



November 22, 2004

3650040007

Mr. Kyle MacAfee
Bureau of Waste Site Cleanup
Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108

**Subject: Construction Release Abatement Measures Plan for the Property Located at
2472-2484 Massachusetts Avenue
Cambridge, MA
RTN 3-00013232**

Dear Mr. MacAfee:

On behalf of the current owner of the property, VLW Realty Trust of Cambridge, Massachusetts, MACTEC Engineering and Consulting (MACTEC) is enclosing herein a copy of a Construction Release Abatement Measures (RAM) Plan for the subject property formerly known as the Former Mass. Avenue Firestone Store and Gasoline Station. The purpose of this submittal is to provide documentation of a focused site characterization and focused risk assessment relative to the construction and operation of a commercial building constructed on grade at the property as part of the on-going redevelopment actions. This submittal utilizes the RAM as a regulatory vehicle to provide the results of the assessment and risk characterization conducted pursuant to the Bureau of Waste Site Cleanup Policy on Construction of Buildings in Contaminated Areas. The results of this work demonstrate that a condition of no significant risk exists for the construction and operation of a commercial building, in this case a restaurant, at the subject property.

If there are any questions regarding this information, please do not hesitate to contact me.

Sincerely,
MACTEC ENGINEERING AND CONSULTING

A handwritten signature in black ink, appearing to read "Robert Nicoloro".

Robert Nicoloro, LSP
Senior Project Manager

CC: B. Woolkalis

Enclosure: Construction Release Abatement Measure Plan

[P:\W2-mfg\Best Gas Cambridge\Reports\construction ram transfer letter.doc]

CONSTRUCTION RELEASE ABATEMENT MEASURE PLAN

**CONSTRUCTION OF A COMMERCIAL BUILDING AT
2472-2484 MASSACHUSETTS AVENUE
CAMBRIDGE, MASSACHUSETTS
RTN 3-0013232**

NOVEMBER 2004



**RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM**

Release Tracking Number

3.0 - 13232

Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

A. SITE LOCATION:

1. Site Name/Location Aid: Former Mass Avenue Firestone Store and Gasoline Station

2. Street Address: 2472-2484 Massachusetts Avenue

3. City/Town: Cambridge 4. ZIP Code: 02139-0000

5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.

- a. Tier IA
- b. Tier IB
- c. Tier IC
- d. Tier II

6. If a Tier I Permit has been issued, provide Permit Number: _____

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of Initial RAM Written Plan (if previously submitted): _____
(mm/dd/yyyy)

2. Submit an **Initial Release Abatement Measure (RAM) Plan**.

a. Check here if this RAM Plan received previous oral approval from DEP as a continuation of a Limited Removal Action (LRA).

b. List Date of Oral Approval: _____
(mm/dd/yyyy)

3. Submit a **Modified RAM Plan** of a previously submitted written RAM Plan.

4. Submit a **RAM Status Report**.

5. Submit a **RAM Completion Statement**.

6. Submit a **Revised RAM Completion Statement**.

7. Provide Additional RTNs:

a. Check here if this RAM Submittal covers additional Release Tracking Numbers (RTNs). RTNs that have been previously linked to a Primary Tier Classified RTN do not need to be listed here. This section is intended to allow a RAM to cover more than one unclassified RTN and not show permanent linkage to a Primary Tier Classified RTN.

b. Provide the additional Release Tracking Number(s) covered by this RAM Submittal. - -

(All sections of this transmittal form must be filled out unless otherwise noted above)



RELEASE ABATEMENT MEASURE (RAM)
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Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT RAM:

1. Identify Media Impacted and Receptors Affected: (check all that apply)

- a. Air b. Basement c. Critical Exposure Pathway d. Groundwater e. Residence
- f. Paved Surface g. Private Well h. Public Water Supply i. School j. Sediments
- k. Soil l. Storm Drain m. Surface Water n. Unknown o. Wetland p. Zone 2
- q. Others Specify: _____

2. Identify all sources of the Release or Threat of Release, if known: (check all that apply)

- a. Above-ground Storage Tank (AST) b. Boat/Vessel c. Drums d. Fuel Tank
- e. Pipe/Hose/Line f. Tanker Truck g. Transformer h. Under-ground Storage Tank (UST)
- i. Vehicle j. Others Specify: _____

3. Identify Oils and Hazardous Materials Released: (check all that apply)

- a. Oils b. Chlorinated Solvents c. Heavy Metals
- d. Others Specify: Gasoline residuals

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply, for volumes list cumulative amounts)

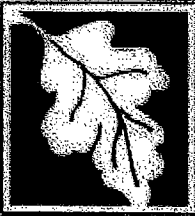
- 1. Assessment and/or Monitoring Only
- 2. Temporary Covers or Caps
- 3. Deployment of Absorbent or Containment Materials
- 4. Temporary Water Supplies
- 5. Structure Venting System
- 6. Temporary Evacuation or Relocation of Residents
- 7. Product or NAPL Recovery
- 8. Fencing and Sign Posting
- 9. Groundwater Treatment Systems
- 10. Soil Vapor Extraction
- 11. Bioremediation
- 12. Air Sparging
- 13. Excavation of Contaminated Soils

- a. Re-use, Recycling or Treatment i. On Site Estimated volume in cubic yards _____
- ii. Off Site Estimated volume in cubic yards <1,500 cy + < 20%

ii.a. Receiving Facility: American Reclamation Town: Chalton State: MA

ii.b. Receiving Facility: _____ Town: _____ State: _____

iii. Describe: _____



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Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

D. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply, for volumes list cumulative amounts)

- b. Store i. On Site Estimated volume in cubic yards _____
 ii. Off Site Estimated volume in cubic yards _____

 ia. Receiving Facility: _____ Town: _____ State: _____

 iib. Receiving Facility: _____ Town: _____ State: _____

- c. Landfill

i. Cover Estimated volume in cubic yards _____

 Receiving Facility: _____ Town: _____ State: _____

ii. Disposal Estimated volume in cubic yards _____

 Receiving Facility: _____ Town: _____ State: _____

14. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: _____

b. Receiving Facility: _____ Town: _____ State: _____

c. Receiving Facility: _____ Town: _____ State: _____

15. Removal of Other Contaminated Media:

a. Specify Type and Volume: _____

b. Receiving Facility: _____ Town: _____ State: _____

c. Receiving Facility: _____ Town: _____ State: _____

16. Other Response Actions:

Describe: Construction RAM - Movement, placement of on-site soils during construction; off site disposal of soils due to contamination or excess materials.

17. Use of Innovative Technologies:

Describe: _____



RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM

Release Tracking Number

3.0 - 13232

Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

E. LSP SIGNATURE AND STAMP :

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that a **Release Abatement Measure Plan** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that a **Release Abatement Measure Status Report** is being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

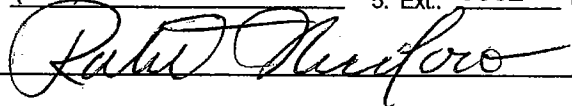
> if Section B of this form indicates that a **Release Abatement Measure Completion Statement** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 4290

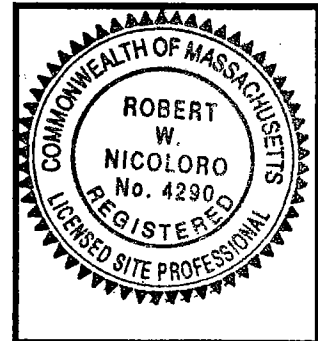
2. First Name: Robert 3. Last Name: Nicoloro

4. Telephone: (781) 245-6606 5. Ext.: 5632 6. FAX: (780) 246-5060

7. Signature: 

8. Date: 11/19/2004
(mm/dd/yyyy)

9. LSP Stamp:





RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM

Release Tracking Number

3.0 - 13232

Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

F. PERSON UNDERTAKING RAM:

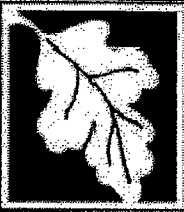
1. Check all that apply: a. change in contact name b. change of address c. change in the person undertaking response actions
2. Name of Organization: VLW Realty Trust
3. Contact First Name: Brandon 4. Last Name: Woolkalis
5. Street: 10 Chatham Street 6. Title: _____
7. City/Town: Cambridge 8. State: MA 9. ZIP Code: 02139-1605
10. Telephone: (617) 216-2000 11. Ext.: _____ 12. FAX: (617) 497-1285

G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING RAM:

1. RP or PRP a. Owner b. Operator c. Generator d. Transporter
 e. Other RP or PRP Specify: _____
2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)
3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))
4. Any Other Person Undertaking RAM Specify Relationship: _____

H. REQUIRED ATTACHMENT AND SUBMITTALS:

1. Check here if any Remediation Waste, generated as a result of this RAM, will be stored, treated, managed, recycled or reused at the site following submission of the RAM Completion Statement. You must submit a Phase IV Remedy Implementation Plan along with the appropriate transmittal form (BWSC108).
2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the implementation of a Release Abatement Measure.
4. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to the DEP Regional Office.
5. If a RAM Compliance Fee is required for this RAM, check here to certify that a RAM Compliance Fee was submitted to DEP, P. O. Box 4062, Boston, MA 02211.
6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM

Release Tracking Number

3.0 - 13232

Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

I. CERTIFICATION OF PERSON UNDERTAKING RAM:

1. I, Brandon Woolkalis, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: [Signature] 3. Title: MANAGER
Signature

4. For: VLW Realty Trust 5. Date: 11/19/04
(Name of person or entity recorded in Section F) (mm/dd/yyyy)

6. Check here if the address of the person providing certification is different from address recorded in Section F.

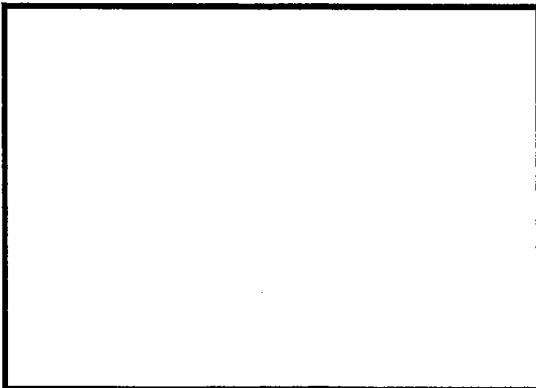
7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. FAX: _____

YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)



CONSTRUCTION RELEASE ABATEMENT MEASURE PLAN

**CONSTRUCTION OF A COMMERCIAL BUILDING AT
2472-2484 MASSACHUSETTS AVENUE
CAMBRIDGE, MASSACHUSETTS**

Prepared for:

VLW Realty Trust
2480 Massachusetts Avenue
Cambridge, Massachusetts

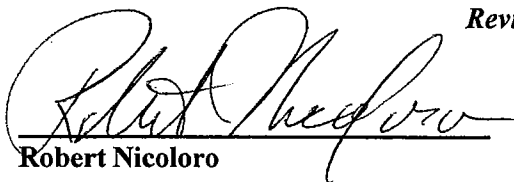
Prepared by:

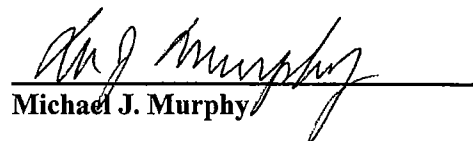
MACTEC Engineering and Consulting, Inc.
107 Audubon Road
Wakefield, Massachusetts

Project Number: 3650040007.05

November 2004

Reviewed and Approved by:


Robert Nicoloro


Michael J. Murphy

CONSTRUCTION RELEASE ABATEMENT MEASURE PLAN

CONSTRUCTION OF A COMMERCIAL BUILDING AT 2472-2484 MASSACHUSETTS AVENUE CAMBRIDGE, MASSACHUSETTS

TABLE OF CONTENTS

Section	Title	Page No.
1.0	GENERAL INFORMATION	1-1
1.1	PARTY CONDUCTING RAM.....	1-1
1.2	SITE DESCRIPTION.....	1-1
1.3	DISPOSAL SITE HISTORY.....	1-2
1.4	PURPOSE OF RAM PLAN.....	1-2
2.0	RAM IMPLEMENTATION	2-1
2.1	RAM ACTIVITIES.....	2-1
3.0	INTRODUCTION TO FOCUSED SITE CHARACTERIZATION / FOCUSED RISK ASSESSMENT	3-1
3.1	PURPOSE.....	3-1
3.2	RISK ASSESSMENT PROCESS.....	3-1
3.3	REGULATORY CONTEXT AND REQUIREMENTS.....	3-2
3.4	SELECTION OF METHOD FOR CONDUCTING THIS RISK ASSESSMENT.....	3-2
4.0	FOCUSED SITE CHARACTERIZATION	4-1
4.1	BRIEF DESCRIPTION OF THE PROPERTY AND SURROUNDING AREA.....	4-1
4.2	SUMMARY OF RESPONSE ACTIONS AND OTHER INVESTIGATIONS 1995 - 2003.....	4-2
4.3	SUMMARY OF MACTEC RESPONSE ACTIONS AND INVESTIGATIONS 2004.....	4-3
4.4	NATURE AND EXTENT.....	4-5
4.4.1	On-Property Soil.....	4-5
4.4.2	On-Property Groundwater.....	4-6
4.5	CONCEPTUAL SITE MODEL.....	4-6
4.5.1	Potential Sources.....	4-7
4.5.2	Migration and Receiving Media.....	4-7
4.5.3	Potential Exposure Pathways.....	4-8
5.0	HAZARD IDENTIFICATION	5-1
5.1	SELECTION OF ANALYTICAL DATA FOR THE RISK ASSESSMENT.....	5-1
5.1.1	Soil Data.....	5-1
5.1.2	Groundwater Data.....	5-1
5.2	SELECTION OF OIL OR HAZARDOUS MATERIALS OF POTENTIAL CONCERN (OHMPC).....	5-2
5.2.1	Soil.....	5-2
5.2.2	Groundwater.....	5-2
6.0	TOXICITY ASSESSMENT	6-1
7.0	EXPOSURE ASSESSMENT	7-1
7.1	DESCRIPTION OF CURRENT AND FORESEEABLE FUTURE PROPERTY USES.....	7-1
7.1.1	Limitations on Future Activities and Uses.....	7-1
7.2	IDENTIFICATION OF POTENTIAL HUMAN RECEPTORS.....	7-1

CONSTRUCTION RELEASE ABATEMENT MEASURE PLAN

CONSTRUCTION OF A COMMERCIAL BUILDING AT 2472-2484 MASSACHUSETTS AVENUE CAMBRIDGE, MASSACHUSETTS

TABLE OF CONTENTS

Section	Title	Page No.
7.3	SOIL AND GROUNDWATER CATEGORIZATION.....	7-2
7.4	IDENTIFICATION OF EXPOSURE POINTS AND EXPOSURE ROUTES.....	7-2
7.4.1	Hot Spot Analysis.....	7-3
7.4.1.1	Soil Hot Spot Analysis.....	7-3
7.4.1.2	Groundwater Hot Spot Analysis.....	7-5
7.4.2	Soil Exposure Points.....	7-5
7.4.3	Groundwater Exposure Points.....	7-5
7.5	DEVELOPMENT OF EXPOSURE PROFILES.....	7-6
7.5.1	Construction Worker.....	7-6
7.5.2	Off-Property, Down-wind Resident.....	7-6
7.6	IDENTIFICATION AND ESTIMATION OF EXPOSURE POINT CONCENTRATIONS.....	7-7
7.7	ESTIMATION OF AVERAGE DAILY DOSES (ADDs).....	7-8
8.0	HUMAN HEALTH RISK CHARACTERIZATION.....	8-1
8.1	CUMULATIVE RECEPTOR RISKS.....	8-1
8.1.1	Cumulative Receptor Cancer Risk.....	8-1
8.1.2	Cumulative Receptor Non Cancer Risk.....	8-2
8.2	COMPARISON OF EXPOSURE POINT CONCENTRATIONS TO APPLICABLE AND SUITABLY ANALOGOUS STANDARDS.....	8-3
8.3	RISK CHARACTERIZATION RESULTS.....	8-4
8.3.1	Cumulative Receptor Cancer Risk and Non Cancer Risk.....	8-4
9.0	CHARACTERIZATION OF RISK OF HARM TO SAFETY AND PUBLIC WELFARE.....	9-1
10.0	UNCERTAINTY ANALYSIS.....	10-1
11.0	FOCUSED RISK ASSESSMENT CONCLUSIONS.....	11-1
12.0	FOCUSED FEASIBILITY STUDY.....	12-1
12.1	COST BENEFIT AND ACCESSIBILITY.....	12-1
12.2	DEGRADABILITY.....	12-2
12.3	VAPOR BARRIER.....	12-2
	ACRONYMS.....	ACR-1
	REFERENCES.....	REF-1
	FIGURES	
	TABLES	
	APPENDICES	

CONSTRUCTION RELEASE ABATEMENT MEASURE PLAN

**CONSTRUCTION OF A COMMERCIAL BUILDING AT
2472-2484 MASSACHUSETTS AVENUE
CAMBRIDGE, MASSACHUSETTS**

LIST OF FIGURES

Figure	Title
Figure 1	Site Location Map
Figure 2	Site Plan

CONSTRUCTION RELEASE ABATEMENT MEASURE PLAN

**CONSTRUCTION OF A COMMERCIAL BUILDING AT
2472-2484 MASSACHUSETTS AVENUE
CAMBRIDGE, MASSACHUSETTS**

LIST OF TABLES

Table	Title
Table 1	Identification of OHM of Potential Concern in Soil
Table 2	Summary Statistics for Groundwater
Table 3	Identification of Hot Spot OHM in Soil
Table 4	Identification of Hot Spot OHM in Groundwater
Table 5	Exposure Parameters – Construction Worker
Table 6	Exposure Parameters – Off-Site, Down-Wind Resident
Table 7	Soil EPCs for Building Footprint (0-8 ft bgs)
Table 8	Soil EPCs for Area Outside of Building Footprint (0-3 ft bgs)
Table 9	Risk Summary
Table 10	Comparison of Soil Data to Soil UCLs
Table 11	Comparison of Groundwater Data to Groundwater UCLs

CONSTRUCTION RELEASE ABATEMENT MEASURE PLAN

**CONSTRUCTION OF A COMMERCIAL BUILDING AT
2472-2484 MASSACHUSETTS AVENUE
CAMBRIDGE, MASSACHUSETTS**

LIST OF APPENDICES

Appendix	Title
Appendix A	Media Samples Used in the Risk Assessment
Appendix B	Dose-Response Data and Relative Absorption Factors
Appendix C	Risk Calculation Spreadsheets

1.0 GENERAL INFORMATION

VLW Realty Trust (VLW) has requested that MACTEC Engineering & Consulting, Inc. (MACTEC), perform Licensed Site Professional (LSP) services to complete Response Actions at the property located at 2472-2484 Massachusetts Avenue in Cambridge, Massachusetts (hereafter referred to as the Site). The Site is identified as a Disposal Site under the Massachusetts Contingency Plan (MCP) due to the presence of oil and hazardous materials in the form of residual and weathered petroleum related constituents discovered in soil and groundwater at depth between 13 and 16 feet below ground surface throughout a portion of the property.

On behalf of VLW Realty Trust, MACTEC has prepared this construction RAM Plan in accordance with the MCP (310 CMR 40.0444) to serve as a method of assessment to evaluate the presence of oil and hazardous materials at the Site as related to planned redevelopment actions for the construction of a commercial building on the property. MACTEC and the Licensed Site Professional of Record for the site will provide periodic oversight of the construction of the building as that construction relates to the recommendations of this construction RAM. The Licensed Site Professional (LSP) of Record is:

Mr. Robert Nicoloro (License Number 4290)
MACTEC Engineering & Consulting, Inc.
107 Audubon Road, Suite 301
Wakefield, Massachusetts 01880
Phone: (781) 245-6606
Fax: (781) 246-5060

1.1 PARTY CONDUCTING RAM

The party conducting the RAM and the current owner of the Site is:

VLW Realty Trust
2480 Massachusetts Avenue
Cambridge, MA 02142
Contact: Mr. Brandon Woolkalis
617-216-2000

1.2 SITE DESCRIPTION

The Site is located at 2472-2484 (2480) Massachusetts Avenue in Cambridge Massachusetts and is situated on 11,507 square foot parcel of land identified in a commercial and residential zoned urban neighborhood (Figure 1). Until recently, the Site was used as a gasoline service station. Former use of the property included a Firestone Tire store in addition to the gasoline station operations. Currently, the majority of the site is bare ground as recent decommissioning and demolition activities razed the building, removed three underground gasoline storage tanks, a gasoline pump island, concrete pads and an over head canopy that until recently occupied a portion of the Site. These removal actions were conducted under a RAM submitted in September 2004.

1.3 DISPOSAL SITE HISTORY

The property was used as a gasoline service station from the 1930s until August 2004 when the property was sold to VLW Realty Trust. There were three cathodically protected, 6,000-gallon, single wall steel USTs present on site that were formerly used to store gasoline (GES, 1995). The USTs were closed and removed in accordance with a RAM Plan (MACTEC September 2004). During the removal of a UST and one of two pump islands conducted under the above-referenced RAM, a detection of greater than 100 parts per million of total organic vapors was measured by a field photoionization (PID) instrument 10 feet away from the outer wall of one UST and around the gas pump. This detection resulted in notification to the Massachusetts Department of Environmental Protection (MADEP) in accordance with 310 CMR 40.0313(2) and an Immediate Response Action (IRA) was initiated in accordance with 310 CMR 40.0412(2). The IRA involved the continued removal of the USTs, associated piping, the gasoline pump island, and soil that had been impacted by the release of gasoline occurring during the UST piping removal under the RAM, which triggered the notification and IRA.

The subject property is Tier Classified as Tier II, and currently undergoing environmental assessment Phase II Supplemental Comprehensive Site Assessment (Phase II) and Phase III Identification and Selection of Comprehensive Remedial Action Alternatives (Phase III). The Phase III is in its initial conception pending completion of Phase II actions associated with the decommissioning of the referenced USTs. The Supplemental Phase II is being conducted to evaluate temporal and seasonal variation of the extent of groundwater contamination and the possible presence of a soil contamination source area in the location of the former USTs.

The referenced Phase II activities are being conducted in compliance with the Massachusetts Contingency Plan (MCP) as a result of oil and hazardous materials (OHM) present in environmental media discovered during a site assessment conducted by Groundwater & Environmental Services, Inc., in 1995. This 1995 assessment lead to notification, designation of the site as a Disposal Site (RTN # 3-0013232) by the Massachusetts Department of Environmental Protection (MADEP). In 1997 Eklund Associates classified the site as a Tier II under the MCP (Eklund, 1997). The site assessment has identified OHM in groundwater at concentrations that have decreased over time but exceed MCP appropriate standards (risk-based Method 1 standards for GW-2/GW-3 groundwater category).

1.4 PURPOSE OF RAM PLAN

This construction RAM is being implemented to:

1. assess the potential risk associated with the construction and occupancy of the building to human health safety, public welfare and the environment;
2. based on the results of that assessment, take actions as needed to reduce potential risk; and
3. allow the construction of the commercial building planned for the redevelopment and future use of this property.

This RAM includes a combined Focused Site Characterization and Focused Risk Assessment Report (FSC/FRA) (Sections 3.0 through 11.0) to assess the potential for exposure to construction and utility workers during the excavation of soil at the Site. Excavation of soil is necessary to construct footings and foundations to a depth of 4 to 5 feet below ground surface, grade the building construction area and future paved lot, and excavation at 5 to 6 feet below ground surface to install utilities from the public rights of way to the new building construction.

2.0 RAM IMPLEMENTATION

2.1 RAM ACTIVITIES

The objective of this RAM is to assess and, based on the results of that assessment, implement any actions necessary, as determined by the Focused Risk Assessment, to demonstrate a condition of no significant risk associated with the construction of the planned commercial building (a restaurant) and planned occupancy of that building.

The Focused Risk Assessment (Sections 5 through 11 of this RAM Plan) has been conducted for the area in and around the footprint of the planned building construction and for the site grading activities that will occur prior to paving the lot. The Focused Risk Assessment utilizes analytical data from soil and groundwater samples collected during a Focused Site Characterization with consideration of other data collected both on and off the property. The results of the Focused Risk Assessment demonstrate that a condition of no significant risk exists for the construction of the building and for the occupancy of that building. No oil and hazardous materials were detected in soil or groundwater that exceed Upper Concentration Limits (UCLs) at the property. There is no risk to public safety at the property.

A Soil Management Plan remains in effect from the previous RAM (September 2004) associated with the removal of underground gasoline storage tanks, in the event that oil and hazardous materials are discovered above Reportable Concentrations during the construction excavation or grading work at the property for the new site use. If such a scenario exists, then the nature and extent of the oil and hazardous materials discovered during the construction phase will be addressed by the LSP of Record, most likely in the form of a RAM Plan Modification, unless an Immediate Response Action (IRA) is warranted. Construction activities will also be limited or halted depending on the nature of the conditions relative to the construction work being performed. There is no evidence to suggest that such conditions exist at the site or would be encountered during the construction excavation or grading activities.

Soil samples were collected in the area of the construction footprint (Figure 2) as part of the Focused Site Characterization (Section 4). The results of those surface samples indicate two hot spot locations (Section 7.1 of the RAM Plan), one associated with polycyclic aromatic hydrocarbons (PAHs) at 2.5 feet below ground surface (bgs) near a former hydraulic lift oil reserve tank removed from below grade at the maintenance bay of the former gasoline station and a subsurface hot spot of volatile organic hydrocarbons in the saturated zone at two sampling locations 15 to 16 feet bgs and 13 to 15 feet bgs. The hot spot associated with the hydraulic fluid tank, may also be associated with the paved area near this former tank and is outside of the immediate area of the building construction but will be considered during the grading phase of the parking lot construction. The subsurface hot spot involves two locations at a depth of 7 to 10 feet below the lowest point of planned excavation for the building. These results are evaluated in the Focused Risk Assessment. A condition of no significant risk to health is demonstrated for all constituents detected in soil and groundwater with respect to construction and/or occupancy of the building. The RAM Plan will stay active until soil excavation and grading activities are completed and the site is paved.

A vapor barrier will be installed within the footprint of the building during its construction. The Focused Feasibility Study (Section 12.0) presents the details concerning the vapor barrier and its installation.

Remediation Waste

Remediation waste is defined in the Construction of Buildings in Contaminated Areas Policy as soil and groundwater containing concentrations of oil and hazardous materials equal to or greater than applicable Reportable Concentrations as listed in the MCP. There is an area on site, identified above, as the hot spot area, (TANK-S Sampling Location) where the concentrations of PAHs exceed Reportable Concentrations for an S-2 Soil Category. These soils meet the definition of Remediation Waste. These soils will be moved and graded in place at the property. Excess soil stockpiled from the excavation and earthwork that is characterized as Remediation Waste will be taken off site for proper treatment or disposal. The estimated volume of excess soil that may require off-site treatment or disposal is less than 100 cubic yards. Soils that remain on site will eventually be below pavement as a parking area and drive-thru lane on the property once construction is completed.

Environmental monitoring is limited at this time to oversight by the LSP and the screening for total volatile organic compounds in soil. Based on data collected during this monitoring, confirmation samples may be collected for laboratory analysis and samples from soil stockpile will be collected for disposal characterization. This monitoring will continue through final earthwork activities. The Focused Risk Characterization demonstrates that a condition of no significant risk exists for down-wind receptors for fugitive dust. However, if monitoring indicates a change in conditions, this focused risk assessment will be updated with the new data.

There are no federal, state or local permits associated with the RAM. Local building permits are in place that allow the construction to begin.

Soils Management Plan

If contaminated soil is excavated as part of the construction activities, the soil will be staged on 6-mil polyethylene sheeting within a constructed bermed area. The LSP will oversee and direct the excavation of the contaminated soil and will collect confirmatory samples following the removal of the impacted material. Waste characterization samples will also be collected from the temporary stockpiled soil to determine waste characterization and disposal requirements. The stockpile will be covered with 6-mil polyethylene sheeting at the end of each workday, and the cover will be secured with tires, hay bales, or other appropriate methods. The stockpile will be staged on-site within the fence enclosure until the disposal facility approves the material for shipment and treatment/disposal. Once approved, the material will be transported to the selected treatment/disposal facility and tracked under an appropriate shipping document in accordance with the MCP (310 CMR 40.0000 and 310 CMR 30.0000). Soil contaminated with petroleum residuals generated during the previous RAM activities (September 2004) at the site involving the removal of underground storage tanks, was shipped to American Reclamation Corp., Charlton, MA for cold asphalt batch processing. It is expected that any additional remediation waste generated during the construction or cleanup activities will also be sent to this off-site facility.

As stated in the MCP (310 CMR 40.0442(4)), Release Abatement Measures shall not involve the excavation and disposal of greater than 500 cubic yards or the excavation and off-site treatment, recycling, or re-use of greater than 1,500 cubic yards (cumulative, for the disposal site in question) of soil

SECTION 2

contaminated by OHM at concentrations equal to or greater than applicable Reportable Concentrations, unless a statement is provided in the RAM Plan by the RP, PRP or Other Person conducting the response actions certifying that, based on information and opinions provided by an LSP, such persons have sufficient financial resources to manage excavated materials in the manner and time frames specified in 310 CMR 40.0030. It is assumed that soil contaminated with OHM, if encountered, will be suitable for acceptance at a treatment, recycling, or re-use facility and it is not anticipated that greater than 1,500 cubic yards of soil contaminated by OHM will require removal. A 20% margin of error in calculating the anticipated volume of soil applies to this number.

Health and Safety Procedures

Evaluation in the Focused Risk Assessment of potential sensitive populations in the area of the construction activities at the property identify the residential properties located to the west, southwest and abutting the property to the east. The residential homes located to the west and south west of the site are approximately 35 feet at the closest point to the southwestern-most boundary of the subject property. The residences abutting the subject property to the east are within a mixed use (commercial offices and apartments) brick building close to the subject property boundary. All other properties are commercial operations. There are no schools or institutions in the vicinity of the subject property.

Measures to protect residences from dust that may contain polycyclic aromatic hydrocarbons from TANK-S sampling location, identified as a hot spot, will involve the use of a light water spray as needed to keep down dust when working in this area. Based on other data collected at the site, other construction activities on site, expected to be limited to the top 6 feet or less of soil are not expected to generate dust containing oil or hazardous materials at concentrations that require protective actions. In the event that oil and hazardous materials are discovered during excavation, such activities will then be conducted under the direction of the LSP of Record to include the implementation of protective measures to excavate contaminated soil without generating on or off site hazardous conditions. These measures include dust suppression using a light water spray, covering daily stockpiles of remediation waste, and the use of fencing to restrict access to the property.

In the event that oil and hazardous materials are discovered during the oversight and soil screening activities of the earthwork, at concentrations above Reportable Concentrations, notification will be made to the Massachusetts Department of Environmental Protection of a change in conditions. In this scenario, the construction activity will be halted to allow the LSP to assess the on- and off-site conditions, potential exposure risks, health and safety procedures, the suitability of the construction crew to conduct waste site cleanup work, and to implement the soils management plan.

Construction workers involved in activities that are associated with potential exposures to soils will be trained and work under health and safety procedures to the extent they are required by the Occupational Safety and Health Administration (OSHA) and the MCP. If it is deemed necessary to engage a remediation contractor, the remediation contractor will have the required permits, licenses, training, health and safety plan, knowledge of site conditions to satisfy the MCP and the requirements of the Occupational Safety and Health Administration (OSHA) for a site cleanup worker. The LSP on site directing remedial actions, if such actions are necessary, and the LSP's support staff working on site under the LSP's direction will also be OSHA trained, briefed on the potential hazards at the site and equipped with a health and safety plan reviewed by each support person on site.

SECTION 2

The scope and detail of the health and safety procedures shall be commensurate with the degree and nature of the risks posed to human health and ecological populations. Such measures may include:

- Control of dust and other environmental media;
- Decontamination of vehicles and equipment to minimize the spread of contaminated soils;
- Secure on-site excavations and stockpiles of contaminated materials; and
- Discontinue response actions where necessary to protect public health and safety.

Site security involves an existing 6-foot high temporary fence around the property and construction area. This fence is secured at the end of each day. The fence is kept in good condition and will be maintained through out the construction activities. The fence will likely be removed during the pavement activities in order to access all the areas to be paved.

There is no evidence to suggest that air or dust monitoring is necessary. However, if conditions change based on periodic real time measurements for total volatile organic vapors in soils, then air monitoring for such vapors will be implemented to protect the public.

3.0 INTRODUCTION TO FOCUSED SITE CHARACTERIZATION / FOCUSED RISK ASSESSMENT

3.1 PURPOSE

This combined Focused Site Characterization and Focused Risk Assessment (FSC/FRA) Report has been prepared for the Property located at 2472-2484 Massachusetts Avenue in Cambridge, Massachusetts (the Property), to evaluate the health, safety, and public welfare risks that will be associated with a proposed re-development of the property. A Site Location Map is provided as Figure 1. The Property is part of the Former Mass Avenue Firestone Store and Gasoline Station Site (Release Tracking Number [RTN] 3-13232, 2480 Massachusetts Avenue). The FRA incorporates (but is not limited to) environmental data collected on the Property since 1995, including representative samples from areas of the Property that have been remediated (Appendix A), and considers the specific redevelopment plan for the property as shown in Figure 2. This risk assessment should be considered an interim update with respect to the entire Massachusetts Contingency Plan (MCP) disposal site because investigations of nature and extent of oil and hazardous materials (OHM) are on-going. Section 2.0 of this report is the FSC. The remaining sections of the report comprise the FRA.

There has been a specific redevelopment plan formulated for the property. The plan calls for the construction of a commercial space housing a Dunkin Donuts restaurant and a Baskin Robbins restaurant. The commercial space will consist of a single-story, 2,200 square-foot slab-on-grade building to be constructed with a vapor barrier. A paved parking area will surround the building. Landscaped borders will be constructed between the building and Edmunds Street, between the building and Massachusetts Avenue, and between the paved parking areas and adjoining properties (Figure 2). The landscaped borders will be approximately five feet wide except for the border between the building and Edmunds Street, which will be approximately 10 feet wide. This site configuration and use is considered the current and foreseeable use in this risk assessment.

The redevelopment plan is based on a site development plan identifying locations of structures and surface treatments for areas of the property, provided by VLW Trust (July 19, 2004). The FRA is based on the human exposures to OHM at the property and surrounding area that may occur during construction and subsequent operation of the proposed redevelopment. Specifically, the FRA evaluates construction worker exposures to surface and subsurface soil within and adjacent to the building footprint, and surface soil throughout the remainder of the property where the paved parking area and landscaped areas will be constructed. The FRA also evaluates potential exposures to dust that may migrate to off-Property receptor locations during the construction activities. The presence of the pavement will prevent contact with soil by employees, patrons, and the general public. The presence of the vapor barrier will prevent exposures to vapors, if any, that could migrate from soil or groundwater to indoor air.

3.2 RISK ASSESSMENT PROCESS

The risk assessment process can be divided into four steps: hazard identification, dose-response assessment, exposure assessment, and risk characterization and uncertainty analysis. The hazard identification determines what substances are present at a site, whether a substance causes adverse effects, and identifies those effects. The dose response assessment describes the relationship between the

level of exposure and the likelihood and/or severity of an adverse effect. The exposure assessment identifies potential routes of exposure, characterizes the populations exposed, and determines the frequency, duration, and extent of exposure. The last step, risk characterization, combines the information from the previous three steps to describe the type (e.g., carcinogenic and non-carcinogenic) and magnitude of potential risks to the exposed populations. It also identifies the uncertainty in the characterization of potential risks.

3.3 REGULATORY CONTEXT AND REQUIREMENTS

This FSC/FRA was prepared consistent with the MCP promulgated under Massachusetts General Law Chapter 21E on October 3, 1988 (310 CMR 40.0000) and amended through June 27, 2003, and the "Guidance for Disposal Site Risk Characterization" (Massachusetts Department of Environmental Protection [MADEP], 1995) and Technical Updates (MADEP, 2002). Supplemental guidance was provided by "Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final" (United States Environmental Protection Agency [USEPA], 1989).

According to MADEP policy, "Building Construction in Contaminated Areas" (January 2000), a focused site characterization must be conducted within and adjacent to the footprint of the proposed building and associated subsurface structures, to adequately define the nature and degree of contamination and a focused risk assessment is to be conducted to support the construction of buildings in contaminated areas. The policy requires that a focused risk assessment be conducted within and adjacent to the footprint of the planned building, to characterize the nature of risks to construction workers, surrounding populations, and future occupants of the building, and to ensure that such risks are within limits permitted by the MCP. In addition, the risk assessment should demonstrate that there are not concentrations above Upper Concentration Limits (UCLs) within the footprint of the building because permanent structures should not be built if they would interfere with or prevent remediation to eliminate concentrations above UCLs. If there are exceedances of UCLs, the policy states that a formal Phase III is required for that portion of the Property to support the redevelopment.

The focused risk assessment includes all analytical data collected to date for appropriate media and is conducted in a manner consistent with the MCP (June 27, 2003).

3.4 SELECTION OF METHOD FOR CONDUCTING THIS RISK ASSESSMENT

Three risk assessment methods are described in the MCP. Method 1 risk assessments involve comparisons of soil and groundwater concentrations to published, generic risk-based cleanup standards. Method 2 risk assessments evaluate potential risks using site-specific risk-based cleanup standards for individual chemicals, possibly in conjunction with Method 1 standards for other chemicals. Both Methods 1 and 2 are chemical-specific assessment/management approaches. Method 3 risk assessments evaluate the cumulative cancer and non-cancer risks associated with possible exposures at a site and also consider applicable or suitably analogous public health standards. The Method 3 approach is a cumulative risk approach rather than a chemical-specific approach. Method 3 is the approach that has been selected as the method for the FRA at the property.

