Sum if high airborne fiber counts were caused by Contractor's activities.

4.02 MEDICAL MONITORING:

- A. Medical monitoring must be offered by the contractor to any employee or agent that may be exposed to asbestos in excess of background levels during any phase of the abatement project.
- B. Medical monitoring shall include at a minimum:
1. Name and Social Security Number

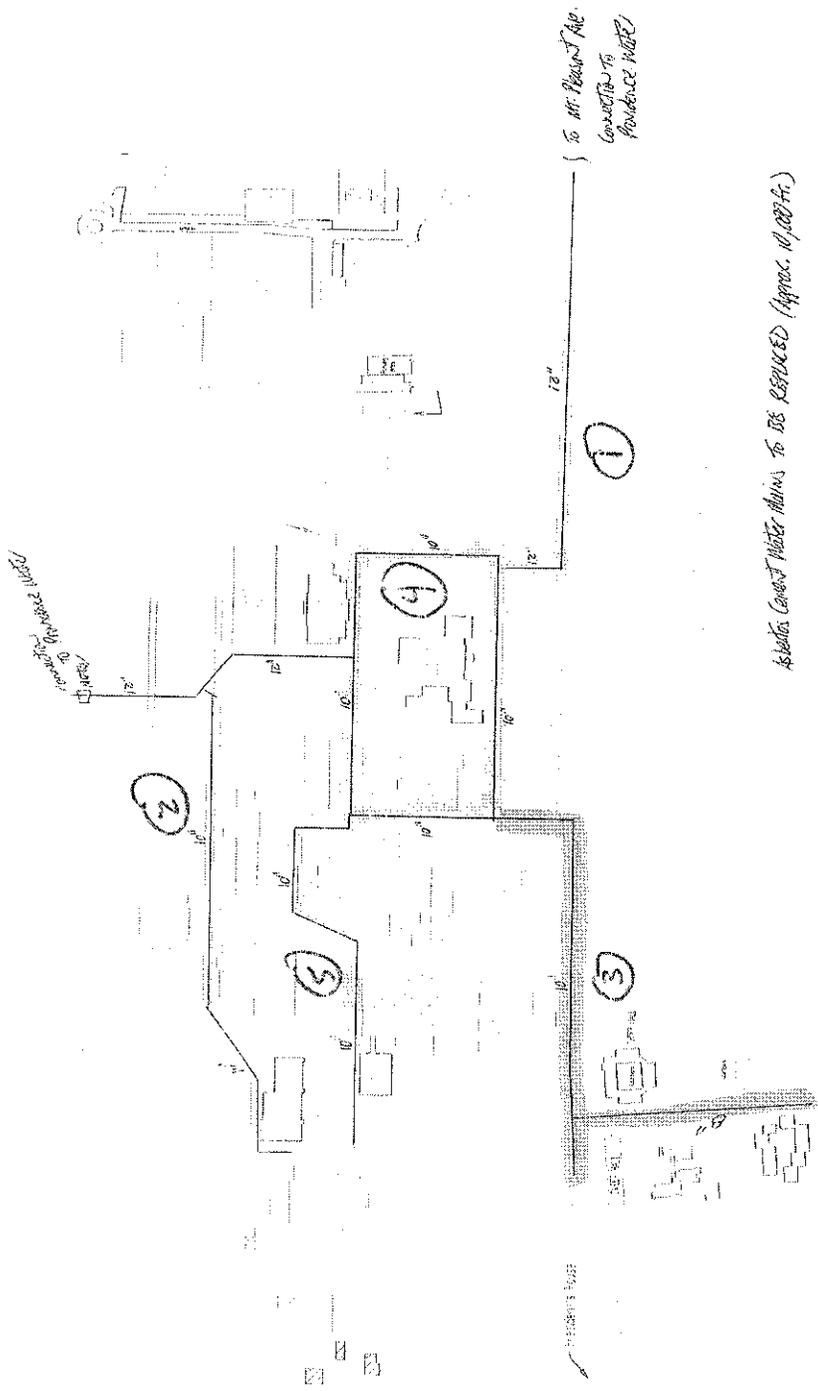
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2. Physicians' Written Opinion from examining physician, explaining any limitations that would place the worker at an increased risk of material health impairment from exposure to asbestos
 3. A work/medical history to elicit symptomatology of respiratory disease
 4. A chest x-ray (posterior-anterior, 14 x 13 inches) evaluated by a certified B-reader.
- C. A pulmonary function test, including forced vital capacity (FVC) and forced expiratory volume at one second (FAV) 1, administered and interpreted by a certified pulmonary specialist.
- D. Employees shall be given an opportunity to be evaluated by a physician to determine their capability to work safely while breathing through the added resistance of a respirator
- E. The certificates issued by the medical agency shall be kept on site at all times during the abatement activities.

4.03

TRAINING OF ASBESTOS ABATEMENT EMPLOYEES:

- A. Training shall be provided by the contractor to all employees or agents who may be required to disturb asbestos containing or asbestos contaminated materials for abatement and auxiliary purposes and to all supervisory personnel who may be involved in planning, execution, or inspection of abatement projects.
- B. All employees, who are involved in the removal of asbestos, or supervision of this project, shall be properly trained as required by the State of Rhode Island Asbestos Regulations
- C. All certificates of training and licensing shall be maintained at the work site for the duration of this project and a copy of each individuals licenses, fit test, and medical acceptance will be available on-site to be provided to the Project Monitor.
- D. The excavator operator will, at a minimum, be asbestos awareness trained for the specific asbestos hazards pertaining to the specific site.



⑥ Pump stations

④ project segments

R/C
Asbestos cement water main
Replacement

Asbestos Cement Water Mains to be Removed (Approx. 10,000 ft.)