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TRC Reference No.: 293334; PETRO; 200002

February 15, 2019

Mr. Anthony Pepe
US EPA Region 1
11 Technology Drive
North Chelmsford, MA 01863-2431

Subject: **Brownfields Program Quality Assurance Project Plan Addendum BRPC-E (Revision 0)**
Berkshire Regional Planning Commission
Old Dalton Hardwood
North Street, Dalton, Massachusetts

Dear Mr. Pepe:

On behalf of the Berkshire Regional Planning Commission (BRPC) and the Town of Dalton, please find attached the Quality Assurance Project Plan (QAPP) Addendum BRPC-E for the above-referenced property for your review and approval. This QAPP Addendum presents the proposed scope of work for Phase II Environmental Site Assessment (ESA) activities to address two Recognized Environmental Conditions (RECs) identified in TRC's Phase I ESA, dated November 2018, for the Old Dalton Hardwood property located on North Street in Dalton, Massachusetts ("Site"). This QAPP Addendum has been revised based upon EPA's comments received on February 12, 2019 and subsequent email correspondences on February 13-14, 2019.

Please note that TRC's updated Generic Brownfields QAPP (EPA RFA# 18047), dated August 2018, is referenced throughout this QAPP.

If you have any questions, please contact me at 978-656-3502.

Sincerely,

Thomas W. Biolsi, PG
Senior Project Manager

Enclosure

cc: Jim Byrne, EPA
Melissa Provencher, BRPC
Ken Walto, Town of Dalton
TRC File - 293334

Brownfields Program
Quality Assurance Project Plan

Addendum BRPC-E

Old Dalton Hardwood
North Street
Dalton, Massachusetts

For:
Berkshire Regional Planning Commission on behalf of the
Town of Dalton
462 Main Street
Dalton, MA 01226

Prepared By:

TRC Environmental Corporation
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

February 15, 2019

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FIGURES

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1.0 FORM A – TITLE AND APPROVAL PAGE

Document Title: Brownfields Program Quality Assurance Project Plan (QAPP) Addendum BRPC-E, Old Dalton Hardwood, North Street, Dalton, MA.

EPA QA RFA Number: _____
(TRC's Generic QAPP: EPA RFA# 18047)

Prepared By:
TRC Environmental Corp.
650 Suffolk Street
Lowell, MA 01854
Phone: (978) 970-5600

QAPP Date: 2/15/2019

QAPP Revision Number: 0

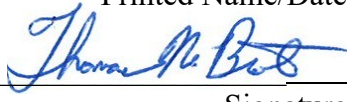
The signatures below indicate approval of this QAPP Addendum.

EPA QA Officer: _____
Signature

Anthony Pepe
Printed Name/Date

EPA Project Officer: _____
Signature

Jim Byrne
Printed Name/Date

TRC Project Manager: 
Signature

Thomas Biolsi 2/15/19
Printed Name/Date

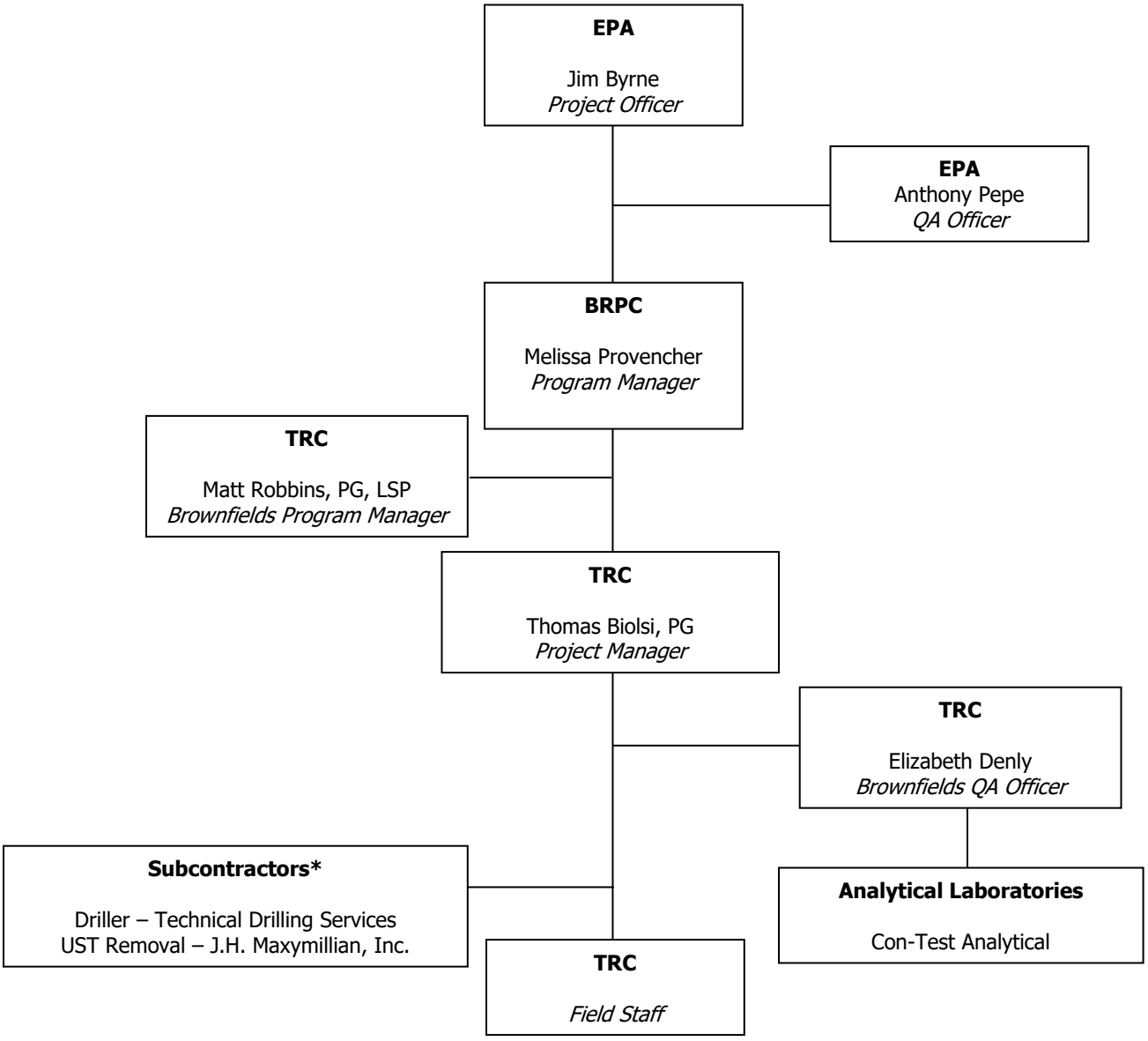
TRC Project QA Officer: 
Signature

Elizabeth Denly 2/15/19
Printed Name/Date

2.0 FORM B – PROJECT ORGANIZATION AND RESPONSIBILITY

2.1 Project Organization

The following chart presents the organizational structure for this program.



*Other qualified subcontractors may be substituted due to schedule availability or specific equipment requirements.

2.2 Project Responsibilities and Contact Information

Refer to TRC Environmental Corp.'s (TRC's) Generic Quality Assurance Project Plan (QAPP) (EPA RFA# 18047, August 2018) for a summary of project responsibilities and contact information for the EPA QA Officer, TRC Program Manager, TRC QA Officer, and the analytical laboratories. The laboratory selected for this program is Con-test Analytical Laboratory (Con-test). Contact information for the remaining team members (EPA Project Officer, Berkshire Regional Planning Commission [BRPC] Program Manager, TRC Project Manager, and other subcontractors) is provided below.

EPA Project Officer:

Contact Information:

Contact:	Jim Byrne
Address:	U.S. EPA Region 1
	5 Post Office Square, Suite 100
	Boston, MA 02109-3912
Phone:	(617) 918-1389
Email:	byrne.james@epa.gov

BRPC Program Manager:

Contact Information:

Contact:	Melissa Provencher
Address:	1 Fenn Street, Suite 201
	Pittsfield, MA 01201
Phone:	(413) 442-1521
Email:	mprovencher@berkshireplanning.org

TRC Project Manager:

Contact Information:

Contact:	Thomas Biolsi, PG
Address:	TRC Environmental Corp.
	650 Suffolk Street
	Lowell, MA 01854
Phone:	(978) 656-3502
Email:	tbiolsi@trcsolutions.com

Other Subcontractors:

Contact Information:

Contact: Kerry McGee
Address: Con-test Analytical Laboratory
40 Spruce Street
East Longmeadow, MA 01028
Phone: (413) 525-2332 ext. 18
Email: kerry.mcgee@contestlabs.com

Contact Information:

Contact: Peter Newsham
Address: Technical Drilling Services*
2 Peter Drive, P. O. Box 10
Sterling, MA 01564
Phone: (978) 422-0005
Email : pete@tecdrill.com

Contact Information:

Contact: Charles Riccardi
Address: J.H. Maxymillian, Inc.*
1801 East Street
Pittsfield, MA 01201
Phone: (413) 499-3050
Email : criccardi@maxymillian.com

Note:
*Other qualified subcontractors may be substituted due to schedule availability or specific equipment requirements.

3.0 FORM C – PROBLEM DEFINITION

3.1 Background

The Old Dalton Hardwood Site (the Site) is approximately 9.5 acres located on North Street (Map 215, Lot 13) in Dalton, Berkshire County, Massachusetts in a rural area with a few small commercial and residential structures in the area. The Site is described by the Town of Dalton tax assessor as Map 215, Lot 13, is zoned as R4 residential, and is currently owned by the Town of Dalton. The Site historically was used as a staging yard and saw mill from approximately 1950, "aka old Dalton Hardwood" until the mid-1990s when operation ceased and moved to an adjacent property to the east, just over the Town border to the Town of Windsor. The Site is currently vacant land with one garage structure in poor condition and a visible foundation of a former house.

The Site is bordered by North Street to the south, undeveloped land to the north and west, and the current Dalton Hardwood Company to the east in the Town of Windsor. The surface elevation of the Site is approximately 1,431 feet above mean sea level with local topography sloping steeply to the south/southeast. Shallow groundwater flow is presumed to the south-southeast toward Weston Brook. See Figure C-1 for a Site Location Map and Figure C-2 for a Site Plan.

3.2 Previous Investigations

A summary of previous investigations performed in 2018 at the Site is provided below. No known environmental investigations have been performed at the Site prior to 2018.

July 13, 2018, Release Log Form Attached BWSC-102B, prepared by Massachusetts Department of Environmental Protection (MassDEP)

According to this form, MassDEP was on Site to inspect the possible release of contamination. One building and remnants of other foundations were observed. The one building still standing appeared to have been used as a maintenance and repair garage. Several aboveground storage tanks (ASTs) and metal pipes were observed in the center of the Site. One of the on-Site personnel during the visit indicated the possibility of the Dalton Hardwood Company accepting tanks as scrap metal.

The Town commission previously had a few test pits excavated to determine the depth to bedrock and uncovered a car frame, crushed drums, and scrap metal. The location of the pits was approximately 400 feet north of the garage. No indication of petroleum contamination was observed during test pit excavation activities, which extended down to approximately 16 feet below ground surface (bgs). Within the garage, several containers sized 5 to 30 gallons were observed that contained lubricating oil and hydraulic oils. It was recommended that a Phase I/due diligence site assessment be conducted prior to development.

August 2, 2018, Letter RE: Dalton 1-20617 Former Dalton Hardwood Parcel 215-13: North Street (Route 9) M.G.L Ch. 21E, Prepared by MassDEP

According to the letter, MassDEP conducted a Site walk for the purposes of assisting the Town with redevelopment plans. The Site's historical industrial use was as a former saw mill (1950 until

1990). Observations included an out-of-use underground storage tank (UST) and staining from historical use of oils (hydraulic and lubricating oils). The letter provided regulations and requirements to follow if impacts to the subsurface are identified.

November 2018, Phase I ESA, Old Dalton Hardwood, North Street (Map 215, Lot 13), Dalton, MA, Prepared by TRC Environmental Corp.

TRC identified the following two RECs in connection with the Site.

- REC #1: Information was provided regarding oil sprayed on the dirt road for dust suppression during former Site operations. Although no oil was observed along the access road on the Site, the potential exists for oil contamination to be present along the dirt road that runs through the Site and/or under the existing pavement under the access road in the southern portion of the Site. This would constitute a REC by the potential presence of hazardous materials in the environment. Depending upon the duration, amount, and frequency of oil application, the REC may be associated with potential soil and/or groundwater contamination.
- REC #2: TRC observed a vent pipe along the southeast corner of the garage on the Site. TRC believes a UST may be present near this location, possibly located in front of the garage near the southeast corner of the building due to the lack of large trees in this area. No additional information was available that indicated the contents, size, or age of this suspected UST but TRC assumes the UST contained No. 2 fuel oil to heat the garage and possibly the former adjacent house and the UST is less than 1,000 gallons. The potential exists for the assumed contents of petroleum in the UST to have impacted the subsurface conditions at the Site, which would constitute a REC.

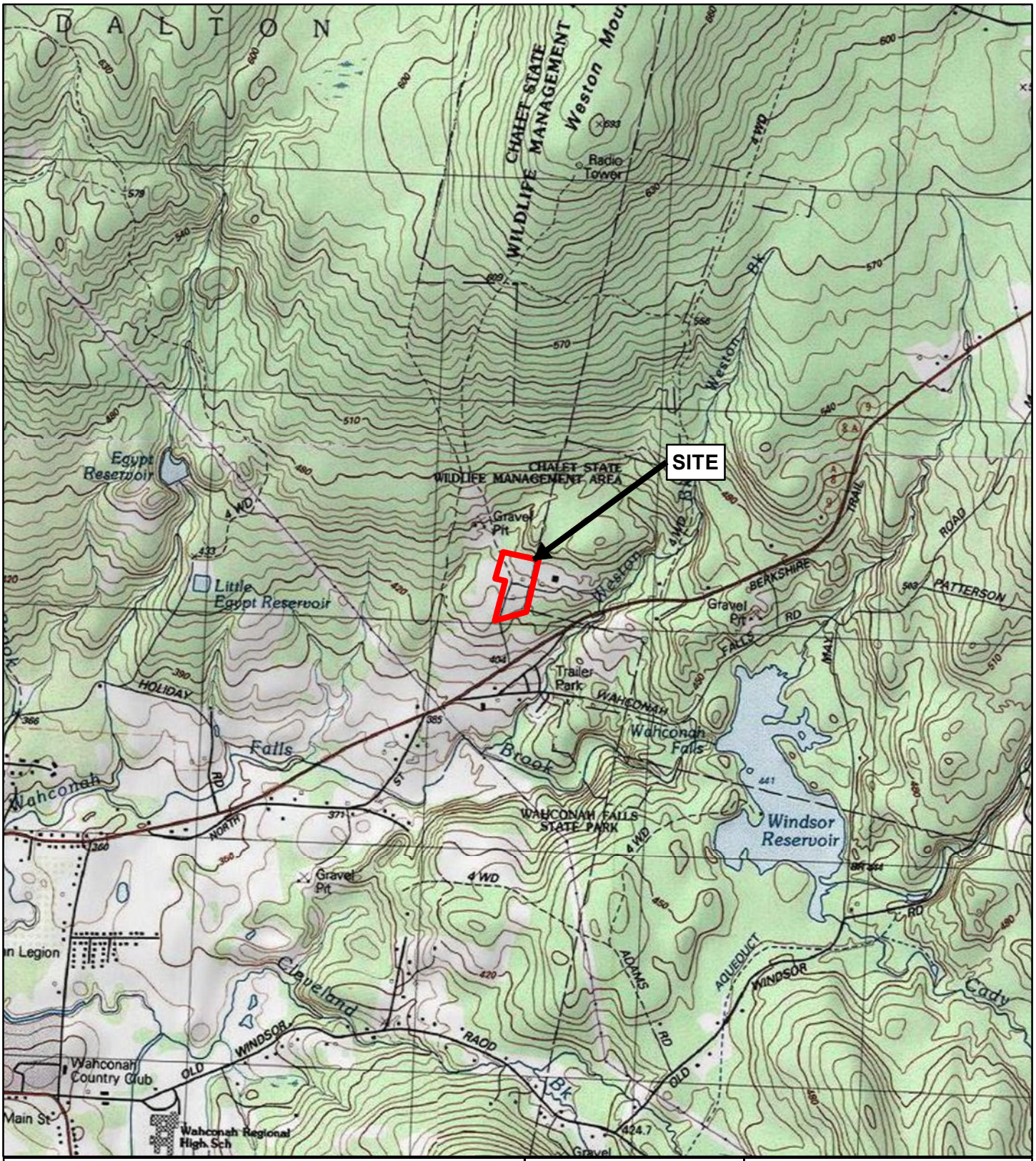
According to Mr.Glenn Lagerwall of the Massachusetts State Police and member of the North Mountain Advisory Committee, the Site only had ASTs on the property associated with the saw mill operations and no known USTs (except for one suspected UST near the southeastern corner of the garage). When the Town acquired the Site in 2014, numerous ASTs were discovered in the woods just beyond the northern Site boundary. The empty ASTs were pulled from the woods onto the Site to be cut up and transported off Site as scrap metal. The empty ASTs were reportedly brought to the woods just north of the Site in the 1980s from the development the Berkshire Crossing plaza.

Mr. Lagerwall also mentioned the excavation of several test pits dug at the Site in the summer of 2018 to investigate potential environmental concerns from the ASTs. Only visually clean sand was observed in the test pits down to approximately 16 feet bgs, except for a car frame, crushed empty drums, and scrap metal found in one test pit. Groundwater was encountered in one or more test pits around 16 feet. The sand was reported to have been brought on the Site from a local sand and gravel pit.

Based on information received from Mr. Lagerwall on February 13, 2019, he and people he has spoken with, including a former employee, Ernie Lampron, have no knowledge of oil being used as a dust suppressant anywhere on the Site. Mr. Lampron stated a water truck was used for dust

suppression. In light of this information, TRC concludes a miscommunication likely occurred during the Site visit in October 2018, and as a result, REC #1 is no longer considered a REC. However, as a conservative measure, soil sampling proposed along the dirt road through the Site (as described in later sections of this QAPP Addendum) will still be performed.

The Town desires to redevelop the site into a recreational park with baseball and/or soccer fields.



Site Boundary

N

0 2,000 Feet

Base Map: ESRI and afiliates

Massachusetts

Map Location

TRC
Results you can rely on

Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

SITE LOCATION MAP
OLD DALTON HARDWOOD SITE
MAP 215, LOT 13
DALTON,MA

FIGURE C-1	JAN. 2019

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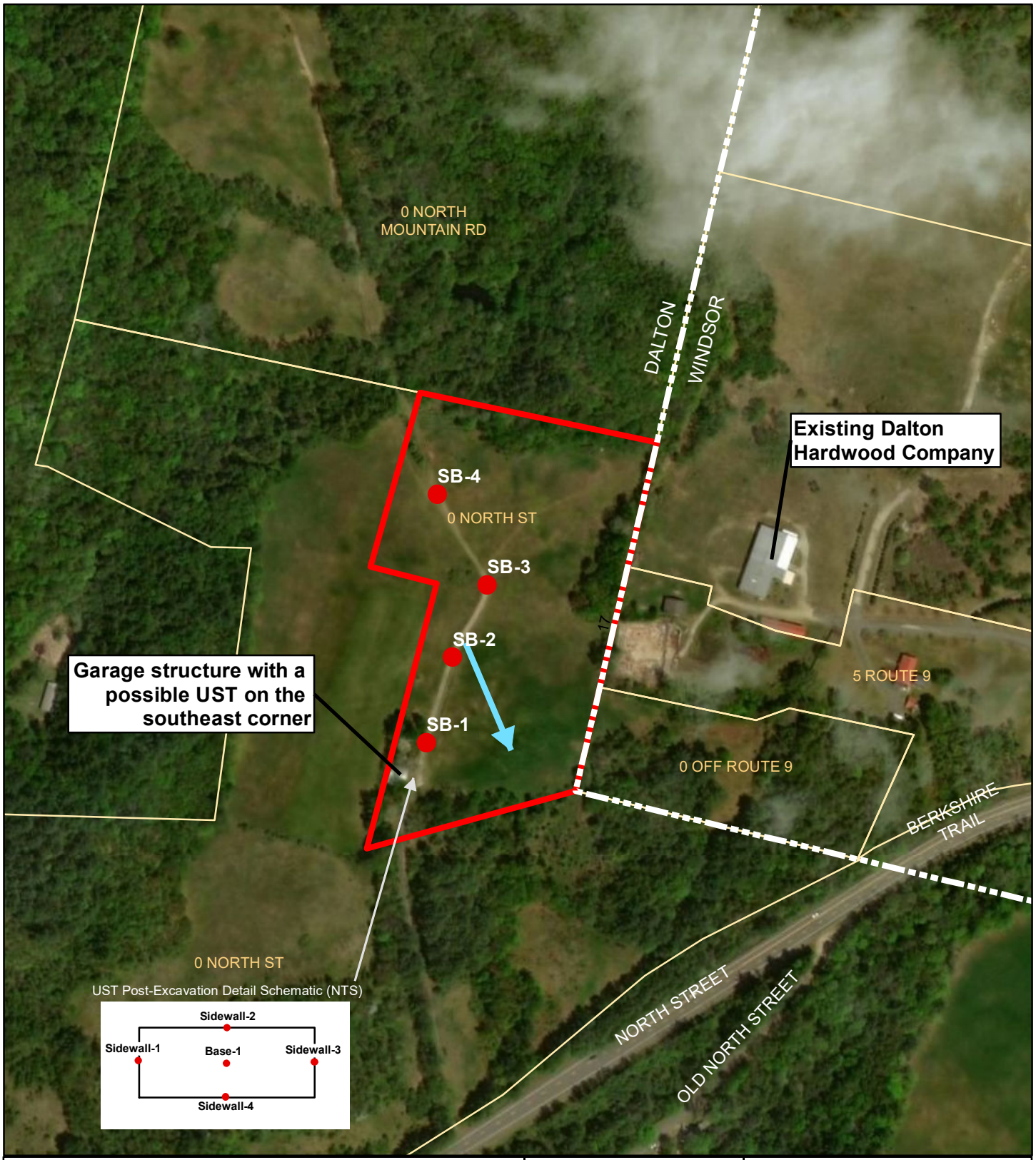

Proposed Soil Boring Location

Site Boundary

Approximate Direction of Groundwater Flow

Adjoining parcels

NTS - Not to scale

Base Map: ESRI and affiliates

0 300 Feet

N

Massachusetts

Map Location

TRC
Results you can rely on
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

SITE PLAN
FORMER DALTON HARDWOOD
MAP 215, LOT 13
DALTON,MA

FIGURE C-2 | JANUARY 2019

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4.0 FORM D PROJECT OBJECTIVES AND SCHEDULE

4.1 Project Objectives

The scope of work was initially developed to address the two RECs identified in TRC's November 2018 Phase I ESA. However, based upon recent information received in February 2019 indicating no oil was historically sprayed on the dirt roadways on the Site, REC #1 is no longer considered valid. The specific objectives of this investigation include the following:

1. Evaluate the surface soil quality along the access road through the Site as a conservative measure based upon the Town's intended reuse of the Site as a park.
2. Confirm the presence of one suspected UST near the southeastern corner of the garage. If present, remove, clean, and properly dispose the UST and collect confirmatory post-excavation soil samples.
3. Prepare a Phase II ESA report summarizing the findings and conclusions of the investigation and recommendations for additional work, if warranted.

4.1.1 *Preparation of a Site-Specific Health and Safety Plan*

Prior to conducting Site assessment activities, TRC will prepare a Site-Specific Health and Safety Plan (HASP) that identifies potential hazards that may be encountered during investigation activities. The HASP will detail the required personnel protective equipment and appropriate action limits for each hazard, as well as the proper protocol for monitoring and notification procedures. A copy of the HASP will be kept on-Site during investigation activities.

4.1.2 *Digsafe*

TRC will mark the Site and contact Digsafe and any non-member utilities for a subsurface utility clearance at least 72 hours before conducting drilling activities.

4.1.3 *Soil Boring Advancement and Surface Soil Sampling*

TRC will oversee the advancement of 4 shallow soil borings (SB-1 through SB-4) to 3 feet bgs along the dirt access road on the Site using direct push (Geoprobe®) drilling methods. TRC will field screen the soil column for volatile organic compounds (VOCs) using a photoionization detector (PID). One soil sample will be collected from each boring (4 samples total) at the depth exhibiting the greatest evidence of petroleum contamination through visual, olfactory, and/or elevated PID readings of the soil. Soil samples will be submitted for analysis of volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) (including target VPH and EPH compounds) and lead.

A summary of the soil sampling program is included in **Table E-1**. Proposed locations for the four soil borings are depicted on **Figure C-2** but may be adjusted based upon conditions encountered in the field, including underground utilities, or other field constraints.

4.1.4 *Test Pit Excavation, Underground Storage Tank Removal, and Confirmatory Post-Excavation Soil Sampling*

TRC will oversee the excavation of an exploratory test pit down to approximately 4 feet near the southeast corner of the garage to confirm or deny the presence of a suspected UST based on the presence of a vent pipe attached to the exterior southern wall of the garage. The excavated soils will be field screened for VOCs using a PID via the MassDEP jar headspace method.

If no UST is present and no contaminated soil is observed, the excavated soils will be backfilled in the excavation in the same order in which they were removed, compacted with the excavation equipment (e.g., backhoe or small excavator), and no soil samples will be collected for laboratory analysis.

If no UST is present but contaminated soil is suspected through visual, olfactory, and/or elevated PID readings of the soil, one soil sample (EX-1) will be collected at the location exhibiting the greatest evidence of petroleum contamination. The soil sample will be submitted for laboratory analysis of VPH and EPH (including VPH and EPH target compounds) and lead. The excavation will be lined with polyethylene sheeting with a minimum thickness of 6 one-thousandth of an inch (mils) and excavated soils will be backfilled in the excavation on top of the polyethylene sheeting in the order in which they were removed and compacted with the excavation equipment. TRC will subsequently discuss developing a scope of work for supplemental assessment for review and approval by BRPC, the Town, and EPA.

If a UST is present, TRC will oversee the excavation, removal, cleaning, and disposal of the UST at a licensed metal scrap yard. If soil contamination is observed, TRC will attempt to assess the magnitude of soil contamination by lightly scraping the area with the excavator bucket. If the soil contamination appears to be limited and visually clean soil is observed below the contamination, TRC will measure the approximate depth and thickness of contaminated soil along the sidewall(s). TRC will subsequently collect up to five post-excavation soil samples from the sidewalls (up to four, one from each sidewall; Sidewall-1 through Sidewall-4) and base (Base-1) of the UST grave for laboratory analysis of VPH and EPH (including VPH and EPH target compounds) and lead. The post-excavation soil samples submitted for laboratory analysis will be collected from contaminated areas, if present. TRC will also collect a soil sample below the observed contamination in an effort to evaluate the vertical extent of contamination by measuring the soil headspace using a PID via the MassDEP jar headspace method. Soil sample(s) collected below the observed contamination are not proposed to be submitted for laboratory analysis at this time as additional response actions will likely be warranted. The results will be used to determine the nature and extent of any potential releases associated with the UST.

Excavated soils will be stockpiled in a temporary stockpile storage area adjacent to the excavation on Site. The first lift of excavated soil will be placed on a minimum of 6-mil-thick polyethylene liner over the ground surface. Stockpiled materials will be securely covered during periods of prolonged inactivity with a minimum of 6-mil-thick polyethylene overlapped and weighted to form a continuous waterproof barrier over the material. The cover will be maintained throughout the stockpile period to control water entering the stockpiled materials and to limit dust generation.

Because the size of the potential UST is estimated at less than 1,000 gallons, the excavation is expected to be backfilled with the excavated soil on the same day as UST removal.

At the completion of UST removal activities, the excavation will be lined with polyethylene sheeting with a minimum thickness of 6 mils and excavated soils will be backfilled in the excavation on top of the polyethylene sheeting in the order in which they were removed, compacted with the excavation equipment. If no evidence of petroleum contamination was observed through visual, olfactory, and/or elevated PID readings of the excavated soil and of the sidewalls and base of the excavation prior to backfilling, lining the tank grave with polyethylene sheeting will not be necessary. Native soils will be supplemented with imported clean borrow material and compacted to grade. If petroleum-contaminated soil is observed during UST removal, TRC will discuss developing a scope of work for supplemental assessment for review and approval by BRPC, the Town, and EPA.

4.1.5 *GPS Survey*

The newly installed soil boring locations will be recorded in the field using a hand-held global positioning system (GPS) unit. The GPS data will be used to refine the locations of these sampling points on an aerial base map.

4.2 Project Deliverables

A Phase II ESA Report will be prepared that includes a summary of investigation activities, investigation findings including laboratory results, conclusions, and recommendations for additional work, if warranted. If petroleum contamination is identified in the soil above the Massachusetts Contingency Plan (MCP) Reportable Concentrations (RCs), TRC will notify BRPC and the Town to discuss the appropriate next steps to comply with the MCP.

4.3 Project Timeline

Activities	Project Start	Project End
QAPP Addendum Submission	12/18/18	1/9/19
EPA Approval*	1/21/19	2/22/19
Site Work/Testing**	3/4/19	3/29/19
Phase II ESA Report	3/29/19	4/12/19

* Due to the ongoing partial government shutdown that began on December 22, 2018, the commencement and duration of EPA's review of this QAPP Addendum is currently unknown. For the purposes of the estimated schedule, TRC has reflected an estimated end date of the partial government shutdown of January 18, 2019 and an estimated start date of EPA's review of this QAPP Addendum of January 21, 2019 – subject to change.
**Assumes laboratory turnaround time of 7 business days.

4.4 Regulatory Standards/Criteria

Results of the soil samples will be compared to the MCP RCs for S-1 soil and the Method 1 cleanup standards (S-1/GW-2, S-1/GW-3, S-2/GW-2, and S-2/GW-3 for soil) in an effort to evaluate potential remedial options, if necessary.

5.0 FORM E – SAMPLING DESIGN

The proposed sample locations, analyses to be performed, and rationale for sample locations are summarized in **Table E-1**. Proposed sample locations are depicted on **Figure C-2**. The locations of the soil borings may be adjusted based upon field conditions including utility locations, drilling refusal, or other field constraints.

5.1 Soil Boring Advancement and Surface Soil Sampling

Soil samples will be collected continuously to an anticipated maximum depth of 3 feet bgs during advancement of the four proposed soil borings (SB-1 through SB-4) at the approximate locations shown on **Figure C-2**.

Prior to sample collection, each soil sample will be evaluated for physical characteristics and inspected for visual and/or olfactory evidence of contamination. Soil samples from for VPH analysis will be immediately and carefully placed (in a manner to minimize volatilization) in preserved vials upon collection, then immediately placed on ice. Soil selected for non-volatile analyses (EPH and lead) will be placed into stainless steel bowls using stainless steel spoons (all equipment to be decontaminated properly prior to use) and subsequently homogenized. These homogenized samples will be transferred to appropriate sample containers with a stainless-steel spoon for each depth interval, and immediately placed on ice in a cooler.

Samples will be screened in the field for the presence of VOCs using a PID via the MassDEP jar headspace method. Soils for headspace screening will be transferred for each depth interval into glass jars ($\geq$ 8 ounces) and capped with foil followed by a screw-on lid. After at least 10 minutes, soil headspace readings will be obtained by removing the sample caps from each jar and inserting a PID or equivalent through the foil to measure the organic vapor concentration in the headspace. All soil headspace readings will be recorded.

Soils (excess sample volume, drill cuttings, etc.) will be returned to their place of origin (either placed inside the boreholes or dispersed near the borehole location). PID screening values more than 100 parts per million by volume (ppmv) and other observations (e.g., odor, feel, presence of sheen, or other indication of contamination) will be used to evaluate if residuals require further handling and disposal (e.g., off-Site disposal as hazardous or non-hazardous waste) by the responsible party.

The work area breathing zone will be screened and monitored for airborne VOC concentrations using a PID for health and safety purposes.

5.2 Post-Excavation Soil Sampling

Post-excavation soil samples (Sidewall-1 through Sidewall-4 and Base-1), if a UST is present, and sample EX-1, if no UST is present, will likely be collected from the excavator bucket as it likely will be unsafe to enter the excavation based upon its anticipated depth of at least 4 feet bgs. The top 6 inches of soil will be removed prior to sampling to minimize potential influences from the metal of the excavator bucket. Soil samples will be screened in the field for the presence of VOCs

using a PID and the MassDEP jar headspace method. Samples collected for VPH analysis will be collected using a disposable cut-off syringe, or an equivalent method. The samples for VPH analysis will be immediately and carefully placed (in a manner to minimize volatilization) into preserved vials upon collection, then immediately placed on ice. Upon collecting the sample for EPH and lead analysis, the sample will be placed into a stainless-steel bowl using a stainless-steel spoon (all equipment will be decontaminated properly prior to use). The sample will be homogenized prior to filling the sample containers by mixing the sample within the bowl using a stainless-steel spoon. The homogenized samples will be transferred to the appropriate containers with a stainless-steel spoon and immediately placed on ice in a cooler.

In the event an excavation is deemed safe to enter (i.e., less than 4 feet deep in cohesive soils), samples collected for VPH analysis will be collected from the sidewalls and bases of the tank grave using a disposable cut-off syringe or an equivalent method. The samples for VPH analysis will be immediately and carefully placed (in a manner to minimize volatilization) into preserved vials upon collection, then immediately placed on ice. Soil samples for EPH and lead analysis will be collected from the sidewalls and bases of the tank grave using a stainless-steel shovel, scoop, hand auger, or tube auger. The sample will be homogenized prior to filling the sample containers by mixing the sample within the bowl using a stainless-steel spoon (all equipment to be decontaminated properly prior to use). The homogenized samples will be transferred to the appropriate containers with a stainless-steel spoon and immediately placed on ice in a cooler.

If soil contamination is observed in the tank grave during UST removal, contaminated soil may be excavated and stockpiled on polyethylene sheeting to facilitate the removal of the UST and/or associated piping. If soil contamination is observed, TRC will attempt to assess the magnitude of soil contamination by lightly scraping the area with the excavator bucket. If the soil contamination appears to be limited and visually clean soil is observed below the contamination, TRC will measure the approximate depth and thickness of contaminated soil along the sidewall(s) and collect a soil sample below the observed contamination in an effort to evaluate the vertical extent of contamination by measuring the soil headspace using a PID via the MassDEP jar headspace method. This scenario would suggest that the petroleum contaminants had limited vertical movement and are unlikely to reach the water table (unless already encountered). Therefore, assessment of groundwater would not be necessary (i.e., the drilling and sampling of monitoring wells) under this scenario. If, however, the extent of soil contamination appears to be more extensive, future evaluation of soil and groundwater will likely be warranted and will be addressed through the preparation of a QAPP Modification.

5.3 Completeness

Field completeness, which measures the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected, will have an objective of greater than 90 percent. Laboratory completeness, which measures the amount of valid measurements obtained from all valid samples submitted to the laboratory, will have an objective of greater than 95 percent.

Table E-1: Proposed Soil Sampling Program
Old Dalton Hardwood – Dalton, Massachusetts

Sample ID	Description	Target Soil Sample Depth Interval*	Analyses	Rationale/Notes
Proposed Surficial Soil Sample				
SB-1 to SB-4	Proposed surface soil samples	0-3 feet bgs	EPH and VPH (plus target compounds) and lead	• To evaluate shallow surface soil quality along the access road on the Site as a conservative measure based upon the Town's proposed reuse of the Site as a park.
Proposed Test Pit Soil Sample (if no UST is Present)				
EX-1	Proposed post-excavation soil sample if no UST is present	Depth interval exhibiting greatest evidence of petroleum contamination	EPH and VPH (plus target compounds) and lead	• This sample will only be collected if no UST is present during exploratory test pit excavation activities AND if evidence of petroleum-contaminated soil is present based on visual, olfactory, or elevated PID readings of the soil.
Proposed Post-Excavation Soil Samples (if a UST is present)				
Sidewall-1 through Sidewall-4	Proposed post-excavation sidewall soil sample	>3 feet bgs	EPH and VPH (plus target compounds) and lead	• Assess the soil quality along the four sidewalls of the UST grave immediately after UST removal.
Base-1	Proposed post-excavation base soil sample	>3 feet bgs	EPH and VPH (plus target compounds) and lead	• Assess the soil quality at the bottom of the UST grave immediately after UST removal.

Notes:
bgs – below ground surface
EPH – Extractable petroleum hydrocarbons (including target compounds)
VPH – Volatile petroleum hydrocarbons (including target compounds)
UST – Underground storage tank

*Actual soil boring locations may be adjusted based upon field conditions. Target depth intervals are to be used as a field guide; actual sample depths may vary based on field screening, visual observations, and/or physical constraints at each location.

6.0 FORM F – SAMPLING AND ANALYTICAL METHODS REQUIREMENTS

Table F-1: Sampling and QA Summary

Old Dalton Hardwood – Dalton, Massachusetts

Field Sample Matrix	Parameter	Sample Type(A)	Estimated Number of Samples	Preparation/ Analytical Method References	SOP Reference No.(B)	MassDEP CAM No.	Sample Preservation	Holding Time from Collection	Container
Soil	EPH	Field Sample and Field Duplicate	4 to 9 samples and 1 FD	MassDEP Method (May 2004) Rev. 1	Prep: 4a Analysis: 10a (Lab: Con-test)	WSC-CAM-IVB	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	One 4-ounce (oz.) amber glass jar with Teflon-lined cap
Soil	VPH	Field Sample, Field Duplicate, and Trip Blank	4 to 9 samples, 1 FD, and 1 Trip Blank	MassDEP Method (February 2018) Rev. 2.1	Prep and analysis: 9a (Lab: Con-test)	WSC-CAM-IVA	Methanol-preserved in the field and cool to 4°C (Soil/Methanol ratio: 1:1)	28 days to analysis	Two 40-ml methanol-preserved VOA vials(C)
Soil	Lead	Field Sample, Field Duplicate, and MS/DUP	4 to 9 samples, 1 FD, and 1 MS/DUP	SW-846 Method 3050B/6010C	Prep: 14a Analysis: 17a (Lab: Con-test)	WSC-CAM-IIIA	Cool to 4°C	180 days to analysis	One 8-oz. polyethylene/ glass bottle and cap

(A) FD = Field Duplicate; MS/DUP = Matrix Spike/Duplicate
(B) SOP Reference No. from Section 7.2 of TRC's Generic QAPP (EPA RFA# 18047)
(C) Percent solids analysis performed from associated EPH sample.

CAM – Compendium of analytical methods
EPH – Extractable petroleum hydrocarbons
VOA – Volatile organic analysis
VPH – Volatile petroleum hydrocarbons

7.0 FORM G – METHOD AND SOP REFERENCE TABLES

7.1 Field SOP References

Standard Operating Procedures (SOPs) that will be used during this investigation are listed below. Refer to Attachment A of TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a copy of these SOPs listed below.

Table G-1: Field SOPs

SOP #	SOP Title	Revision #	Date of SOP
RMD 001	Field Activity Documentation for Environmental Investigations	0	January 2013
RMD 002	Chain-of-Custody Procedures	0	March 2013
ECR 003	Soil Sampling	1	November 2016
RMD 005	Visual-Manual Procedure for Soil Description and Identification	0	September 2013
ECR 010	Equipment Decontamination	1	December 2016
RMD 012	Test Pit Investigations	0	November 2014
RMD 014	Headspace Field Screening	0	April 2015
ECR 023	Packaging and Shipping of Non-Hazardous Environmental Samples	0	January 2018

7.2 Laboratory Method and SOP References

Refer to TRC's Generic QAPP (EPA RFA# 18047, August 2018) for a list of the methods and SOPs used by the analytical laboratory. A full copy of the laboratory's SOPs is included as Attachment C of the Generic QAPP. **Table F-1** clarifies which SOPs are being used for this program. These methods and SOPs are also summarized below in **Table G-2**.

Table G-2: Preparatory and Analytical Method References

Preparatory and Analytical Method References:	Prep	Analysis	Con-Test SOP	Associated Preparatory Method
4a. USEPA. Microwave Extraction. SW846 Method 3546, Revision 0. February 2007.	X		*Method 3546, Microwave Extractions Procedure*, 01/23/18, Revision 5	10a

Table G-2: Preparatory and Analytical Method References

Preparatory and Analytical Method References:		Prep	Analysis	Con-Test SOP	Associated Preparatory Method
9a.	MassDEP. Method for the Determination of Volatile Petroleum Hydrocarbons (VPH) by Gas Chromatography/Photoionization Detector/Flame Ionization Detector. Revision 2.1, February 2018.	X	X	*Volatile Petroleum Hydrocarbons (VPH) (Mass DEP VPH Method by GC/PID/FID)*, 5/22/18, Revision 9	NA
10a.	MassDEP. Method for the Determination of Extractable Petroleum Hydrocarbons (EPH). Revision 1.0, May 2004.		X	*Analytical Analysis of Extractable Petroleum Hydrocarbons, MA EPH & NJ EPH by GC/FID*, 08/11/2016, Revision 7	NA
14a.	USEPA. Acid Digestion of Sediments, Sludges, and Soils. SW846 Method 3050B, Revision 2. December 1996.	X		*Acid Digestion of Solid Materials, EPA SW846 Method 3050B*, 01/18/2018, Revision 10	17a
17a.	USEPA. Inductively Coupled Plasma-Atomic Emission Spectrometry. SW846 Method 6010C, Revision 3. February 2007.		X	*ICP Inductively Coupled Plasma Optical Emission Spectroscopy 6010C/6010D, Non Potables & Solids*, 01/18/2018, Revision 16	NA

8.0 FORM H – FIELD EQUIPMENT CALIBRATION AND CORRECTIVE ACTION

Calibration procedures, frequency of calibration, calibration acceptance criteria, and corrective actions are provided in TRC SOPs. The following field equipment will be used for this Site investigation:

- **PID:** Refer to RMD 014.
- **GPS Unit:** Refer to Section 8.0 of TRC's Generic QAPP.

9.0 FORM I – LABORATORY EQUIPMENT CALIBRATION AND CORRECTIVE ACTION

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a list of the calibration requirements for the analytical methods used by the analytical laboratory during this investigation.

10.0 FORM J – SAMPLE HANDLING AND CUSTODY REQUIREMENTS

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for routine procedures that will be followed in preparing field samples for transport to the laboratory.

11.0 FORM K – ANALYTICAL SENSITIVITY AND PROJECT CRITERIA

All laboratory analyses will be performed by Con-Test Analytical Laboratories of East Longmeadow, Massachusetts. A copy of laboratory SOPs was provided as Attachment C of TRC's Generic QAPP (EPA RFA# 18047; August 2018).

A summary of the reporting limits (RLs) and project action levels for this program is provided in the table below (**Table K-Soil**). As of the date of this Site-specific QAPP Addendum, the current regulatory screening criteria have been incorporated into each table, and RLs and the stated regulatory screening criteria have been reviewed for accuracy.

Table K-Soil:
Summary of Target Analytes, RLs, and Project Action Levels
Old Dalton Hardwood – Dalton, Massachusetts

Analysis	Analyte	RLs	RCS-1	MCP Method 1 Standards			
				S-1/ GW-2	S-1/ GW-3	S-2/ GW-2	S-2/ GW-3
VPH (mg/kg)	C5-C8 Aliphatics	10	100	100	100	500	500
	C9-C12 Aliphatics	10	1,000	1,000	1,000	3,000	3,000
	C9-C10 Aromatics	10	100	100	100	500	500
	Benzene	0.050	2	40	40	200	200
	Ethylbenzene	0.050	40	500	500	1,000	1,000
	MTBE	0.050	0.1	100	100	100	500
	Naphthalene	0.25	4	20	500	20	1,000
	Toluene	0.050	30	500	500	1,000	1,000
	m/p-Xylene	0.10	100(1)	100(1)	500(1)	100(1)	1,000(1)
	o-Xylene	0.050	100(1)	100(1)	500(1)	100(1)	1,000(1)
EPH (mg/kg)	C9-C18 Aliphatics	10	1,000	1,000	1,000	3,000	3,000
	C19-C36 Aliphatics	10	3,000	3,000	3,000	5,000	5,000
	C11-C22 Aromatics	10	1,000	1,000	1,000	3,000	3,000
	Acenaphthene	0.10	4	1,000	1,000	3,000	3,000
	Acenaphthylene	0.10	1	600	10	600	10
	Anthracene	0.10	1,000	1,000	1,000	3,000	3,000
	Benzo(a)anthracene	0.10	7	7	7	40	40
	Benzo(a)pyrene	0.10	2	2	2	7	7
	Benzo(b)fluoranthene	0.10	7	7	7	40	40
	Benzo(g,h,i)perylene	0.10	1,000	1,000	1,000	3,000	3,000
	Benzo(k)fluoranthene	0.10	70	70	70	400	400
	Chrysene	0.10	70	70	70	400	400
	Dibenz(a,h)anthracene	0.10	0.7	0.7	0.7	4	4
	Fluoranthene	0.10	1,000	1,000	1,000	3,000	3,000
	Fluorene	0.10	1,000	1,000	1,000	3,000	3,000
	Indeno(1,2,3cd)pyrene	0.10	7	7	7	40	40
	2-Methylnaphthalene	0.10	0.7	80	300	80	500
	Naphthalene	0.10	4	20	500	20	1,000
	Phenanthrene	0.10	10	500	500	1,000	1,000
	Pyrene	0.10	1,000	1,000	1,000	3,000	3,000
Metals, total (mg/kg)	Lead	0.75	200	200	200	600	600

Notes:

mg/kg - milligrams per kilogram or parts per million (ppm)

EPH - Extractable petroleum hydrocarbons

MTBE – Methyl-tert butyl ether

RC – Reportable concentration

RLs - Reporting limits

VPH – Volatile petroleum hydrocarbons

(1) - Criteria applicable to xylene (total), the sum of the xylene isomers

12.0 FORM L - FIELD QUALITY CONTROL REQUIREMENTS

Refer to TRC's Generic QAPP (EPA RFA# 18047 August 2018) for a summary of the typical field QC samples. Specific field QC samples planned for this investigation are included in **Table F-1**.

13.0 FORM M - LABORATORY QUALITY CONTROL REQUIREMENTS

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a summary of the laboratory QC requirements for the analytical methods being used by the analytical laboratory during this investigation.

14.0 FORM N - DATA MANAGEMENT AND DOCUMENTATION

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a summary of how project data and information will be documented, tracked, and managed within their generation in the field to final use and stored to ensure data integrity and defensibility.

15.0 FORM O - ASSESSMENT AND RESPONSE ACTIONS

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a summary of the assessment and response actions that may be performed.

16.0 FORM P – PROJECT REPORTS

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a summary of the typical components of the final project report, the report frequency, and the report distribution.

For this program, the final deliverable will be a Phase II ESA Report that includes a summary of investigation activities, investigation findings including laboratory results, conclusions, and recommendations for additional work, if warranted.

17.0 FORM Q - FIELD DATA EVALUATION

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a summary of the field data evaluation procedures.

18.0 FORM R - LABORATORY DATA EVALUATION

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a summary of the laboratory data evaluation procedures.

19.0 FORM S - DATA USABILITY AND PROJECT EVALUATION

Refer to TRC's Generic QAPP (EPA RFA# 18047; August 2018) for a summary of the data usability evaluation procedures.