



**NORFOLK·RAM**  
ENGINEERING SOLUTIONS  
FOR THE ENVIRONMENT

## PHASE II SCOPE OF WORK

100 Properzi Way  
Somerville, Massachusetts 02143

**March 29, 2010**

Prepared for:

Moshe Safdie and Associates, Inc.  
100 Properzi Way  
Somerville, Massachusetts 02143

Prepared by:

Norfolk RAM Group, LLC  
25 Birch Street, Bldg. B  
Milford, Massachusetts 01757

Norfolk Ram Group Project No. 1313.001.02



March 29, 2010

Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup  
Northeast Regional Office  
205B Lowell Street  
Wilmington, Massachusetts 01887

**Re: Phase II Scope of Work  
100 Properzi Way  
Somerville, Massachusetts 02143  
RTN 3-27844  
Norfolk Project 1313.001.02**

To Whom It May Concern:

The Norfolk Ram Group, LLC (Norfolk) is submitting this Phase II Scope of Work (SOW) for the property located at 100 Rev Nazareno Properzi Way in Somerville, Massachusetts (the Site) in accordance with the requirements of 310 CMR 40.0834. This SOW will detail the proposed investigation activities to be conducted at the Site in response to the presence of metals and petroleum in soil above applicable Massachusetts Department of Environmental Protection (MA DEP) Method 1 Risk Standards.

### **Background**

During May and June of 2008, approximately 400 cubic yards of soil were excavated from the south side of the existing building as part of preparation for constructing an addition to the building. Soil sampling of the stockpile performed by Precision Environmental Management Corporation (PEMC) and GZA GeoEnvironmental, Inc. (GZA) indicated that elevated concentrations of lead, chromium and benzo(a)pyrene were present in the soil removed from the excavation. MA DEP subsequently assigned release tracking number (RTN) 3-27844 to the disposal site. GZA performed *ex-situ* on site stabilization of the lead-impacted soil with Maectite and transported it to a disposal facility under a Release Abatement Measure (RAM).

During Phase I subsurface investigations in June 2009, Norfolk observed that the site is underlain by fill containing coal ash. Laboratory analytical results indicated that concentrations of lead above Method I Risk Standards were present in soil in four (4) of the six (6) borings completed by Norfolk. Furthermore, concentrations of lead and chromium exceeded upper concentration limits (UCLs) in soil boring B-2 (located on the west side of the building; Figure 1). Norfolk observed fill containing paint chips at this location. The source of the elevated lead and chromium at this location is suspected to be from fill containing paint/paint chips which do not represent a significant area or volume of soil. Laboratory results for extractable petroleum hydrocarbons (EPH) indicated elevated concentrations of C9-C18 aliphatics in boring B-2, and, elevated PAH target analytes at several boring locations. EPH and RCRA 8 metals were not detected above laboratory reporting limits in groundwater samples collected from three (3) monitoring wells at the Site (with the exception of barium, which was detected at concentrations below the GW-2/3 Method 1 Risk Standard).

## **Phase II Scope of Work**

The following scope of work outlines the anticipated tasks that Norfolk will implement in order to assess the horizontal and vertical extent and migration pathways of petroleum, chromium, and specifically lead located at the property in conformance with MA DEP Phase II requirements. The proposed scope of work is based on a conceptual site model which recognizes the fact that the Site is underlain by coal ash that may contain elevated EPH and PAHs. These contaminants may be exempt from reporting (310 CMR 40.0317(9)). However it is the goal of the Phase II to determine whether *highly* elevated concentrations (above UCLs) of contaminants (lead and chromium) are representative of actual site conditions and pose a threat to human health and the environment, or whether they are anomalous, and relate to minor constituents within the fill (such as flakes and chips of lead-chromate paint).

*Subsurface Assessment:* Norfolk will contract with a licensed driller to drill a minimum of six (6) soil borings on the Site (Figure 1) in order to delineate the lead impacted soils surrounding soil boring B-2, and to characterize contaminants across the Site. At least one (1) boring will be located in the basement of the on-site building in order to determine whether lead-contaminated soil extends from the area near B-2 and under the building. The remaining borings will be located outside the building surrounding B-2, and in locations across the Site. Borings will be advanced in locations where lead exceeded Method 1 Risk Standards (B-4, B-5, and B-6) in order to determine near-surface concentrations of lead (Figure 1). At least one (1) monitoring well will be installed downgradient of boring B-2 in order to determine if contaminants have impacted groundwater, and to provide additional coverage to the three (3) on-site monitoring wells previously installed in the southeastern portion of the Site.

Norfolk will characterize soil, screen samples in the field with a portable photoionization detector (PID) for total organic vapors (TOVs) and X-ray fluorescence (XRF) analyzer for on-site measurements of metals, and select soil samples for laboratory analysis of total RCRA 8 metals, extractable petroleum hydrocarbons (EPH), and hexavalent chromium. One fill sample will also be analyzed for coal ash verification using scanning electron microscope (SEM) analysis in order to determine if detected EPH and PAHs can be related to the fill and therefore be considered exempt under MA DEP regulations.

*Groundwater Sampling:* Previous investigations by GZA determined that 1,1,1-trichloroethane (TCA) was used by a previous on-site tenant. Concentrations of TCA were detected in on-site groundwater in 1984, but at concentrations below current GW-2/3 Method 1 Risk Standards. As part of this assessment, Norfolk will collect groundwater samples from the on-site monitoring wells for analysis of volatile organic compounds (VOCs) in order to confirm that TCA in groundwater remains below applicable standards such that a potential hazard from vapor intrusion does not exist at the Site.

*Additional Sampling:* Norfolk will collect a water sample from a sump located in the building for EPH, RCRA 8 metals, and VOCs. The sump is a potential exposure pathway for volatiles and indoor-air impacts.

*Rescoring:* Norfolk will reevaluate the numerical ranking system (NRS) score that was previously determined if new findings suggest a change in conditions that would warrant re-scoring of the Tier Classification for the Site.

### **Proposed Schedule**

Norfolk expects to begin assessment activities in April, 2010. Closure solutions will be evaluated following a review of the findings of the Phase II investigation. Options for closure may include permanent closure with a deed restriction (Activity and Use Limitation [AUL]). If permanent closure is not feasible to achieve, a Phase II Comprehensive Site Assessment and Phase III Selection of Remedial Alternatives reports will be prepared prior to the July, 2011 deadline for submittal.

### **LSP of Record**

Brian V. Moran, PE, LSP  
License Number 7351  
Norfolk Ram Group, LLC, 25 Birch Street, Building B, Milford, Massachusetts 01757  
Phone: (508) 478-1276

Please do not hesitate to call the undersigned at (508) 478-1276 if you have any questions regarding the content in this Phase II Scope of Work.

Sincerely,  
**Norfolk Ram Group, LLC**



Charles Young  
Project Manager



Brian V. Moran, P.E., LSP  
Principal



Nathan C. Gardner  
Project Geologist

Attachments  
Figure 1: Proposed Soil Borings

cc: Mr. Paul Gross, Moshe Safdie and Associates, 100 Properzi Way, Somerville, MA

PROPERZI WAY

Residential

Landscaped Area

PROPERTY LINE

Residential

2-STORY  
MEZANINE  
EXTENSION

FORMER  
SOIL  
EXCAVATION  
AREA

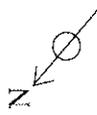
TWO-STORY BUILDING

FLOOR SUMP

Asphalt  
Pavement

Asphalt  
Pavement

Residential



B-5/MW-2  
906

B-6/MW-3  
1,200

B-3/MW-1  
107

B-4  
667

B-2  
79,500

B-1  
167

Sidewalk

6

6

25 BRICH STREET,  
BUILDING B  
MILFORD, MA 01757  
PHONE - (508) 478-1276  
FAX - (508) 478-4488  
WWW.NORFOLKRAM.COM

**NORFOLK  
RAM GROUP**  
ENGINEERING THE ENVIRONMENT

SOURCE:  
Plan by GZA and undated  
Plan by  
Moshe Safdie Associates

CHECKED BY:	CPY
EDITED BY:	NCG
DATE:	3-22-10
DWG SCALE:	1" = 30'
NRG REF NUMBER:	1313.1.1
SHEET NO:	1 OF 1

TITLE:  
FIGURE 1  
PROPOSED BORINGS  
100 PROPERZI WAY  
SOMERVILLE, MA

PREPARED FOR:  
MOSHE SAFDIE ASSOCIATES  
SOMERVILLE, MA.

LEGEND

- ⊗ SR-1 107 Soil boring w/ total lead (mg/kg)
- ⊕ NRG-1 667 Soil boring completed as monitoring well w/ total lead (mg/kg)
- ⊙ Proposed soil boring location



**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL  
FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3 - 27844

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**A. SITE LOCATION:**

1. Site Name: **NO LOCATION AID**

2. Street Address: **100 PROPERZI WAY**

3. City/Town: **SOMERVILLE**

4. ZIP Code: **021433740**

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 applicable, provide the Permit Number: \_\_\_\_\_

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

- 1. Submit a **Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
- 2. Submit a **Revised Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
- 3. Submit a **Phase II Scope of Work**, pursuant to 310 CMR 40.0834.
- 4. Submit an **interim Phase II Report**. This report does not satisfy the response action deadline requirements in 310 CMR 40.0500.
- 5. Submit a **final Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
- 6. Submit a **Revised Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
- 7. Submit a **Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
- 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
- 9. Submit a **Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
- 10. Submit a **Modified Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
- 11. Submit an **As-Built Construction Report**, pursuant to 310 CMR 40.0875.
- 12. Submit a **Phase IV Status Report**, pursuant to 310 CMR 40.0877.
- 13. Submit a **Phase IV Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

Specify the outcome of Phase IV activities: (check one)

- a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Response Action Outcome.
- b. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
- c. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) has been or will be submitted to DEP.
- d. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) has been or will be submitted to DEP.



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Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

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

14. Submit a **Revised Phase IV Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.
15. Submit a **Phase V Status Report**, pursuant to 310 CMR 40.0892.
16. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP.)
- a. Type of Report: (check one)  i. Initial Report  ii. Interim Report  iii. Final Report
- b. Frequency of Submittal: (check all that apply)
- i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.
- ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.
- iii. A Remedial Monitoring Report(s) submitted concurrent with a Status Report.
- c. Status of Site: (check one)  i. Phase IV  ii. Phase V  iii. Remedy Operation Status  iv. Class C RAO
- d. Number of Remedial Systems and/or Monitoring Programs: \_\_\_\_\_
- A separate BWSC108A, CRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.
17. Submit a **Remedy Operation Status**, pursuant to 310 CMR 40.0893.
18. Submit a **Status Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).
19. Submit a **Transfer and/or a Modification of Persons Maintaining a Remedy Operation Status (ROS)**, pursuant to 310 CMR 40.0893(5) (check one, or both, if applicable).
- a. Submit a Transfer of Persons Maintaining an ROS (the transferee should be the person listed in Section D, "Person Undertaking Response Actions").
- b. Submit a Modification of Persons Maintaining an ROS (the primary representative should be the person listed in Section D, "Person Undertaking Response Actions").
- c. Number of Persons Maintaining an ROS not including the primary representative: \_\_\_\_\_
20. Submit a **Termination of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(6).(check one)
- a. Submit a notice indicating ROS performance standards have not been met. A plan and timetable pursuant to 310 CMR 40.0893(6)(b) for resuming the ROS are attached.
- b. Submit a notice of Termination of ROS.
21. Submit a **Phase V Completion Statement**, pursuant to 310 CMR 40.0894.
- Specify the outcome of Phase V activities: (check one)
- a. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement (BWSC104) will be submitted to DEP.
- b. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
- c. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and/or that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
22. Submit a **Revised Phase V Completion Statement**, pursuant to 310 CMR 40.0894.
23. Submit a **Post-Class C Response Action Outcome Status Report**, pursuant to 310 CMR 40.0898.



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Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**C. 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 indicates that a **Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement** and/or a **Termination of a Remedy Operation Status** 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;

> if Section B indicates that a **Phase II Scope of Work** or a **Phase IV Remedy Implementation 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 indicates that an **As-Built Construction Report, a Remedy Operation Status, a Phase IV, Phase V or Post-Class C RAO Status Report, a Status Report to Maintain a Remedy Operation Status, a Transfer or Modification of Persons Maintaining a Remedy Operation Status and/or a Remedial Monitoring 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.

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 #: 7351

2. First Name: BRIAN V

3. Last Name: MORAN

4. Telephone: 5084781276

5. Ext.: 12

6. FAX: 5084781498

7. Signature: Brian V Moran

8. Date: 3/30/2010  
(mm/dd/yyyy)

9. LSP Stamp:





**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL  
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Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**D. PERSON UNDERTAKING RESPONSE ACTIONS:**

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: **MOSHE SAFDIE**
3. Contact First Name: **PAUL** 4. Last Name: **GROSS**
5. Street: **100 PROPERZI WAY** 6. Title:
7. City/Town: **SOMERVILLE** 8. State: **MA** 9. ZIP Code: **021433740**
10. Telephone: **6176292100** 11. Ext.: 12. FAX:

**E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS:**

Check here to change relationship

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 Response Actions Specify Relationship:

**F. REQUIRED ATTACHMENT AND SUBMITTALS:**

1. 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.
2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.
3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.
4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.
5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.
6. If submitting a Transfer of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for the person making this submittal (transferee) is attached.
7. If submitting a Modification of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for each new person making this submittal is attached.
8. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Name.  
Send corrections to: BWSC.eDEP@state.ma.us.
9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



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Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

**G. CERTIFICATION OF PERSON UNDERTAKING RESPONSE ACTIONS:**

1. I, **Paul Gross**, 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.

>if Section B indicates that this is a **Modification of a Remedy Operation Status (ROS)**, I attest under the pains and penalties of perjury that I am fully authorized to act on behalf of all persons performing response actions under the ROS as stated in 310 CMR 40.0893(5)(d) to receive oral and written correspondence from MassDEP with respect to performance of response actions under the ROS, and to receive a statement of fee amount as per 4.03(3).

I understand that any material received by the Primary Representative from MassDEP shall be deemed received by all the persons performing response actions under the ROS, and I am 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: **Paul Gross** 3. Title: **PRINCIPAL**

Signature

4. For: **MOSHE SAFDIE** 5. Date: **3/30/2010**

(Name of person or entity recorded in Section D)

(mm/dd/yyyy)

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

7. Street: \_\_\_\_\_

8. City/Town: \_\_\_\_\_ 9. State: \_\_\_\_\_ 10. ZIP Code: \_\_\_\_\_

11. Telephone: \_\_\_\_\_ 12. Ext.: \_\_\_\_\_ 13. FAX: \_\_\_\_\_

**YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. 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:)

**Received by DEP on  
3/30/2010 4:30:06 PM**