

An Environmental Consulting & Remediation Firm

ALTERNATIVES ANALYSES REPORT

Property Known As:

1 Warehouse Lane Elmsford Village, Westchester County, New York Spill Nos. 8901621 and 9204142

Prepared For:

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Submitted by:

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1.0 INTRODUCTION

This Remedial Alternatives Analyses Report (Alternative Analyses) had been prepared on behalf of Elmsford Realty Associates L.L.C. for the 1 Warehouse Lane property in Elmsford, Westchester County, New York (subject property). Elmsford Realty Associates L.L.C. has conducted environmental investigation and remedial measures at the subject property under the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP) pursuant to a December 11, 2000 Voluntary Cleanup Agreement [(VCA) - Index Number A3-0411-0002] among NYSDEC, Elmsford Realty Associates L.L.C. (formerly Elmsford Realty Associates, L.P.) and RMC Development Company, LLC (now known as Robert Martin Company, LLC).

Environmental site investigation and remedial actions have been completed under the direction and approval of NYSDEC and New York State Department of Health (NYSDOH). Results of prior work activities have been documented in various correspondence and in several reports, the most recent of which included the March 18, 2011 *Voluntary Cleanup Program, Groundwater – Remedial Investigation Report* and the March 18, 2011 *Site Management Plan.* The March 18, 2011 reports documented and summarized prior investigation and remediation completed on site, and they set forth remaining remedial measures necessary to close the VCP case and manage future site activities with respect to environmental considerations addressed in the VCA. The Alternatives Analyses presented herein has been prepared as requested by NYSDEC and in accordance with requirements described in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 3, 2010, (DER-10) Section 4.0. Pursuant to NYSDEC's request due to prior completion of active remedial measures, this Alternatives Analyses assesses the completed and proposed remedial measures with respect to applicable criteria rather than with respect to other responses actions. The format and contents/sections of this Alternatives Analyses Report reflect those specified in DER-10 section 4.4(c)3.

2.0 SITE DESCRIPTION AND HISTORY

2.1 LOCATION, SETTING, AND DESCRIPTION,

The subject property is a 1-acre parcel at 1 Warehouse Lane within the Elmsford Distribution Center (a commercial/industrial park) in the Town of Greenburgh, Westchester County, New York. The subject property is bounded by 2 Warehouse Lane to the north, 3 Warehouse Lane to the west, the Saw Mill River to the east, and 6 Warehouse Lane to the south. The subject property and immediate surrounding areas are zoned for "Light Industrial" use, and proximate buildings located in the Elmsford Distribution Center are light industrial buildings similar to the structure at 1 Warehouse Lane. The site and industrial park are serviced by public water and sewer, and with gas and electricity by Con Edison. A Site Location Map and Site Plan are presented as **Figures 1 and 2**, respectively.

The site is at an elevation of approximately 180 feet above mean sea level. According to the Geological Map of New York (Lower Hudson Sheet, Fisher 1970), the site area is located within the Manhattan Prong geologic region consisting of Precambrian to Paleozoic age metamorphic rocks. The consolidated formations of this region consist of Pre-Cambrian age Fordham gneiss. Unconsolidated formations are comprised of various types of glacial and alluvial deposits and organic soils.

According to the US Department of Agriculture's Soil Survey of Westchester and Putnam Counties the soils onsite are described as Urban Land 9 (e.g. disturbed, reworked, and/or covered soil). Soil encountered during soil boring and excavation activities generally consisted of tan fine to medium sands with coarse gravel from 6 inches to 9 feet below ground surface (bgs), underlain by grey fine sand with some fine gravel and trace silt. Groundwater generally was encountered between 8 feet and 10 feet bgs. Groundwater gradient is to the east-northeast toward the Saw Mill River which flows from the north to the southeast and is immediately adjacent to the east of subject property.

The subject property contains a one-story, 6,600-square foot brick and cinderblock building with concrete floor slabs. It was constructed in 1957 and currently used as a bus garage and maintenance facility. The building includes two mezzanine office areas and garage space, and the property exterior includes a concrete and asphalt-paved portion of land currently operated as a parking lot; a section of asphalt-paved lot currently used for vehicle storage, and a small section of unpaved land which is used for equipment storage. Approximately 90% of the property currently is covered by the building structure or asphalt paved parking areas.

2.2 HISTORY

According to review of Sanborn Fire Insurance Maps, aerial photography and local municipal records, the subject property previously was used as a truck repair garage within the A&P Westchester Warehouse complex which encompassed the majority of what is currently known as the Elmsford Distribution Center. The subject property was presumably developed and operated as part of the A&P Westchester Warehouse. The onsite building was constructed in 1957 and reportedly has not been modified significantly since its construction.

The subject property was owned by the RMC Development Co., LLC (RMC) who acquired the site in 1977. It is now owned by Elmsford Realty Associates L.L.C. The onsite building is occupied by Factory Direct Bus Sales Inc., which operates a bus sales and repair facility at the subject property. Prior to Factory Direct Bus Sales, Inc., J.P. Bus and Truck Repair LTD (JP Truck) operated a truck repair service at the Site until May 2004. Prior to J.P. Truck's use of the site, truck repair operations were conducted at the tenant space by Expressway Trucking Expressway Trucking was owned by Three D Industrial Maintenance.

3.0 SUMMARY OF REMEDIAL INVESTIGATION

Environmental investigation and remediation has been conducted throughout the period after entering into the VCA. The work included soil and groundwater investigations; surface water sampling and analyses in the Saw Mill River; closure and removal of multiple underground storage tanks (USTs) and above grade storage tanks (ASTs); excavation and offsite disposal of contaminated soil; and data analyses and reporting.

The results of the Remedial Investigations and Remedial Actions are described in detail in the following reports submitted to NYSDEC:

- December 1998: Voluntary Cleanup Program Site Assessment Report, amended in September 2000;
- July 2003: Voluntary Cleanup Program Final Investigation Report;
- November 15, 2004: First Quarterly Progress Report;
- March 15, 2005: Second Quarterly Progress Report;
- December 28, 2005: Third and Fourth Quarterly Progress Reports;
- June 30, 2006: Saw Mill River Surface Water Sampling Report;
- June 2009 Voluntary Cleanup Program Remedial Investigation Report;
- September 7, 2010 Groundwater Monitoring Progress Report;
- March 18, 2011 Voluntary Cleanup Program Remedial Investigation Report for Ground Water; and
- March 18, 2011 Site Management Plan.

Details of the work activities and results are presented in these earlier documents and therefore, remedial investigation and remedial actions are only highlighted herein.

After completion of the remedial work described in the above reports (including the removal and offsite disposal of more than 2,500 tons of impacted soil), limited contamination was left in the subsurface at this site, to be managed via the methods described in the March 18, 2011 Site Management Plan. Soil investigations identified volatile organic compounds, semi-volatile organic compounds, and metals in excess of NYSDEC Recommended Soil Cleanup Objectives (RSCO) presented in the NYSDEC Division of Remediation December 2000 memorandum regarding cleanup levels. After completing the tank and soil removal activities, one isolated area contained lead, benzo (a) pyrene, dibenz(ah)anthracene, and benzo(a)anthracene at concentrations above the NYSDEC Remedial Program Soil Cleanup Objectives for commercial properties (SCO-C) presented in NYSDEC 6 NYCRR Part 375-6. Remaining sample data are below the SCO-C criteria. Soil excavation areas and samples exhibiting results exceeding NYSDEC RSCO and/or NYSDEC SCO-C are shown in **Figure 3.**

Groundwater investigations conducted on-site indicated concentrations of volatile organic compounds, semi-volatile organic compounds, and metals in excess of the Class GA

Groundwater Standards in NYSDEC Division of Water Technical and Operational Guidance Series – Water Quality Standards – 6 NYCRR 700-706 (WQS). The UST and AST removals and offsite disposal of residually impacted soils has effectively eliminated the majority of the source of groundwater contamination. Based on groundwater data collected from on-site wells, the contaminants detected in excess of the New York State Class GA WQS are naturally attenuating. No impact to the Saw Mill River water quality was identified in surface water sampling. The historic groundwater results are depicted on **Figure 4**.

The contaminant source areas have been removed, areas of remaining impacted soils are limited, and groundwater conditions are naturally improving/attenuating. Additional groundwater monitoring will be performed to document the ongoing natural attenuation, and the residual soil contamination will be addressed under a Deed Restriction and related program elements described in the Site Management Plan.

4.0 REMEDIAL GOALS AND REMEDIAL ACTION OBJECTIVES

4.1 REMEDIAL GOALS

The remedial goals for the site are to comply with the requirements of the VCA and to mitigate site related contamination conditions so that they do not present a threat to human health or the environment within the context of site use. The goals are to be met via development and implementation of remedial measures (to supplement those already completed) including proposed site controls as necessary. Pursuant to Section 5B of NYSDEC CP-51 Soil Cleanup Guidance, the goal of the VCP is to select a remedy that is protective of human health and the environment for the contemplated use of the site. The site remedial goals are consistent with CP-51.

4.2 REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) should consider NYSDEC's generic RAOs as well as applicable Standards, Criteria, and Guidance Values (SCGs), contaminants, affected environmental media, extent of impact, human exposures and environmental impacts. As noted in DER-10 Chapter 4, applicable SCGs must consider "...the current, intended and reasonably anticipated future use of the site and its surroundings". The SCGs considered for this site include NYSDEC VCP, RSCO and SCO-C for soil, and WQS for groundwater.

NYSDEC generic RAOs by media (per DER-10) for both public health and environmental protection include:

Groundwater

 Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.
- Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil
- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

<u>Surface Water</u> (Not Applicable to the site as no surface water is present on site and surface water sampling did not identify impact surface water prior to implementing remedial measures on site.)

<u>Sediment</u> (Not Applicable to the site as no sediments are present on site, and impact to the offsite surface water body was not identified.)

Soil Vapor

• Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site

5.0 DEVELOPMENT AND ANALYSES OF ALTERNATIVES

The active phase of remediation at the site has been completed through the investigation and response actions already completed and briefly reviewed in Section 3 of this Alternatives Assessment Report. Specifics of the remaining remedial measures were detailed in the March 18, 2011 Site Management Plan. Jointly, the completed and pending remedial elements are assembled into the preferred remedial action alternative as follows:

- 1. Excavation and removal of onsite ASTs, USTs, and impacted soil. (completed);
- 2. Execution and recording of a Deed Restriction to restrict land use and prevent future exposure to any contamination remaining at the Site. (a draft deed notice was presented in Site Management Plan and will be filed upon approval); and
- 3. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Deed Restriction, which includes plans for: institutional controls, excavation controls, site monitoring, natural

attenuation and monitoring of groundwater, and site inspections and reporting (the Site Management Plan has been prepared and submitted to NYSDEC and will be implemented upon approval).

The tank removals and soil excavations removed contaminant sources from the site. Surface water sampling data documented the absence of impact to the Saw Mill River from the site. Review of the groundwater contaminant concentration trends presented in the March 18, 2011 reports indicated that overall groundwater quality is improving via natural attenuation, but contaminant concentrations still remain at levels that exceed the New York State Class GA WQS. Therefore, additional groundwater monitoring activities should continue and three additional biennial sampling events are proposed to document the ongoing natural attenuation of the contaminant plume. If, following the completion of six years of biennial monitoring, contaminant trends continue to decrease, than no further action is proposed with respect to groundwater at the subject property, subject to approval by NYSDEC.

A Deed Restriction will be placed on the site and is presented in the Site Management Plan. As part of the required actions associated with the Deed Restriction and Site Management Plan, site use will be restricted to industrial/commercial use only, limits and controls associated with future excavation activities will be maintained, use of onsite groundwater is prohibited, and monitoring of site conditions and compliance with the Deed Notice provisions will be completed and documented. The Site Management Plan also includes requirements for assessing soil vapor intrusion concerns in the event that site use changes from current bus garage operations or if new structures are built on site.

These remedial measures are consistent with requirement of the VCA, VCP and the remedial action objectives and goals established for the site. As required under DER-10 and the VCP, an assessment of this remedial alternative has been conducted including evaluation of the following major assessment criteria identified in DER-10 Chapter 4.2:

- overall protectiveness of public health & environment;
- standards, criteria and guidance;
- long term effectiveness;
- reduction in toxicity, mobility or volume;
- short term effectiveness;
- implementability; and
- Land use.

The remedial measures are discussed with respect to each of these major assessment criteria in section 5.1 through 5.7, below.

5.1 OVERALL PROTECTIVENESS OF PUBLIC HEALTH & ENVIRONMENT

The selected remedial actions provide protection of both human health and the environment via removal of sources of contamination (USTs and soil), natural attenuation of groundwater, property and groundwater use restrictions, and ongoing monitoring and certifications. These will protect onsite workers, contractors, the general public, and environmental receptors from negative impact associated with site environmental conditions.

- The proposed remedial measures are effective and reliable.
- The proposed Deed Restriction will limit the future use of the site to commercial/industrial use consistent with the current and planned use of both the site and the commercial park in which it is located.
- Offsite removal of contaminants (already completed) effectively prevents potential for future on site exposure to removed materials.
- The Excavation Plan in the Site Management Plan sets forth requirements to protect workers and the public and to prevent exposures during future intrusive work on site.
- Technical performance, effectiveness, and reliability has been and will be documented using groundwater monitoring, site inspections, and reporting as outlined in the Site Management Plan.
- Soil Vapor Intrusion issues will be considered in relationship to changes to the existing building/site use or development of future site structures as specifically noted in the Site Management Plan.
- The proposed remedial measures can be implemented in a manner that reduces risk and provide for long term protection. Applicable health & safety procedures and construction/excavation requirements have been and will be followed during future intrusive work activities.
- No water supply systems are located in the site vicinity and none are proposed for the project.
- Proposed remedial measures are passive. No groundwater withdrawal or active treatment and discharge activities or systems are associated with the proposed remedial measures.
- No filling of wetlands or work within stream encroachment areas are required. Site
 impacts to sensitive ecological receptors have not been identified and have not and will
 not occur under the remedial measures.

Individually and collectively, these items provide for overall protection of human health and the environment.

5.2 STANDARDS, CRITERIA, AND GUIDANCE

The remedial measures meet the applicable standards, criteria, and guidance that have been considered, including various NYSDEC guidance and policy documents, as well as the noted Remedial Action Goals and Objectives. Competed work activities and the planned activities described in the Site Management Plan have been conducted as required under the VCA and as coordinated with NYSDEC and NYSDOH. Work has been and will be implemented only upon NYSDEC concurrence, review, and approvals.

- The remedial measures meet Remedial Action Objectives through source removal, preventing contact with, and exposure to, contaminated media, reducing migration potential, restoring groundwater quality.
- Sampling has documented the absence of impact to surface water.
- Post excavation sample data indicate that soil sample points (with one exception) met SCO-C criteria, which are applicable criteria for the commercial use of the site.
- The response measures will effectively reduce contamination levels to applicable criteria. Source areas have been removed and groundwater quality is improving. Groundwater conditions will be monitored as contamination naturally attenuates,

5.3 Long Term Effectiveness

The proposed remedial measures are reliable in maintaining compliance with applicable criteria and for maintaining long term effectiveness.

- UST and contaminated soil removal is a permanent response action for the site. Once removed for offsite recycling or disposal, the contaminated media can no longer impact site conditions.
- Institutional controls including the Site Management Plan incorporating the Deed Restriction, Excavation Plan, and Monitoring Plan are permanently attached to the title for the property. They will remain in effect until NYSDEC consents to discontinuing the institutional controls.
- The institutional controls including groundwater monitoring, land use restrictions, groundwater prohibitions, soil vapor response needs, and site maintenance are subject to biennial inspections and certification to document ongoing and continued reliability.

5.4 REDUCTION IN TOXICITY, MOBILITY, OR VOLUME

The proposed remedial measures have and will reduce contaminant toxicity, mobility, and volume.

- Excavated soil removed from the site was recycled/ thermally treated to reduce toxicity or was land filled offsite reducing toxicity of the effected soil media. Natural attenuation in groundwater reduces toxicity of residuals in groundwater.
- The offsite removal reduces the volume of contaminated media on site.
- Sources of groundwater contamination have been removed thereby leading to reduction in contaminant load to groundwater and reducing resultant migration potential. Surface water sampling confirmed no impact to the Saw Mill River. Ongoing groundwater monitoring will continue to track any future migration potential.
- The site is largely covered by hardstand, (asphalt and concrete). Former UST and soil excavation locations have been backfilled and repaved which will reduce infiltration that could mobilize subsurface contaminants and also will prevent erosion at ground surface.

5.5 SHORT TERM EFFECTIVENESS

The potential for adverse impacts during implementation of both completed and future remedial actions have been successfully addressed. The proposed remedial measures can be implemented in a manner that reduces risk and that provide for short and long term protection.

- Applicable health & safety procedures and construction requirements were adhered to and will be followed during implementation to mitigate short term concerns as the work progresses.
- Soil excavation provides an immediate improvement to environmental conditions on site by immediately removing contaminated media and eliminating a source of contamination. An immediate short term (and long term) benefit is so derived.
- Investigation and remedial activities on site including tank removals, soil excavation, monitoring and sampling were conducted following a site specific Health and Safety Plan. The plan mitigated and controlled exposure potential to individuals involved in the remedial work, bystanders, the public, and the environment during the period the work was ongoing.
- The Site Management Plan includes requirements for following health and safety, and quality assurance measures during future intrusive activities and monitoring events. The excavation plan incorporated into the Site Management Plan also presents control measures for safe operations that maintain effective short term controls, ensure

effectiveness, and prevent environmental degradation and exposure during these activities.

5.6 IMPLEMENTABILITY

Many of necessary active remedial measures (tank closure and soil excavation, sampling, and the majority of the groundwater monitoring) already have been completed successfully and safely, thereby confirming their implementability. Remaining tasks can easily and reasonably be accommodated and completed.

- The proposed remedial measures are standard approaches to address residual
 contamination as found on site. The use of institutional controls, monitored attenuation,
 and inspection and certification are standard practices routinely used throughout New
 York as environmental response elements, and indeed are identified and recommended in
 regulations and guidance documents.
- Elmsford Realty Associates, LLC, owns the property, conducted investigation and remediation activities to date including the March 18, 2011 Remedial Investigation and Site Management Plan. They also are submitting this Alternatives Analyses and thereby confirm their approval of the proposed actions, including the placement of institutional controls attached to the deed for the property.
- The proposed remedial measures are reliable in maintaining compliance with applicable criteria. Removal is a permanent response action for the site. Institutional controls are subject to permitting and biennial inspections and certification to document ongoing and continued reliability.

5.7 LAND USE

The proposed remedial measures do not place an undue burden on, or conflict with, land use considerations at the site.

- The proposed Deed Restriction limits site use to commercial and industrial activities only. The site and surrounding corporate park in which it is located are zoned for "Light Industrial" use. This Deed Restrictions and zoning are consistent with current and future planned use onsite.
- The Deed Restriction prohibits use of groundwater on site. Groundwater is not used or withdrawn by the site, and public supply is provided to the site and surrounding area.
- Compliance criteria and RAOs include SCO-C (commercial site soil cleanup objectives) which is consistent with current and planned site use.

• Sensitive human receptors such as schools, medical facilities, parks, and residences are not located on or proximate to the site. The Saw Mill River is located east of the parcel, but surface water samples did not identify impact from the site to the river.

6.0 SUMMARY AND RECOMMENDED REMEDIAL ALTERNATIVE

Remedial Measures have been conducted on the 1 Warehouse Lane site. Remaining and additional measures are set forth in the Site Management Plan for the property and incorporate the following:

- 1. Excavation and removal of onsite ASTs, USTs, and impacted soil. (completed);
- 2. Execution and recording of a Deed Restriction to restrict land use and prevent future exposure to any contamination remaining at the Site. (a draft deed notice was presented in Site Management Plan and will be filed upon approval); and
- 3. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Deed Restriction, which includes plans for: institutional controls, excavation controls, site monitoring, natural attenuation and monitoring of groundwater, and site inspections and reporting (the Site Management Plan has been prepared and submitted to NYSDEC and will be implemented upon approval).

The completed and pending remedial response elements were reviewed with respect to the requirements in NYSDEC DER-10 and the guidelines provided by NYSDEC. Based on this review and the Alternative Analyses Report presented herein, the Remedial Actions are appropriate for the site.









