

**City of Lowell, MA
Contract 2-241 / IFB 16-89
Marginal Sewer Relief Pipe
And LRTA Drainage Improvements**

ADDENDUM NO. 1

**CDM Smith Inc.
670 North Commercial Street, Suite 208
Manchester, NH 03101**

DATE: May 9, 2016

TO: All Plan Holders

RE: City of Lowell, Massachusetts
Lowell Regional Wastewater Utility (LRWWU)
Contract 2-241 / IFB 16-89

RECEIPT OF BIDS:

****Wednesday, May 11, 2016 11:00 AM****

**Office of the Lowell City Hall
Purchasing Department
375 Merrimack Street, Room 60,
Lowell, MA 01852**

ADDENDUM NO. 1

This Addendum shall become part of the Contract Documents as provided in the Instructions to Bidders for the above-referenced project. The attachments are as follows:

Attachment A	Pre-bid Conference Agenda, Sign-In Sheet, and Summary (May 4, 2016)
Attachment B	Appendix N – UML South Campus Parking Lot Risk Assessment February 2016

Bidders shall acknowledge receipt of the Addendum by inserting its number and date on Page 00300-1 of the Bid Form. Failure to do so may subject the bidder to disqualification.

CHANGES TO THE SPECIFICATIONS

1. SECTION 01010 – SUMMARY OF WORK

- a. Page 01010-3, Paragraph 1.02B, Item 24., first line, REMOVE the first sentence as follow:

“ Furnish and install initial/temporary trench width pavement over excavations and final trench-width pavement, or final full-width cold plane and 1.5-inch overlay over most city streets and University of Massachusetts Lowell (UML) South Campus parking lot, as shown on the drawings and specified in Section 02576.”

And REPLACE with the following sentence:

“ Furnish and install initial/temporary trench width pavement over excavations and final pavement as shown on the drawings and specified in Section 02576.”

2. SECTION 01570 – TRAFFIC REGULATION

- a. Page 01570-1, Paragraph 1.02, after Paragraph 1.02E, ADD the following new Paragraph 1.02F:

“F Traffic management devices shall be installed along the off-ramp (Exit 5A) where the Contractor will access the 42-inch culvert outfall and temporary staging area for the cleaning work (Sheet C-3). Traffic control shall include advance signage: “Road Work Ahead” (W20-1) and “Ramp Narrows” (W5-4) signs and a sign for “Trucks Entering and Exiting” before the construction entrance; as well as a “End Road Work” (G20-2) sign after the entrance. Regulation traffic cones or barrels shall also be placed prior to the entrance and exit of the temporary (access) entrance road off of the ramp per the requirements of MassDOT”

3. SECTION 02270 – EROSION AND SEDIMENTATION CONTROL

- a. Page 02270-1, Paragraph 1.04B, DELETE the paragraph in its entirety and REPLACE with the following new paragraph:

“B. Sedimentation and erosion control measures shall conform to the requirements outlined in the Lowell Conservation Commission Order of Conditions appended to this Specification for the Part A - Marginal Sewer Relief Pipe work. Sedimentation and erosion control measures for the work under Part B - LRTA Drainage Improvements shall conform to the requirements of the pending Lowell Conservation Commission Order of Conditions that is to be obtained by the Contractor.”

4. SECTION 02340 – PIPE JACKING

- a. Page 02340-7, Paragraph 2.01 G, third line, REMOVE the following words:

“with a hood, extending no less than 24-in beyond the face”

And REPLACE with the following words:

“with a hood, extending no less than 12-in beyond the face”

5. SECTION 02576 – PAVEMENT REPAIR AND RESURFACING

- a. Page 02576-4, Paragraph 3.03.A, REMOVE the following sentence:

“ Final full width overlay pavement shall be placed only after trench excavations have been through at least one winter season unless otherwise directed in writing by the Engineer.”

And REPLACE with the following sentence:

“ Final full width overlay pavement shall be placed by August 19, 2016 for the Part A-Marginal Sewer Relief Pipe.”

6. APPENDICES

- a. ADD Attachment B - UML South Campus Parking Lot Risk Assessment February 2016 as Appendix N and renumber the following appendices (“Appendix N, 2 Copies of the Bid Form”) as Appendix O.

CHANGES TO THE DRAWINGS

1. SHEET C-3 – LRTA DRAINAGE IMPROVEMENTS SITE PLAN OVERVIEW AND PIPE CLEANING PLAN

- a. NOTE No. 3 – REMOVE the words “SECTION 01250” and REPLACE with the words “SECTION 01025”.
- b. NOTE No. 3 – REMOVE the words “BID ITEM B.18” and REPLACE with the words “BID ITEM B.17”.

2. SHEET C-6 – LRTA DRAINAGE SITE GRADING PLAN

a. ADD the following notes to the sheet:

“ NOTES:

1. BACKFILL MATERIAL FOR GRADING PLAN SHALL BE COMMON FILL (ITEM B.8d)
- 2 REGRADED AREAS SHOWN ON THIS SHEET AND OTHER AREAS IMPACTED IN THE LIMITS OF WORK AREA SHOWN ON SHEET C-3 SHALL BE LOAMED AND SEEDED.”

QUESTIONS RECEIVED

Questions received in writing are shown below in bold type. Responses are in italics.

Q1. Please confirm the anticipated location of the “contaminated soils”, i.e. – Please confirm they are not within the pipe jacking limits of work.

A1. *LRWWU has not completed any investigations as part of the design to determine if there are any contaminated materials in the limits of excavation work for the Part A work. LRWWU does not anticipate encountering any contaminated materials during construction. LRWWU’s opinion is based on a desktop risk assessment, completed by the property owner, suggesting a low risk of encountering contaminated soils in the area. This risk assessment is attached as a new Appendix N as part of this Addendum No. 1 (Attachment B).*

Q2. Please confirm how pipe jacking “obstruction” delays will be handled and paid.

A2. *Specification Section 02340, Paragraph 3.04 (page 02340-10) addresses Obstructions During Jacking. No separate payments for schedule delays due to obstructions are anticipated.*

Q3. Please confirm if “Permalok” casing would be considered for the pipe jacking. The self-locking joints have been used on previously completed MBTA projects and would save considerable time.

A3. *Permalok casing joints are not allowed (per written MBTA standards).*

Q4. Given the aggressive timeline to complete this project, please clarify when the GC can anticipate a Notice to Proceed. We would like to request 5/15/16 in order to purchase the steel casing pipe which typically runs 6-8 weeks after release.

A4. *LRWWU expects to deliver a letter of intent to award to the Contractor by May 16, 2016. LRWWU expects to provide the Contractor with a Notice to Proceed on or before June 1, 2016.*

Q5. Will an option for 24” steel or stainless steel pipe be considered in lieu of RCP as specified for the pipe jacking area? We would like to have a pipe option for products that come in longer lengths than 8’ if possible.

A5. A steel or stainless steel carrier pipe will not be allowed for the sewer in accordance with MBTA standards.

Q6. Section 02340-11 Paragraph A notes “the rails shall in no way be connected to or touching the casing pipe”. Please clarify!

A6. Section 02340-11, Paragraph A provides a description of two alternate techniques to install the carrier pipe in the casing pipe either by skid riser and runner or by rails. If rails are used by the Contractor, the Contractor shall meet the specification requirements.

Q7. Section 02340-7 Paragraph G notes “The advancing face shall be provided with a hood, extending no less than 24-in beyond the face and extending...” We are being told that this is typically 12” is standard for this diameter pipe. Please clarify!

A7. Addendum No. 1 will address this comment.

Q8. In order to install the Margin Street Relief Structure, the road will need to be closed. Is the traffic out of the apartments able to enter and exit from another point?

A8. There is another entrance to the apartment complex (to the east) that will allow temporary closure of the road to permit the installation of the Marginal Street Relief Structure. This closure must be coordinated with the Lowell Police Department and property owner.

Q9. In order to install the Margin Street Relief Structure, a by-pass will need to be installed. Please provide the average and peak flows for the existing 36” RCP sewer.

A9. Please see Section 01510, Paragraph 1.01C (page 1), which states that the average dry weather flow of the Marginal Street Interceptor is approximately 0.3 MGD.

Q10. During the prebid meeting the MassDOT permit was said to be in the Appendix, however I find only the permit application. Is a permit for this work available and if so can it be provided to the bidders?

A10. The application is still under review by MassDOT. Addendum No. 1 includes revisions to the Section 01570 Traffic Regulation that reflects additional input received from MassDOT during their review.

Attachment A

Pre-bid Conference Agenda, Sign-In Sheet,
and Summary (May 4, 2016)

LOWELL, MA
MARGINAL SEWER RELIEF PIPE
AND LRTA DRAINAGE IMPROVEMENTS
CONTRACT 2-241 / IFB 16-89
MAY 4, 2016 - 11:00AM
Pre-Bid Conference Agenda

- I. Introductions
 - A. Sign in sheet with email for correspondence with City of Lowell Purchasing
- II. Project Overview
 - A. Marginal Sewer Relief Area
 - 1. New sewer (relief) pipe for Marginal Sewer, flow control structure (to control wet weather flow diversion), pipe jacking under railroad, and connection to Walker Interceptor
 - B. LRTA (Lowell Regional Transit Authority) Drainage Improvements
 - 1. Consolidation of existing drain network with new drain culvert and structure connections, cleaning existing 42-inch MassDOT drain culvert, and grading site improvements.
 - C. Pipe Material
- III. Project Schedule and Work Sequence
 - A. Owner's INTENT is to have the signed contract agreement by June 1, 2016.
 - B. Part A - Marginal Relief Sewer, as shown on Sheet C-1, shall be fully complete by August 19, 2016 (the expiration date of the temporary construction easement for the project work on UML property), including all final pavement and full surface restoration of the UML property, and final pavement of all city streets (Pawtucket/Foster/Marginal) and the DPW Yard, as shown on the drawings and specified.
 - C. The temporary construction easement at UML South Campus Parking Lot is available for use by the contractor during construction for staging and material storage at no cost to the contractor. The site must be vacated and fully restored, including final paving, in accordance with the contract documents by August 19, 2016. A separate temporary construction entrance to the South Campus Parking lot site shall be provided as shown on the drawings; the site shall be fully restored by the date including cold planning, overlay of final pavement, re-installation of existing and installation of new ornamental fence, and restriping of the parking lot.
 - D. No occupancy or work will be allowed at South Campus Parking lot site within the temporary construction easement shown on Sheet C-1 after August 19, 2016. No occupancy or work will be allowed at the DPW Yard as shown on Sheet C-1 after August 19, 2016.
 - E. The LRTA Drainage Improvements (Sheets C-3 through C-6) is contingent on city acquisition of site. The OWNER intends to award the Bidder both Part A and Part B of this contract. However, the Bidder acknowledges that the

OWNER will execute one contract but issue separate a Notice to Proceed for each Part (Part A and Part B). A Notice to Proceed for Part B is subject to the OWNER's acquisition of property rights to complete the project work in Part B. The OWNER expects to obtain these rights within 120 days of the execution of this Agreement. The Bidder, by submission of its bid holds the OWNER harmless of any and all claims for financial compensation or restitution if Part B is not awarded and a Notice to Proceed is not issued within 120 days of the execution of the Agreement. This contract language will be in the Agreement between the OWNER and the Bidder.

- F. Prior to start of construction at the LRTA site, the Contractor shall perform subsurface investigations as specified. Test boring logs shall be submitted to the Engineer and any modifications to the design based on the result of the test borings will be provided by the Engineer. No pipe shall be installed until conditions are confirmed by the test borings.
- G. For Part B-LRTA work, Contractor shall stockpile excess excavated materials that are unsuitable for backfill material at the LRTA Drainage Improvements Site. The stockpile must be properly stabilized and seeded. The erosion control measures that are put in place around the stockpile shall be left in place at the end of the project.
- H. Prior to cleaning the existing 42-inch culvert under the Lowell Connector as shown on Sheet C-3 and Appendix M Contractor shall complete permitting of the cleaning project through the Lowell Conservation Commission including preparation of the Notice of Intent, attendance at a Conservation Commission meeting to present the project, filing of the Order of Conditions, and adherence to the Order of Conditions requirements during the completion of the work.
- I. Minimum requirements for traffic plans for the LRTA site are shown on Sheet T-1, LRTA Site Access Management Plan. Construction vehicles shall enter/exit the work area as shown and a police detail is required during hours of construction operation at the site. LRTA bus traffic and pedestrian traffic must be maintained.
- J. The Contract Time shall be 520 Calendar Days commencing on the Effective Date of the Agreement. The Part A work, all of the Marginal Sewer Relief Pipe including final paving, must be completed by August 19, 2016 in accordance with the terms of a temporary construction easement. The temporary construction easement provides the Bidder with a temporary construction staging and materials storage area for Part A work up until August 19, 2016, when it must be vacated and fully restored.
- K. Allowable work hours shall be Monday through Saturday, excluding holidays, between 7:00 AM to 7:00PM, with the exception of the pipe jacking operation which shall be 24/7 during installation of casing. Requests to work other than regular working hours shall be submitted to Engineer not less than 48 hours prior to any proposed weekend work or scheduled extended work weeks.

- L. Due to expedited schedule of Part A, Contractors should be aware that the requirements for the submittal of Shop Drawings is being minimized to 7 days for pipe related items for Marginal Sewer Pipe Relief. Special attention is also noted for timely submittals for pipe jacking operation as outlined in Section 02340.

IV. Bid Form Requirements

- A. Pipe Jacking Subcontractor – Bidders shall name Jacking Subcontractor in Bid Form. The two apparent low bidders identified at the Bid Opening shall provide a qualifications package within 2 business days after the Bid Opening.
- B. Certification of Compliance Completed and to be included with Bid Form.

V. Project Coordination

- A. Lowell Regional Wastewater Utility - Owner
- B. Water main relocation – Lowell Regional Water Utility
- C. DPW
- D. UMass Lowell
- E. Lowell Regional Transit Authority (LRTA)
- F. National Grid
- G. Pan Am Railways
- H. Police Department
- I. Fire Department
- J. Local Residents and Businesses

VI. Bidding Clarifications and Addenda

- A. Written questions to Mike Vaughn, Purchasing Agent, by **COB Thursday, May 5, 2016**.
- B. Addenda will be posted on the city of Lowell’s Purchasing Department website. Bidders are required to review all bidding materials on the website and acknowledge all issued Addenda on the Bid Form. As a courtesy, the Addenda will also be emailed to all attendees providing email addresses at the Mandatory Pre-Bid Meeting.

VII. Bid Opening – May 11, 2016 @ 11:00AM

- A. Office of the Lowell City Hall Purchasing Department, 375 Merrimack Street, Room 60, Lowell, Massachusetts, 01852

VIII. Questions

Lowell Regional Wastewater Utility (LRWWU)
 Marginal Sewer Relief Pipe and LRTA Drainage Improvements
 Contract 2-241 / IFB 16-89
 Pre-Bid Sign In Sheet

May 4, 2016

Name	Company Name	Street Address City/Town	Telephone Fax	E-mail Address
Bob Savage	DeFelice Corporation	285 Silva Lane Dracut, MA 01826	978-452-6967 978-452-6803 FAX	engineering@ defelicecorp.com
Brad Shalek	I. W. Harding	354 Pleasant St. West Bridgewater, MA 02779	508-588-2222 508-588-3456 Fax	bshalek@iwharding.com
Ralph Dumke	Waterline Indust	7 London Lane SEABROOK NH 03874	603-474-8578	estimating@ waterlineind.com
Querino Piacello	RSV Construction	41 Lincoln St. Canton, MA 01861	781-821-1469 781-828-5116	qpiacello@rsvconstruction.com
Alex Bail	Albanese D&S	66 Silva Lane Dracut MA	978 937 0909 978 937 9292	piacello@albaneseds.com
BRYAN GRANVISE	N. GRANVISE & SONS INC	59 JEFFERSON AVE SALEM, MA	781 552-8121	INFO@NGRANVISE.COM

Lowell Regional Wastewater Utility (LRWWU)
 Marginal Sewer Relief Pipe and LRTA Drainage Improvements
 Contract 2-241 / IFB 16-89
 Pre-Bid Sign In Sheet

May 4, 2016

Name	Company Name	Street Address City/Town	Telephone Fax	E-mail Address
Marco Pignatelli	Pignatelli & Sons	50 Sprague St	617 364 5800	marco@pignatelli.com
		Hydepark MA 02156	617 364 9642	
Dave Whitney	Albanese Brothers Inc.	PO Box 518 28 Loon Hill Rd	978-459-9950	dwhitney@albanesebros.com
		Dracont MA 01926		
Carric Prescott	LRWWU			
CLAIRE V. RICKER	CITY of Lowell - DDP	JFK CIVIC CENTER 50 ARCADE DR		cricker@lowellma.gov
		LOWELL, MA 01852		
John Pugh	LRWWU		978 674 1625	jpugh@lowellma.gov
Tony Benille	CDM Smith	Providence RI	401-457-0337	benille@cdsmith.com

Lowell Regional Wastewater Utility (LRWWU)
 Marginal Sewer Relief Pipe and LRTA Drainage Improvements
 Contract 2-241 / IFB 16-89
 Pre-Bid Sign In Sheet

May 4, 2016

Name	Company Name	Street Address City/Town	Telephone Fax	E-mail Address
MARK Younk	LRWWU			
Shawn Lavoie	COM Smith			



Memorandum

To: All Plan Holders, File

From: Shawn Lavoie, P.E.

Date: May 4, 2016

*Subject: Lowell, MA
IFB 16-89 / Contract 2-241
Pre-Bid Conference Summary*

A pre-bid conference was held for Lowell, MA IFB 16-89 / Contract 2-241 Marginal Sewer Relief Pipe and LRTA Drainage Improvements project on Wednesday, May 4, 2016 at the LRWWU Wastewater Treatment Facility to discuss the contract scope of work and requirements. A sign-in sheet listing the meeting attendees is appended to this summary, along with the pre-bid conference agenda.

Meeting Summary

- The meeting agenda and scope of work for each project area (Marginal Sewer Relief Pipe and LRTA Drainage Improvements) was reviewed and discussed. See meeting agenda for additional details.
- The Owner and Engineer informed the bidders that the license agreement with the MBTA provided in the specifications for the Marginal Relief Sewer Pipe will be fully executed once the contractor submits the license fee (\$2,822.35) on behalf of the city and their insurance certification to the MBTA. Contacts are include in Section 01010 – Summary of Work and requirements listed in Appendix I - MBTA License Agreement April 2016
- Engineer asked that all attendees list their email addresses so that the City of Lowell Purchasing Office could email all bidders Addenda as a courtesy but that it was their responsibility to refer to city's website.
- The access/approach to cleaning the 42-inch Lowell Connector culvert on Part B was also discussed. The access to clean the outlet of the existing MassDOT culvert is shown in Appendix M. There is access to the 42-inch culvert outlet via an existing path on the south side of the Lowell Connector (Exit 5A). Some thin brush (thistles) may need to be cleared. There is a flat area adjacent to the outfall to mobilize cleaning equipment and provide access to the outfall pipe for cleaning equipment and sediment containment.
- Written questions must be sent to Mike Vaughn, Purchasing Agent, by COB Thursday May 5th. The floor was opened for any initial questions but bidders were reminded to submit questions in writing as well.

Pre-Bid Conference Questions

Verbal questions are in bold and answers are in italics.

- 1. Does the Contractor's employees have to be trained to work near railroads (Keolis trained)?**

Work on or near the railroad must comply with the requirements of the MBTA license agreement and the requirements of Pan Am Railways. The Contractor's employees must have the proper training to comply with these requirements.

- 2. When dewatering the [LRTA] site, can the water be discharged to the existing 42-inch culvert allowed?**

The Contractor will be allowed to discharge clean dewatering discharge to the inlet of the existing 42-inch culvert but the discharge must meet the requirements of the specification, the pending Conservation Commission Order of Conditions, and local, state and federal standards for this type of discharge. The Contractor shall submit a plan that addresses the capture and prevention of sediment discharging to River Meadow Brook.

- 3. What are the conditions of the 42-inch culvert and what is the extent of debris?**

No internal investigations were conducted on the culvert so the extent of debris and the condition within the culvert are unknown.

- 4. There are two 84-inch culverts under the railroad that are indicated on the drawings as abandoned. How were they abandoned, were they plugged?**

The two southern-most 84-inch culverts were buried and/or submerged during the field investigations. The method or status of pipe abandonment could not be confirmed.

- 5. A Contractor acknowledged the August 19th deadline was in preparation of the UML fall semester and the intent to award the agreement was June 1st. The Contractor asked what happens if there is a delay in the award and if work outside the temporary construction area would be allowed after August 19th.**

All work on Sheet C-1 shall be completed by the August 19th deadline due to the UML easement agreement requirement and to avoid excessive disruption to Lowell DPW operations. The Owner's intent is to award the project by June 1st. The Owner acknowledges that, if there is a delay on the city's part, schedule negotiations to complete the remaining work in the DPW Yard (south of the railroad tracks) may be necessary.

- 6. Will the Sign-in sheet be included in the Addenda?**

Yes, the sign-in sheet as well as the agenda will be included in Addendum No.1.

Attachment B

Appendix N – UML South Campus Parking Lot Risk Assessment February 2016

Appendix N

UML South Campus Parking Lot Risk Assessment February 2016

February 9, 2016

Mr. Adam Baake
Director of Campus Planning and Development
University of Massachusetts Lowell
600 Suffolk Street, Suite 450
Lowell, Massachusetts 01854

Subject: **Environmental Desktop Review**
 900 Broadway Street, Lowell, Massachusetts
 Watermark Project No.: 16401-01

Dear Mr. Baake:

In accordance with your authorization of our January 20, 2016 proposal and purchase order L000320459, Watermark Environmental (Watermark) is providing a brief memorandum summarizing the findings of our Environmental Desktop Review of 900 Broadway Street, also known as 950 Broadway Street (the Site) in Lowell, MA. This desktop review is in support of a planned sewer installation project that is proposed by others at the subject Site. The desktop review form is attached. The location of the planned sewer installation project is located in the westernmost portion of the Site, see attached Site figure. The proposed depth of the new sewer line is estimated to be 15 to 17 feet below ground surface (bgs). The objective of the desktop review is to determine the likelihood and nature of potential soil and groundwater contamination that may be encountered during the proposed sewer installation project. This technical memorandum provides a brief history of Site operations, contamination history, conclusions, and recommendations. These findings may be relied upon by the University of Massachusetts Lowell (UMass Lowell) subject to the limitations attached.

Site History

According to previous environmental reports, and historical documentation (city directories, historical aerial photographs, and Sanborn fire insurance maps) the Site was used for various industrial purposes between 1921 and 1992. From approximately 1921 through the 1930s the property operated as a cotton mill. Following a brief period of vacancy in the 1930s, the property was used for munitions and rubber manufacturing in support of the World War II war effort. From 1947 to 1987 the Site was owned by General Electric and was used to manufacturer insulated wire. It should be noted that on several Sanborn fire insurance maps (1950-1977), a “sediment basin” was depicted on the west portion of the Site. According to Phase II CSA and Response Action Outcome (RAO) statement prepared by O’Reilly, Talbot, & Okun Associates, Inc. (OTO), dated December 28, 2001, General Electric removed water from the Merrimack River and used the sediment basin to remove fines from the water. In 1987, Vulkor Wire and Cable Corporation occupied the Site and manufactured insulated copper wire. Manufacturing ceased on Site in 1992 and the site was abandoned. After UMass Lowell acquired the property, the Site buildings were demolished in 1997 and a parking lot was constructed. In approximately 2012, a parking garage was constructed. The Site currently serves as a parking lot for UMass Lowell.



Release History

There have been two documented releases at the Site which are discussed below.

RTN 3-11667

Watermark reviewed the Phase II Comprehensive Site Assessment (CSA) Report, prepared by ATC Associates (ATC) dated February 1996 for Release Tracking Number (RTN) 3-11667. The Phase II CSA stated that Rizzo Associates (Rizzo) submitted a Phase I Environmental Site Assessment (ESA) for the Property on September 23, 1994. The Phase I ESA included an inspection of the property for the potential presence of contamination, the advancement of soil borings, installation of monitoring wells, and collection of soil, and groundwater samples. On September 28, 1994, the Massachusetts Department of Environmental Protection (MassDEP) assigned RTN 3-11667 to the Site for the presence of metals (beryllium, lead, and nickel), total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs) and bis(2-Ethylhexyl) phthalate in soil; and silver and cyanide in groundwater above reportable concentrations. Locations where reportable concentrations were detected are to the east of the proposed sewer installation work area and included a total of thirteen separate areas of concern (nine soil locations and four groundwater locations). Two soil samples (L-12 and L-12) were collected in close proximity to the proposed sewer installation work area as shown on Figure 3 of the 1996 Phase II CSA. The L-12 soil sample was analyzed for volatile organic compounds (VOCs) and the L-13 sample was analyzed for PCBs. No VOCs or PCBs were detected. In addition, two monitoring wells are located close to the proposed sewer work area (GZA-4 and RIZ-1) and were sampled. No petroleum odors, staining or elevated PID headspace readings were noted during the installation of RIZ-1, therefore no soil samples were collected. Both groundwater samples collected from GZA-4 and RIZ-1 were analyzed for VOCs, TPH, dissolved metals, and cyanide. Although there were metals detected (antimony, mercury, selenium and zinc), none were above reportable concentrations at the time, see attached data table. On September 28, 1995 the Site was classified as a Tier II disposal site.

Soil remediation activities for RTN 3-11667 were documented in the Phase II CSA and RAO statement prepared by OTO, dated December 28, 2001. Based on the Phase II CSA and RAO statement, during February through August 1997, ATC oversaw the removal of approximately 1,500 cubic yards of contaminated soil at seven locations. Confirmation soil sample results at five of the seven locations were below Method 1 S-1 standards and two were above Method 1 S-1 standards. On April 21, 1997 0.25 cubic yards of TPH contaminated soil located in the bottom of a concrete sewer vault were removed and a concrete pad that contained elevated lead concentrations was also removed; confirmation soil samples were not collected at these two locations.

Between January 10 and 12, 2001, OTO advanced eleven soil borings and completed six soil borings as monitoring wells. Monitoring well locations are depicted on Figure 2 of the 2001 Phase II CSA and RAO Report. Soil was screened with a PID and a total of nine soil samples were submitted for volatile petroleum hydrocarbons (VPH), and extractable petroleum hydrocarbon analysis (EPH). No elevated PID results were recorded. Four PAHs (benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene) were detected above MassDEP Method S-1/GW-3 standards. Since asphalt, coal, and coal ash was observed in soil borings, these PAH detections are not considered reportable. Groundwater was observed at a depth of 8.72 to 11.05 feet below ground surface. Three of the monitoring wells were sampled for VPH/EPH and three wells were sampled for silver, cyanide, and physiologically available cyanide. No VPH, EPH, silver or cyanide was detected. Based on 1997 confirmation sample results and 2001 results, a Method 3 Risk Characterization was performed by OTO who concluded that a condition of No Significant Risk with no restrictions had been achieved for the Site.

RTN 3-30896

In February 2012 Haley & Aldrich Incorporated (H&A) conducted pre-characterization sampling at the Site to support construction of a parking garage located on the eastern end of the Site. Results of the pre-characterization sampling indicated the presence of trichloroethylene (TCE) and benzo(a)pyrene in soil above RCS-1 reportable concentrations. In addition, samples with detections of benzo(a)pyrene tested positive for the presence of coal/coal ash. On April 27, 2012 five supplemental soil borings were advanced, and one monitoring well was installed on Site to delineate the TCE release. The Soil borings did not fully delineate the extent of



TCE; therefore, three test pits were excavated on June 6, 2012 to completion delineation. After delineation of TCE was completed, RTN 3-30896 was assigned to the release on June 20, 2012. The benzo(a)pyrene detection was not reportable due to the presence of coal/coal ash. Groundwater results from the monitoring well installed in April 2012 did not indicate the presence of TCE or any associated daughter products.

RAM activities were conducted on Site from July 2012 to September 2012. A total of 145 tons of impacted soil was removed and transported off site for disposal. Confirmation soil samples were collected and screened with a PID. No results above background were detected. A RAM completion report and Class A-2 RAO statement was submitted to MassDEP on January 21, 2013. A Method 1 Risk Characterization was performed and a condition of No Significant Risk with no restrictions was determined for the Site.

Conclusions

Based on the review of historical documents and environmental reports associated with prior releases on Site, the following conclusions have been made:

- It appears that there were no Site uses, activities, or features in the immediate vicinity of the proposed sewer installation project that indicate a recognized environmental condition (REC) as defined by ASTM E1527-13.
- Due to the documented presence of coal and coal ash in soil elsewhere at the Site, it appears that historic fill may be present throughout the Site; therefore, PAHs and metals may be present, however at levels that will likely not require MassDEP notification.
- Due to the past industrial use of the Site, the possibility of encountering contaminated soil or groundwater during the sewer installation project cannot be totally ruled out. Contamination found to not be consistent with previously documented contamination at the Site would require MassDEP notification.

Recommendations

Based on the conclusions above, it is recommended that:

- A Soil Management Plan (SMP) be prepared by an LSP and appropriate soil management practices be maintained for the proposed sewer installation project.
- Since sewer lines will be approximately 15 to 17 feet bgs, groundwater is expected to be encountered. Groundwater management practices should also be addressed in the SMP in case dewatering is anticipated.

If you have any questions or require additional information, please contact me at (978) 452-9696.

Sincerely,

WATERMARK

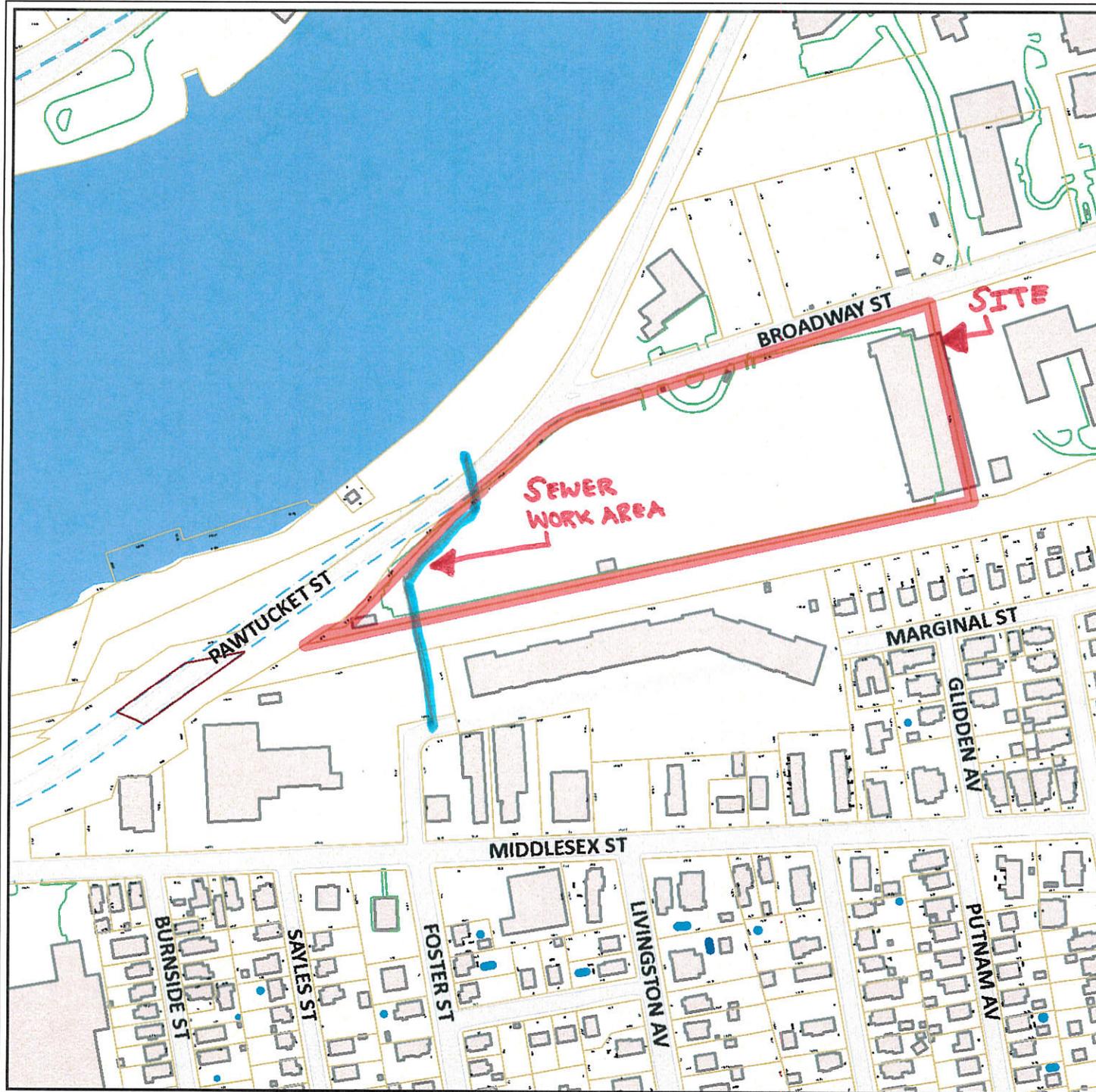
Olaf Westphalen, PG, LSP
Project Manager

Attachments: Attachment 1 – Site Figure
Attachment 2 – 1994 Groundwater Sample Results
Attachment 3 – Desktop Review Form
Attachment 4 – 2001 Phase II CSA and RAO – Sediment Basin Excerpt
Attachment 5 – 1996 Phase II CSA – Figure 3
Attachment 6 – 2001 Phase II CSA and RAO – Figure 2
Attachment 7 – Limitations

cc: File 16401-01/WLC2944



City of Lowell Massachusetts



- Lowell Boundary
- Parcels
- Buildings
 - Building
 - Foundation
 - Mobile Home
 - Tank
 - Deck
 - Pool - Above Ground
 - Pool - In-Ground
- Paved Roads
- Water Bodies
 - Open Water
 - River
- Border Town Parcels

DISCLAIMER
Any map printed from this system is considered unofficial unless it has been stamped/logged/certified by the Office of the City Assessor.
The City of Lowell makes no warranty of Representation as to the accuracy, timeliness or Completeness of any of the data. The City of Lowell Shall have no liability for the data or lack thereof, or Any decision made or action taken or not taken in Reliance upon any of the data.
1" = 251 ft January 25, 2016

**Attachment 2
1994 Groundwater Sample Results**

Well ID	RCGW-2 Reportable Concentration (As of 1994)	RIZ-1	GZA-4
Sample Date		05/13/94	05/13/94
Volatile Organic Compounds (µg/L)			
Benzene	2,000	<5.0	<5.0
Ethylbenzene	4,000	<5.0	<5.0
4-Isopropyltoluene	NE	<5.0	<5.0
Napthalene	6,000	<5.0	<5.0
o-Xylene	6,000	<5.0	<5.0
m&p-Xylenes	6,000	<5.0	<5.0
Toluene	6,000	<5.0	<5.0
1,2,4-Trimethylbenzene	1,000	<5.0	<5.0
1,3,5-Trimethylbenzene	1,000	<5.0	<5.0
Total Petroleum Hydrocarbons (µg/L)			
C7-C28 Alkane	50,000	<100	<100
Dissolved Metals (mg/L)			
Antimony	0.3	<0.005	0.003
Arsenic	0.4	<0.002	<0.002
Mercury	0.001	0.00024	0.00038
Selenium	0.08	0.003	<0.002
Silver	0.007	<0.005	<0.005
Zinc	0.9	<0.02	0.043
Total Cyanide	0.01	<0.02	<0.02

The Current RCGW-2 for antimony, mercury, selenium, and zinc are 8.0, 0.02, 0.1, and 0.9 mg/L respectively.

ENVIRONMENTAL DESKTOP REVIEW

Environmental Risk Rating

Low Risk: No historic evidence indicating the release or potential release of Hazardous Materials that could adversely impact the value or environmental condition of the Site based on the following:

- Current and historic on-Site property uses that are environmentally benign (e.g., office, residential, undeveloped, or rural land); and
- No evidence of historical or current on-Site use of Underground Storage Tanks (USTs); or
- The historic on-Site use of USTs with adequate closure documentation (including analytical data) and/or a “no further action” letter issued by the applicable state environmental agency.

Medium Risk: Historic evidence indicating the potential release of Hazardous Materials that could impact the value or environmental condition of the Site based on the following:

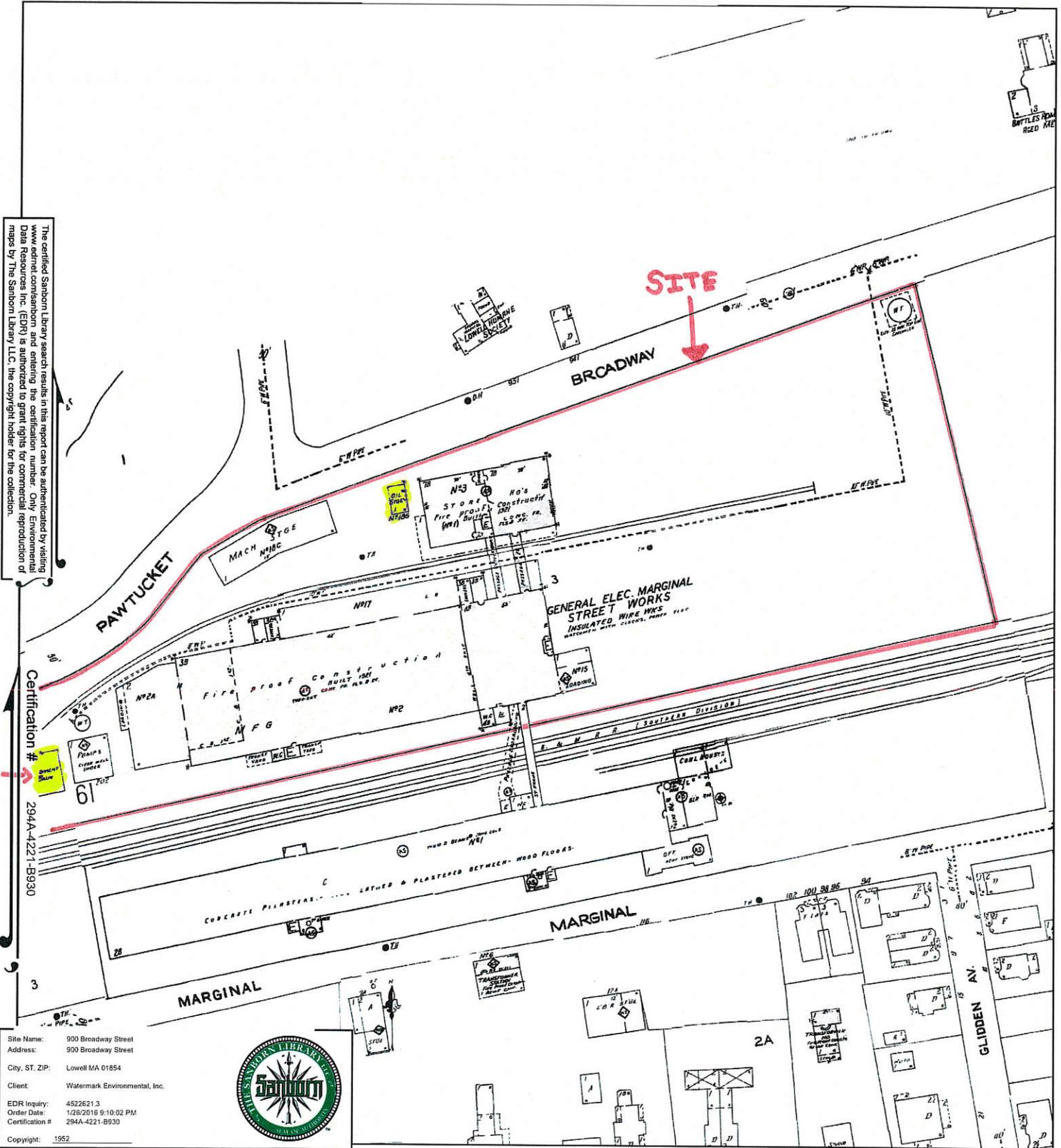
- Current or historic environmentally egregious property uses such as gasoline stations, bulk petroleum storage facilities, drycleaners, electroplaters, manufactured gas plant (MGP) etc., for which the results of a subsurface investigation have been reviewed and a release was not identified;
- The current on-Site use of USTs regardless of the existence of tank tightness tests;
- The historic on-Site use of USTs without adequate closure documentation (including analytical data) and/or a “no further action” letter issued by the applicable state environmental agency;
- The current or historic on-Site presence of a generator of hazardous waste regardless of classification or lack of enforcement actions;
- The classification of the Site as a listed release or disposal site for which the applicable closure document [e.g., a Response Action Outcome (RAO) Statement, Permanent or Temporary Solution Statement (PSS or TSS)] has been submitted to the appropriate federal, state, or local environmental agency; or
- An off-Site issue of environmental concern that has a realistic probability of adversely impacting the value or environmental condition of the Site.

High Risk: Historic evidence indicating the current or former release of Hazardous Materials based on the following:

- Current or former environmentally egregious property uses such as gasoline stations, bulk petroleum storage facilities, drycleaners, electroplaters, MGP, etc., for which the results of a subsurface investigation have not been reviewed;
- Results of a subsurface investigation have been reviewed, a release was identified and the requisite notification to the appropriate federal, state, or local environmental agency was not provided;
- Results of a subsurface investigation have been reviewed, a release was not identified as of the date of the report and the results of any related analytical data would trigger a current reportable condition; or
- The classification of the Site as a listed release or disposal site for which the applicable closure document (e.g., an RAO Statement, PSS, or TSS) has not been submitted to the appropriate federal, state, or local environmental agency.

1952 Certified Sanborn Map

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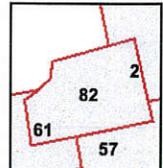
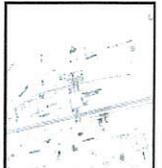
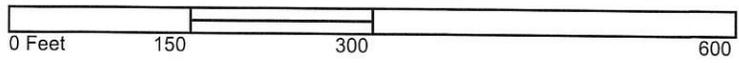


Certification # 294A-4221-B930
 SEDIMENT BASIN

Site Name: 900 Broadway Street
 Address: 900 Broadway Street
 City, ST, ZIP: Lowell MA 01854
 Client: Watermark Environmental, Inc.
 EDR Inquiry: 4522621.3
 Order Date: 1/28/2016 9:10:02 PM
 Certification #: 294A-4221-B930
 Copyright: 1952

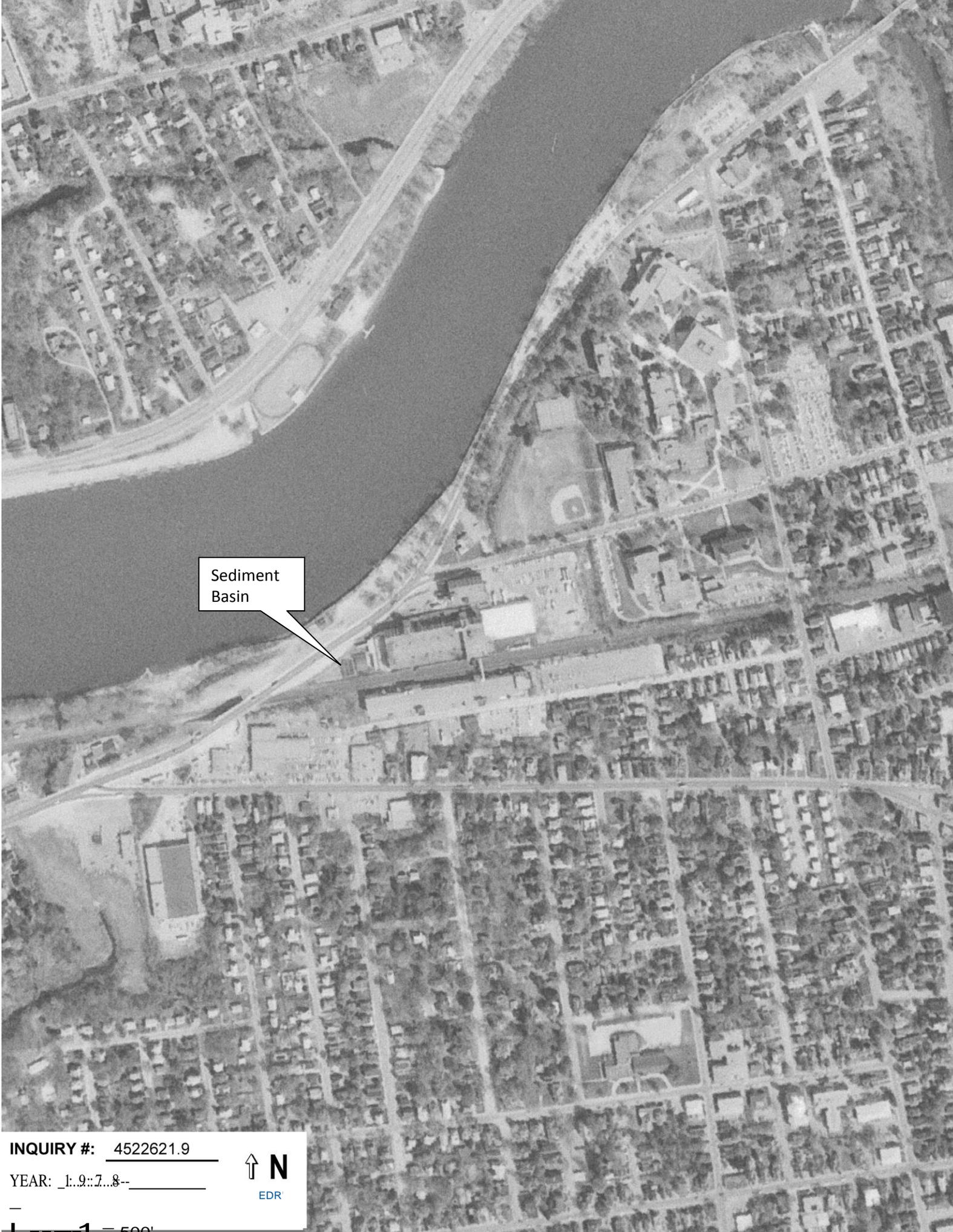


This Certified Sanborn Map combines the following sheets. Outlined areas indicate map sheets within the collection.



- Volume 1, Sheet 2
- Volume 1, Sheet 57
- Volume 1, Sheet 61
- Volume 1, Sheet 82





Sediment
Basin

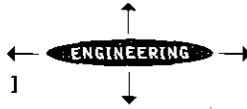
INQUIRY #: 4522621.9

YEAR: 1978



EDR

1 = 500'



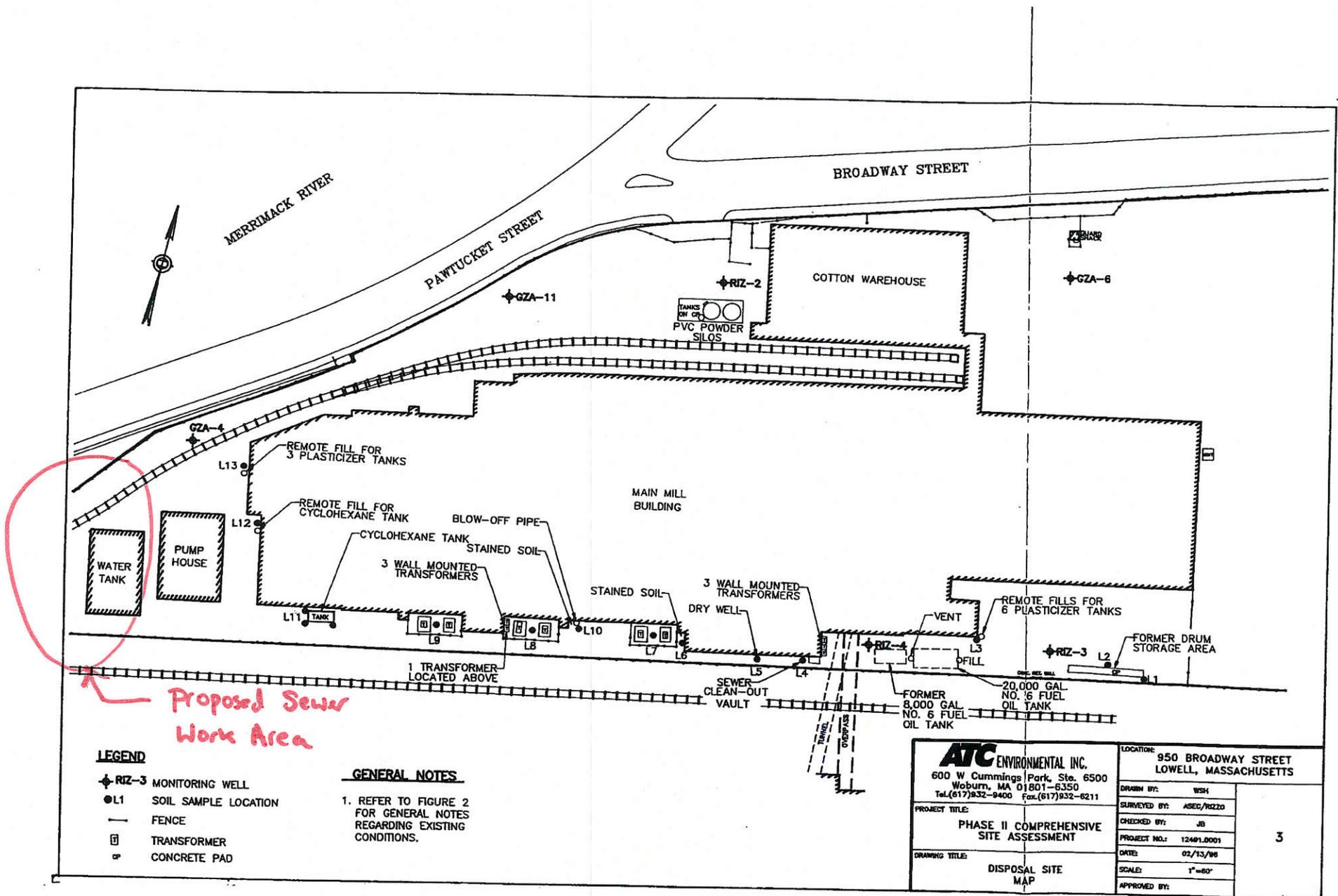
2.0 BACKGROUND

2.1 SITE DESCRIPTION

The Site locus map is attached as Figure 1. The Site plan is provided as Figure 2 and a MASS GIS plan is included as Figure 3. The latitude/longitude of the Site is 42° 37' 57" N and 71° 20' 22" W. The Universal Transverse Mercator (UTM) coordinates are 47/23 209M N and 3/08 243 E.

The Site is 7.4 acres in size and formerly housed a 73-year old mill building as well as several smaller buildings and sheds. The main building was a 3- and 4- story reinforced concrete structure approximately 650 feet long and 200 feet wide. This building was referred to as the main mill building. A second reinforced concrete structure north of the main mill was a former cotton warehouse. The warehouse was the same height as the mill; however, the warehouse was 7 stories because the ceilings in the building were low. A railroad spur was located between the main building and the cotton warehouse. A sedimentation basin and a pump house, formerly used to draw water from the Merrimack River, were located West of the mill. The river is located approximately 150 feet north of these structures. South of the main mill building was a narrow vegetated strip of property located between the building and the railroad right of way, which abuts the property. Within this narrow vegetated strip were out of service transformers, an above ground storage tank (AST), and underground storage tanks (USTs).

The Site currently has no buildings, is completely paved, and is used as a parking area for UMASS Lowell students and faculty. No institutions specified in 310 CMR 40.0483 (1)(a)(7), except the University, are located within 500 feet of the Site. University student housing is located greater than 500 feet from the Site. No natural resource areas, as described in 310 CMR 40.0483 (1)(a)(8), are located within 500 feet of the Site, except for the Merrimack River. Based on review of Massachusetts GIS maps, a reconnaissance of the area, and review of USGS topographic maps, none of the following natural resource areas are located within 500 feet of the Site, except the Merrimack River:



Proposed Sewer Work Area

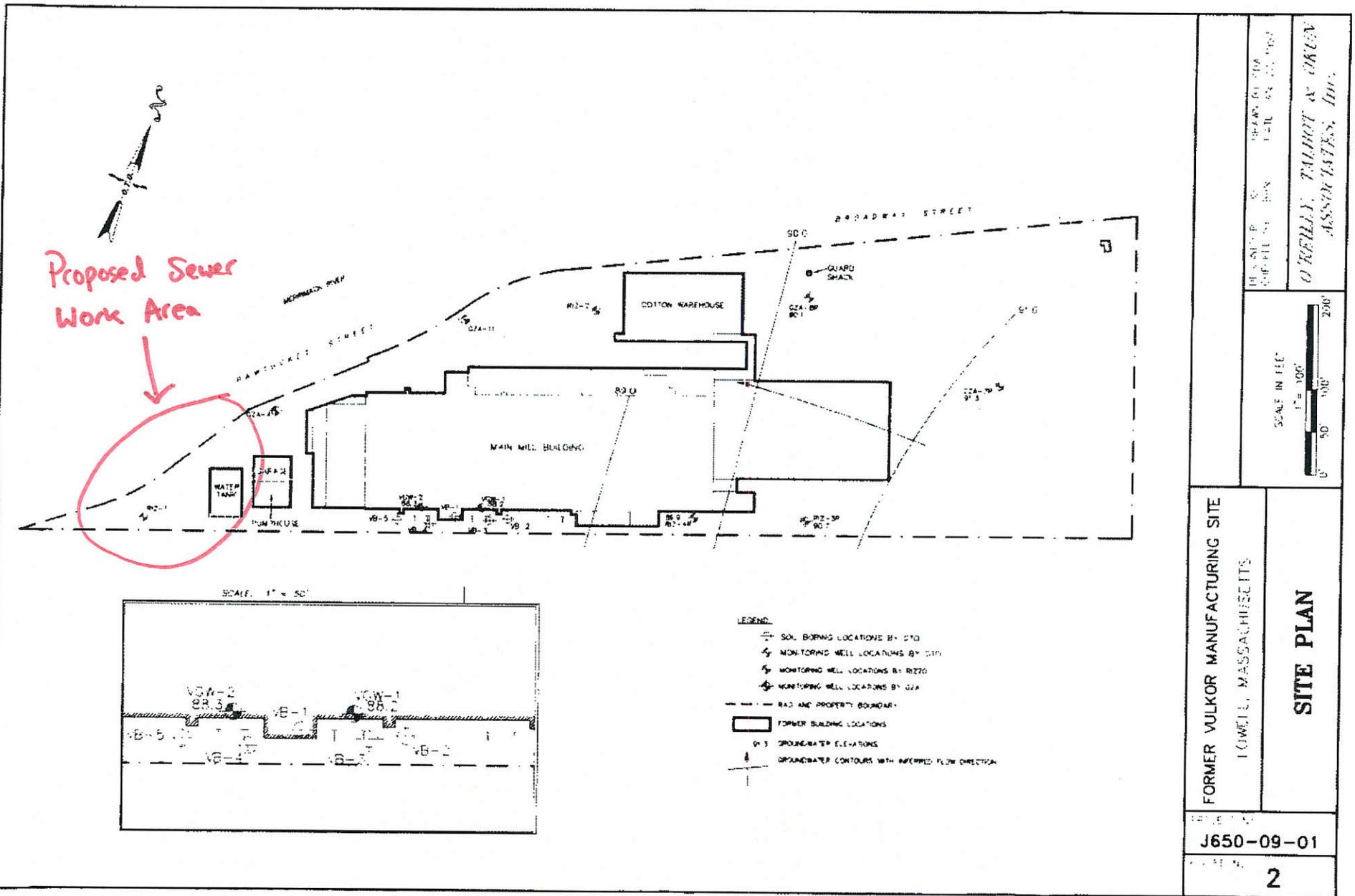
LEGEND

- ◆ RIZ-3 MONITORING WELL
- L1 SOIL SAMPLE LOCATION
- FENCE
- TRANSFORMER
- ▣ CONCRETE PAD

GENERAL NOTES

1. REFER TO FIGURE 2 FOR GENERAL NOTES REGARDING EXISTING CONDITIONS.

ATC ENVIRONMENTAL INC. 600 W Cummings Park, Ste. 6500 Woburn, MA 01801-6350 Tel. (617) 932-9400 Fax. (617) 932-6211		LOCATION: 950 BROADWAY STREET LOWELL, MASSACHUSETTS	
PROJECT TITLE: PHASE II COMPREHENSIVE SITE ASSESSMENT		DRAWN BY: WSH SURVEYED BY: ASGC/RJZ20 CHECKED BY: JB PROJECT NO.: 12491.0001 DATE: 02/13/96 SCALE: 1"=60' APPROVED BY:	
DRAWING TITLE: DISPOSAL SITE MAP		3	



Proposed Sewer Work Area

PREPARED BY O'NEILY, TULLOCH & O'NEIL ASSOCIATES, INC.	
SCALE IN FEET 1" = 100' 0' 50' 100' 200'	
FORMER VULKOR MANUFACTURING SITE LOWELL, MASSACHUSETTS	SITE PLAN
PROJECT NO. J650-09-01	
SHEET NO. 2	

LIMITATIONS

1. The Environmental Desktop Review discussed herein was performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with and subject to the Terms and Conditions for Consulting Engineering Services between Watermark Environmental, Inc. and the University of Massachusetts Lowell dated July 20, 2016. Any reliance on this Environmental Desktop Review by another third party is at such party's sole risk.
2. This Environmental Desktop Review addresses activities performed by Watermark between January 22, 2016 and February 5, 2016. Compliance of past or present owners or operators with any federal, state, or local laws and regulations was not verified.
3. Observations described herein were made under the conditions stated within this Environmental Desktop Review. The conclusions presented were based solely on the services described and not on scientific procedures which were beyond the scope of the contract or the budgetary and time constraints imposed by the client.
4. Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services.
5. Watermark renders no opinion as to the presence of hazardous substances and petroleum products outside the locations identified in the Environmental Desktop Review. Watermark reserves the right to modify the conclusions of this Environmental Desktop Review should further information become available. Hazardous materials not described in this Environmental Desktop Review are not part of the environmental review.
6. Certain information provided by others, as well as other parties herein referenced, was used to develop this Environmental Desktop Review. The accuracy or completeness of the information provided by these sources was not independently verified.
7. This Environmental Desktop Review and other materials resulting from Watermark's efforts on this project are not intended or represented to be suitable for reuse by the Client or others on extensions or modifications of this project or for any other projects or sites. Such reuse by the Client or others, without the adaptation of Watermark for the specific purpose intended, shall be at the user's sole risk, without liability on the part of Watermark.
8. Copies of this Environmental Desktop Review will not be provided to any other party unless approved by the Client or required by law.