LABELLA Associates, D.P.C.
Engineering
Architecture
Environmental
Planning

Remedial Alternatives Analysis & Remedial Work Plan

Location:

Holtz Porsche Audi Mazda
3955 West Henrietta Road
Henrietta, New York 14623

Prepared for:

Linleigh Realty, LP
131 Kilbourn Road
Henrietta, New York 14618

LaBella Project No. 212300

Revised August 2014

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August 2014

LaBella Associates, D.P.C.
300 State Street
Rochester, New York 14614

Certification

I, Daniel P. Noll, P.E., certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Report [Remedial Alternatives Analysis and Remedial Work Plan] was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Printed Name	Date

Signature

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1.0 INTRODUCTION

LaBella Associates, D.P.C. (LaBella) prepared this Remedial Alternatives Analysis (RAA) and Remedial Work Plan (RWP) on behalf of Linleigh Realty, LP (Linleigh). This RAA and RWP summarizes remedial alternatives evaluated and selects remedial actions to be implemented for the property at 3955 West Henrietta Road (NYS Rte. 15), located in the Town of Henrietta, Monroe County, New York, New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site #C828181, hereinafter referred to as "the Site." A Project Location Map is included as Figure 1.

The remedial alternatives and actions were evaluated based on the data obtained during a recent Remedial Investigation (RI) conducted at the Site. This RAA & RWP summarizes the findings of the Remedial Investigation Report for the Site; however, the RI Report should be referenced for greater details about the investigation.

2.0 BACKGROUND

2.1 Site Description

The Site consists of one (1) parcel of land located in a commercial area of the Town of Henrietta on the west side of West Henrietta Road and is currently utilized as an automobile dealership and service facility for Porsche, Audi and Mazda (PAM). Specifically, there is a showroom area for automobile sales and a service area for repair work. There is also a shed that is only utilized for storage (i.e. no human occupancy). The Site is surrounded by various other commercial properties. Information regarding the Site is summarized in the following table.

Street Address	Tax ID #	Acreage	Improvements
3955 West Henrietta Road	169.19-1-5.1	3.93 acre parcel	Two (2) Existing Buildings: 26,446 sq ft automobile dealership and 1,200 sq ft storage shed

3.0 AREAS OF CONCERN

This section summarizes the investigation completed at the Site. Based on the data obtained from this work, the Areas of Concern (AOCs) remaining at the Site are presented. These AOCs will be subsequently evaluated for remedial alternatives.

Summary of Remedial Investigation

The RI activities were conducted in accordance with a NYSDEC approved RI Work Plan (RIWP) entitled *Remedial Investigation Work Plan, Holtz Porsche, Audi, Mazda, Town of Henrietta, New York* last revised May 2012. This report was also completed in accordance with the NYSDEC Division of Environmental Remediation (DER) BCP Guide dated May 2004 and the DER-10 (*Technical Guidance for Site Investigation and Remediation*) dated May 3, 2010.

Prior to the Site being entered into the NYSDEC BCP, the Site was evaluated and remediated through the

NYSDEC Spill Program. The pre-BCP investigation fieldwork included the completion of a geophysical survey, two (2) test pits, fifty-six (56) soil borings, and twenty-nine (29) groundwater monitoring wells.

Approximately 161 cubic yards of petroleum impacted soil in the area of a former gasoline underground tank was excavated in January 2009 in relation to NYSDEC Spill #0711183. The petroleum impacted soil was placed into a biocell for bioremediation at the 3600 West Henrietta Road parcel (formerly owned by an affiliate of Linleigh Realty, LP). The biocell was constructed in accordance with NYSDEC STARs #2 – Biocell and Biopile Designs for Small-Scale Petroleum-Contaminated Soil Projects (Revised May 1996). LaBella performed regular monitoring and maintenance of the biocell until constituents of concern in the soil met NYSDEC soil cleanup objectives. The NYSDEC issued a No Further Action Letter for NYSDEC Spill #0711183, but referred the solvent related volatile organic compounds (VOCs) impacts to the NYSDEC Division of Hazardous Waste.

The BCP RI fieldwork included completion of three (3) surface soil samples, fourteen (14) soil borings, ten (10) groundwater monitoring wells, three (3) sub-slab soil vapor points, and five (5) soil gas points at the Site. Site soils were characterized through soil and groundwater sampling for 'full-suite' testing that was completed throughout the Site in order to determine the nature and extent of contamination.

Based on the work completed, it was determined that the predominant contaminants were petroleum and solvent related volatile organic compounds (VOCs) (specifically Trichloroethene (TCE) and its breakdown compounds) in soil and groundwater with minimal amounts of petroleum related semi-volatile compounds (SVOCs) in surface soil. Based on these findings, it appears the source of the VOC plume is in the area of the automotive service repair area's waste water system (i.e. trench floor drain and oil-water separator). The limits of the VOC impacts were defined by the RI.

A limited amount of SVOCs were detected in one (1) surface soil sample collected near the western property line of the Site. The location of the surface soil sample is an area where parking lot run-off is collected and, as such, the likely source of the SVOC impacts.

Based on the results of the RI the following conclusions were made:

1. The soil and groundwater impacts at the Site have been delineated and the primary contaminants at the Site consist of petroleum and solvent related VOCs.
2. Prior to the Site being entered into the NYSDEC BCP, the Site was evaluated and remediated through the NYSDEC Spill Program. The pre-BCP investigation fieldwork included the completion of a geophysical survey, two (2) test pits, fifty-six (56) soil borings, and twenty-nine (29) groundwater monitoring wells. Thereafter, approximately 161 cubic yards of petroleum impacted soil was removed and placed into a biocell for bioremediation at 3600 West Henrietta Road. This work was completed under NYSDEC Spill #0711183. The biocell was constructed in accordance with NYSDEC STARs #2 – Biocell and Biopile Designs for Small-Scale Petroleum-Contaminated Soil Projects (Revised May 1996). LaBella performed regular monitoring and maintenance of the biocell until constituents of concern in the soil met NYSDEC soil cleanup objectives. The NYSDEC issued a No Further Action Letter for NYSDEC Spill #0711183, but referred the Site to the NYSDEC Division of Hazardous Waste for further examination of the solvent related VOC impacts.
3. Surface soil sampling at the Site only identified one area of soil that contains SVOCs above the SCGs. Surface soil sample SS-1 is located near the western property line of the Site in an area

where parking lot run-off collects and where snow is placed from plowing the parking lot. The presence of SVOCs in this area is likely related to parking lot run-off water and possibly asphalt pieces mixed in with the plowed snow that is dumped in this area. This area is only utilized for vehicle storage and not a public area.

4. Subsurface soil impacts were not identified at concentrations above the NYSDEC Part 375-6.8(b) Restricted Use Soil Cleanup Objectives for a Commercial Site. However, low concentrations of VOCs above the NYSDEC Part 375-6.8(a) Unrestricted Use Soil Cleanup Objectives (SCOs) in soil were detected during pre-BCP environmental investigations in the automotive service area in the shallow soils beneath the building.
5. Groundwater at the Site is impacted with petroleum and chlorinated VOCs. The groundwater plume is primarily located underneath the automotive service area and extends slightly outside the main building at the Site to the west. The source of the groundwater impacts appears to be the automotive repair area's waste water system (i.e. trench floor drain and oil-water separator). A break/hole in the westernmost trench drain was observed during an inspection. This break/hole was repaired in January 2010 and the remaining trench drain was inspected with no other breaks identified.
6. Comparison of BCP groundwater sample results with pre-BCP groundwater sampling results do not show an increase in the size and concentration of the chlorinated groundwater plume. Therefore, the groundwater plume remains stable.
7. The results of the interior ambient air and sub-slab vapor samples were compared to the guidance values in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006). There are no exceedances of the minimum action levels identified in Matrices 1 and 2. VOCs (predominantly petroleum related) not included in Matrices 1 and 2 were detected; however, the concentrations were generally higher in the indoor air than the corresponding sub slab vapor sample because of the nature of the automotive repair operations at the Site.
8. Based on the Conceptual Site Model (refer to Table 7.2.5 of RI Report), a completed on-site exposure pathway does not exist for the current or planned use of the Site.

Soil samples containing exceedances of NYSDEC Part 375-6.8 SCOs are presented on Figure 2. Total chlorinated VOC concentration contours from the most recent RI sampling event are presented on Figure 3.

Areas of Concern

The cumulative findings of the RI at the Site have identified three (3) areas of concern (AOCs) remaining at the Site that warrant further consideration. Data discussed below are included in the RI Report, submitted under separate cover. AOCs are depicted on Figure 4. The nature and extent of impacts for these areas have been defined and are summarized below:

AOC #1: Shallow Subsurface Soils Impacted with VOCs

Based on laboratory analysis of subsurface soil samples collected during pre BCP investigations, shallow subsurface soil at the Site contains VOCs at concentrations exceeding NYSDEC Part 375-6.8(a) Unrestricted Use SCOs but below Restricted Use SCOs for a Commercial Site. VOC impacts are limited to shallow subsurface soils beneath the automotive service portion of the site building.

AOC #2: Surface Soils Impacted with SVOCs

- *AOC #2A – Surface Soils Impacted with SVOCs above NYSDEC Part 375-6.8(a) Unrestricted Use SCOs* - This AOC consists of a small area of surface soil impacted by SVOCs at concentrations exceeding Unrestricted Use SCOs. The AOC located adjacent to the parking lot on the southern portion of the Site.
- *AOC #2B – Surface Soils Impacted with SVOCs above NYSDEC Part 375-6.8(b) Restricted Use SCOs for a Commercial Site* – This AOC consists of a small area of surface soil impacted by SVOCs at concentrations above Restricted Use SCOs for a Commercial Site. The AOC is located near the western property line of the Site in an area where parking lot run-off collects and where snow is placed from plowing the parking lot. The presence of SVOCs in this area is likely related to parking lot run-off water and possibly asphalt pieces mixed in with the plowed snow that is dumped in this area. This area is only utilized for vehicle storage and not a public area.

AOC #3: Groundwater Impacted with VOCs

Groundwater at the Site is impacted with petroleum and chlorinated related VOCs. The groundwater plume is primarily located underneath the automotive service area and extends slightly outside the main building at the Site to the west. The source of the groundwater impacts appears to be the automotive repair area's waste water system (i.e. trench floor drain and oil-water separator). A break/hole in the westernmost trench drain was observed during an inspection. This break/hole was repaired in January 2010 and the remaining trench drain was inspected with no other breaks identified. Comparison of BCP groundwater sample results with pre-BCP groundwater sampling results do not show an increase in the size and concentration of the chlorinated groundwater plume. Therefore, the groundwater plume remains stable.

4.0 OBJECTIVE

The objective of this RAA & RWP is to evaluate remedial alternatives to address the AOCs presented above and select remedial actions to be implemented. As defined in NYSDEC DER-10 (Section 4.0), remedial alternatives will be evaluated based on the following criteria:

1.) Overall Protection of Public Health and the Environment: This criterion evaluates exposure and residual risks to human health and the environment during or subsequent to implementation of the alternative.

2.) Compliance with SCGs: This criterion evaluates whether the remedial alternative will ultimately result in compliance with SCGs, to the extent practicable.

3.) Long-Term Effectiveness and Permanence: This criterion evaluates if the remedy is effective in the long-term after implementation (e.g., potential rebound). In the event that residual impacts will remain as part of the alternative, then the risks and adequacy/reliability of the controls are also evaluated.

4.) Reduction of Toxicity, Mobility, or Volume with Treatment: This criterion evaluates the reduction of contaminant toxicity, mobility or volume as a result of the remedial alternative. In addition, the reversibility of the contaminant destruction or treatment is evaluated.

5.) Short-Term Effectives: This criterion evaluates if the remedial alternative protects the community, workers and the environment during implementation.

6.) Implementability: This criterion evaluates the remedial alternative based on its suitability, implementability at the specific site, and availability of services and materials that will be required.

7.) Cost: This criterion evaluates the capital, operation, maintenance, and monitoring costs for the remedial alternative. The estimated costs are presented on a present worth basis.

8.) Community Acceptance: A summary of the public participation program completed as part of the project. In addition, any public comments concerns and overall perception are addressed as part of the criteria.

[*Note: The public participation work completed to date has included the initial public notice as part of the BCP Application and RI Work Plan. These public notices have not resulted in any comments from the public. As such, each alternative will be evaluated based on if the alternative would likely be acceptable to the community. In the event that any public comments are received, these will be addressed.*]

5.0 REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are medium-specific objectives for the protection of public health and the environment and are developed based on contaminant-specific standards, criteria, and guidance (SCGs) established by NYSDEC and/or New York State Department of Health (NYSDOH).

Soil RAOs

The RAOs for soil used in this RAA & RWP are:

- NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives (RPSCOs) for the Protection of Public Health/Commercial Use;
- NYCRR Subpart 375-6 RPSCOs for the Protection of Groundwater.

Groundwater RAOs

The RAOs for groundwater used in this RAA & RWP are:

- NYSDEC Part 703 Groundwater Standards.

6.0 DEVELOPMENT OF REMEDIAL ALTERNATIVES

This section develops the remedial alternatives being considered for addressing the AOCs identified for the Site.

Alternative #1 – No Action

The no action alternative is included as a procedural requirement and as a baseline to evaluate other alternatives. Under this alternative no remedial or monitoring activities would occur. No environmental easement would be recorded to run with the land including institutional or engineering controls to further manage residual contamination. This area would remain virtually as it is and change in use would not be limited except by existing land use controls such as zoning.

Alternative #2 – Unrestricted Use: BCP Cleanup Track 1

To meet the requirements of a Track 1 cleanup the following would be required for each AOC:

AOC #1: Shallow Subsurface Soils Impacted with VOCs

Under this alternative, in-situ chemical oxidation would be utilized to treat VOC impacted soil beneath the Site building that is above Unrestricted Use SCOs. A solution of sodium or potassium permanganate would be injected into the subsurface. Follow up soil borings and laboratory analysis would be required to verify effectiveness.

AOC #2A: Surface Soils Impacted with SVOCs above Unrestricted Use SCOs

Under this alternative, an approximately 100 square foot area of soil would be removed to a depth of approximately 1 foot. The soils would be transported off-site for disposal and confirmatory soil samples would be collected to verify the effectiveness of the remedial work and the area would be restored.

AOC #2B: Surface Soils Impacted with SVOCs above Restricted Use SCOs for a Commercial Site

Under this alternative, an approximately 100 square foot area of soil would be removed to a depth of approximately 1 foot. The soils would be transported off-site for disposal and confirmatory soil samples would be collected to verify the effectiveness of the remedial work and the area would be restored.

AOC #3: Groundwater Impacted with VOCs

Under this alternative in-situ chemical oxidation would be utilized to treat VOC impacts in groundwater. A solution of sodium or potassium permanganate would be injected into existing monitoring wells to chemically destroy VOCs. A groundwater monitoring program would be implemented to monitor VOC concentrations over time to verify the effectiveness of the treatment.

Alternative #3 – Restricted Use, Commercial with Groundwater Treatment: BCP Cleanup Track 2

To meet the requirements of a Track 2 Commercial cleanup the following would be required for each AOC:

AOC #1: Shallow Subsurface Soils Impacted with VOCs

Under this restricted use alternative, the VOC impacted soil beneath the Site building that is above Unrestricted Use SCOs would be managed with institutional controls (e.g., deed restrictions, NYSDEC

Environmental Easement, etc.) and development of a Site Management Plan (SMP) including a Health and Safety Plan (HASP) to protect against exposure and also control Site use.

AOC #2A: Surface Soils Impacted with SVOCs above Unrestricted Use SCOs

Under this alternative no further action would be required. Soils in this AOC impacted by SVOCs are present at concentrations below Restricted Use SCOs for a Commercial Site.

AOC #2B: Surface Soils Impacted with SVOCs above Restricted Use SCOs for a Commercial Site

Under this alternative, an approximately 100 square foot area of soil would be removed to a depth of approximately 1 foot. The soils would be transported off-site for disposal and confirmatory soil samples would be collected to verify the effectiveness of the remedial work and the area would be restored.

AOC #3: Groundwater Impacted with VOCs

Under this restricted use alternative, in-situ chemical oxidation would be utilized to treat VOC impacts in groundwater. A solution of sodium or potassium permanganate would be injected into existing wells. Under this alternative only the most highly contaminated wells (i.e., RIMW-14, MW-20 and MW-21) would be utilized for treatment. A groundwater monitoring program would be implemented to monitor VOC concentrations over time. This alternative includes implementation of institutional controls (e.g., deed restrictions, NYSDEC Environmental Easement, etc.) and development of a Site Management Plan (SMP) including a Health and Safety Plan (HASP) to protect against exposure and also control Site use.

Alternative #4 – Restricted Use, Commercial without Groundwater Treatment: BCP Cleanup Track 4

To meet the requirements of a Track 4 Commercial cleanup under this alternative the following would be required for each AOC:

AOC #1: Shallow Subsurface Soils Impacted with VOCs

Same as Alternative #3.

AOC #2A: Surface Soils Impacted with SVOCs above Unrestricted Use SCOs

Same as Alternative #3.

AOC #2B: Surface Soils Impacted with SVOCs above Restricted Use SCOs for a Commercial Site

Under this restricted use alternative, the SVOC impacted soil would be addressed with a cover system consisting of a minimum 1 foot thick layer of crushed stone or asphalt pavement.

AOC #3: Groundwater Impacted with VOCs

Under this restricted use alternative, the VOC impacted groundwater would be managed with institutional controls (e.g., deed restrictions, NYSDEC Environmental Easement, etc.) and development of a Site Management Plan (SMP) including a Health and Safety Plan (HASP) to protect against exposure and also

control Site use. A groundwater monitoring program would be implemented to monitor VOC concentrations over time.

7.0 DETAILED EVALUATION OF ALTERNATIVES

Alternative #1 – No Action

Description

Under this alternative the impacted soil in AOCs #1, 2A and 2B would remain as is and future Site use and development would not be limited. In addition, remedial and monitoring activities as well as placement of institutional controls at the Site would not be implemented, with the exception of a groundwater use restriction.

Assessment

This alternative may not be protective of human health or the environment. Soil samples collected from AOCs #1, 2A and 2B were found to exceed NYSDEC Part 375 Soil Cleanup Objectives and in the event that this area is disturbed in the future with no action, there is a potential for human exposure to the impacts and potentially the environment.

With the exception of possible natural attenuation of VOCs, this alternative would not result in the reduction of contaminant toxicity, mobility or volume and therefore would not be in compliance with chemical-specific RAOs.

There would be no increased short-term risks associated with the no action alternative since remedial activities are not implemented and there does not appear to be a current exposure pathway with these impacts; however, this alternative may not be effective in the long-term and is not a permanent remedy.

Based on the findings of the studies performed to date it is anticipated that this alternative would not be acceptable to the community.

Of the alternatives being considered, the no action alternative is not effective for the long-term and does not reduce toxicity, mobility, or volume of contaminants. The estimated cost for this alternative is summarized below:

Estimated Cost of No Action .....$ 0

Alternative #2 – Unrestricted Use: BCP Cleanup Track 1

Description

Under this alternative the impacted soil in AOC #1 would be treated by injection of a permanganate solution. The chemical oxidant would be injected directly to the shallow subsurface through a grid of direct-push injection points. Prior to implementing the full scale injection a pilot test would be performed to determine injection rates and quantities of permanganate solution injected in each point. It is

anticipated that an approximately 4% permanganate solution would be injected. Subsequent to injection soil borings would be advanced in the treatment area to collect soil samples for laboratory analysis to evaluate the effectiveness of the treatment and determine the need for additional injection(s).

The impacted soil in AOCs #2A and 2B would be removed and disposed of off-site in accordance with applicable regulations. For the purpose of this evaluation, it is assumed that a combined total of approximately 8 cubic yards of surface soil would be removed and disposed from AOC #2A and AOC #2B. Subsequent to collection of confirmatory soil samples the excavations would be backfilled. The extent of the soil removal would include the areas shown on Figure 4.

Groundwater (AOC #3) would be treated by injection of a permanganate solution in the following existing monitoring wells – MW-8, MW-12, MW-18, MW-19, MW-20, and MW-21. Prior to implementing the full scale injection a pilot test would be performed to determine injection rates and quantities of permanganate solution injected in each well. It is anticipated that an approximately 4% permanganate solution would be injected. These wells and down gradient monitoring wells RITB-3, RITB-4, and RITB-5 would be sampled on an annual basis to monitor VOC concentrations.

Assessment

This alternative should be protective of human health and the environment. Soil with contaminant concentrations above unrestricted use SCOs on-site would be chemically treated or removed.

This alternative would result in the reduction of the toxicity, mobility, and volume of contaminants in the soil. Therefore, the area of soil removal would be in compliance with chemical-specific SCGs.

This alternative would increase short-term risks for the workers implementing the alternative. However, this alternative would be effective in the long-term. The soil removal and disposal, soil treatment and groundwater treatment alternatives would be a permanent remedy.

Based on the findings of the studies performed to date, it is anticipated that the results of this alternative would be acceptable to the community.

Of the alternatives being considered, the soil treatment alternative for AOC #1 may be feasible. The injection of chemical oxidants into the subsurface, while feasible, would result in disruptions to Site operations and would result in financial costs to the current Site owner and operator. In addition, a pilot test is necessary to verify that only one round of injections would be necessary and determine the number of injection points and amount necessary for proper soil treatment. Therefore, the cost estimate provided below may require adjustment following pilot testing. The cost for this alternative is summarized below (It should be noted that this cost estimate does not include the financial impact to the current owner and operator of the Site from the temporary closure of its repair operations):

Estimated Cost of Unrestricted Use: BCP Track 1 Cleanup..... $ 228,095

Alternative #3 – Restricted Use, Commercial With Groundwater Treatment: BCP Cleanup Track 2

Description

Under this alternative the impacted soil in AOC #1 and AOC #2A would not be removed. Impacted soils at concentrations above Restricted Use SCOs for a Commercial site will be removed from AOC #2B and disposed of off-site in accordance with applicable regulations. For the purpose of this evaluation, it is assumed that approximately 4 cubic yards of soil would require removal and disposal from AOC #2B. The extent of the soil removal would include the area shown on Figure 5.

Groundwater (AOC #3) would be treated by in-situ chemical oxidation to treat VOC impacts in groundwater. A solution of sodium or potassium permanganate would be injected into existing wells. Under this alternative only the most highly contaminated wells (i.e., RITB-14, MW-20 and MW-21) would be utilized for treatment. A groundwater monitoring program would be implemented to monitor VOC concentrations over time and would include sampling of the wells where injections occurred and down gradient monitoring wells RITB-3, RITB-4, RITB-5 and RITB-7 on an annual basis to monitor VOC concentrations. Institutional controls (e.g., NYSDEC Environmental Easement, etc.) and development of an SMP including a HASP, would be implemented to minimize potential exposures and also control Site use. The SMP would include procedures for properly handling and disposing of impacted media at the Site in the areas of AOC #1 and AOC #2A should those areas be disturbed in the future.

Assessment

This alternative should be protective of human health and the environment. Soil with contaminant concentrations above RAOs on-site would be removed and disposed of off-site.

This alternative would result in the reduction of the toxicity, mobility, and volume of contaminants in the soil. Therefore, the area of soil removal would be in compliance with chemical-specific SCGs.

This alternative would increase short-term risks for the workers implementing the alternative. However, this alternative would be effective in the long-term. The soil removal and disposal alternative for AOC #2B and groundwater treatment alternative for AOC #3 would be a permanent remedy.

Based on the findings of the studies performed to date, it is anticipated that the results of this alternative would be acceptable to the community.

Of the alternatives being considered, the removal of soils from AOC #2B and implementation of institutional controls may be feasible. The injection of chemical oxidants into the select wells, while feasible, would result in disruptions to Site operations and would result in financial costs to the current Site owner and operator. The costs for this alternative are summarized below:

Estimated Cost of Restricted Use, Commercial with Groundwater Treatment: BCP Track 2 Cleanup ..... $ 94,210

Alternative #4 – Restricted Use, Commercial without Groundwater Treatment: BCP Cleanup Track 4

Description

Under this alternative the impacted soil in AOC #1 and AOC #2A would not be removed. Impacted soils at concentrations above Restricted Use SCOs for a Commercial site will be removed from AOC #2B and disposed of off-site in accordance with applicable regulations. For the purpose of this evaluation, it is assumed that approximately 4 cubic yards of soil would require removal and disposal from AOC #2B. The extent of the soil removal would include the area shown on Figure 5.

A groundwater monitoring program would be implemented to monitor VOC concentrations over time and would include sampling of wells RITB-3, RITB-4, RITB-5, RITB-7, RITB-13, RITB-14, MW-8, MW-18, MW-20 and MW-21 on an annual basis to monitor VOC concentrations. Institutional controls (e.g., NYSDEC Environmental Easement, etc.) and development of an SMP including a HASP, would be implemented to minimize potential exposures and also control Site use. The SMP would include procedures for properly handling and disposing of impacted media at the Site in the areas of AOC #1, AOC#2A and AOC #2B should those areas be disturbed in the future.

Assessment

This alternative should be protective of human health and the environment. Soil with contaminant concentrations above RAOs on-site would be covered with a minimum one foot thick cover system.

This alternative would increase short-term risks for the workers implementing the alternative. However, this alternative would be effective in the long-term. With installation of a cover system and implementation of an SMP, this is a permanent remedy.

Based on the findings of the studies performed to date, it is anticipated that the results of this alternative would be acceptable to the community.

Of the alternatives being considered, the cover system in AOC #2B, groundwater monitoring and implementation of institutional controls may be feasible. The costs for this alternative are summarized below:

Estimated Cost of Restricted Use, Commercial without Groundwater Treatment: BCP Track 4 Cleanup ..... $ 89,825

8.0 COMPARATIVE EVALUATION OF ALTERNATIVES AND RECOMMENDED ACTIONS

This section of the report compares the remedial alternatives proposed for each alternative and presents the recommended action.

1. **Alternative #1 – No Action** The no action alternative may not be protective of human health and the environment and would likely not be acceptable to the community. This alternative is not a

permanent remedy and with neither removal or institutional controls the potential exists that future ground intrusive activities at the Site will result in exposure to impacted soil and groundwater.

2. **Alternative #2 – Unrestricted Use: BCP Cleanup Track 1** The Unrestricted Use alternative should be protective of human health and the environment and would likely be acceptable to the community. This alternative would be a long-term and permanent remedy. However, the estimated cost, including potential legal actions from the current Site operator for disruption of business and the related costs for such disruption do not justify the benefits of soil treatment in AOC #1. The cap (i.e., building slab) over AOC #1 greatly limits the migration of contaminants into groundwater and migration of the contaminant plume as evidenced by the investigation data. This alternative is not considered practicable.

3. **Alternative #3 – Restricted Use, Commercial with Groundwater Treatment: BCP Cleanup Track 2** The Restricted Use, Commercial alternative with groundwater treatment would be protective of human health and the environment and would likely be acceptable to the community. This alternative would be a long-term and permanent remedy. The Site is commercial in nature, and is likely to remain as such for the foreseeable future therefore cleanup to Unrestricted Use SCOs does not appear warranted. Surface soil above Restricted Use Commercial SCOs would be removed and groundwater concentrations would be reduced as a result of groundwater treatment. The SMP and institutional controls would manage the risk realized during future ground intrusive work at the Site. While the remedy is feasible, given the commercial nature of the Site, the lack of exposure to groundwater and the implementation of an SMP and institutional controls, the additional costs associated with groundwater treatment do not appear to be warranted.

4. **Alternative #4 – Restricted Use, Commercial without Groundwater Treatment: BCP Cleanup Track 4** The Restricted Use, Commercial alternative without groundwater treatment would be protective of human health and the environment and would likely be acceptable to the community. This alternative would be a long-term and permanent remedy. The Site is commercial in nature, and is likely to remain as such for the foreseeable future therefore cleanup to Unrestricted Use SCOs does not appear warranted. Surface soil above Restricted Use Commercial SCOs would be covered to prevent exposure and the SMP and institutional controls would manage the risk realized during future ground intrusive work at the Site. Monitoring of the more impacted, but still relatively low concentration, groundwater monitoring wells and proposed downgradient wells will aide in management of the risk.

The recommended remedial action is Alternative #4 – Restricted Use, Commercial without Groundwater Treatment: BCP Cleanup Track 4.

9.0 SUMMARY OF RECOMMENDED FINAL REMEDIAL ACTIONS

Based on the above recommendations, this section summarizes the overall final remedial strategy for the Site.

Subsequent to NYSDEC approval and completion of construction of the cover system, a Final Engineering Report would be submitted with an SMP.

The estimated cost and the next actions to complete the work are shown below.

Area of Concern	Recommended Action	Estimated Cost
AOC #1 (Shallow subsurface soils impacted with VOCs)	SMP/Institutional Controls	$9,850
AOC #2A (Surface soils impacted with SVOCs above Unrestricted Use SCOs)	No action	$0
AOC #2B (Surface soils impacted with SVOCs above Restricted Use SCOs for a Commercial Site)	Installation of cover system	$35,000
AOC #3 (Groundwater impacted with VOCs)	Groundwater monitoring, SMP with institutional controls.	$54,850
	Total	**$89,825***

* The total cost has been reduced to remove repetitive items such as SMP and deed restrictions

10.0 REMEDIAL WORK PLAN

This section presents the Remedial Work Plan for the recommended actions for the Site. The development of this RWP is in accordance with Brownfield Cleanup Program Guide dated May 2004 and NYSDEC DER-10 dated May 2010.

1. Installation of Cover System

A cover system will be installed to address the limited SVOC impacts in AOC #2B. The covers system will consist of a minimum of one foot of clean fill or asphalt pavement.

For each source of backfill that is imported to the Site, laboratory analysis will be completed in accordance with Table 5.4(e)10 of DER-10. The results for each new source of fill will meet the values provided in Appendix 5 of DER-10 for Restricted Commercial use and will receive approval by the NYSDEC. Crushed stone meeting the criteria set forth in Section 5.4(e)5.i. of DER-10 will not require laboratory testing.

Health and Safety Plan and Community Air Monitoring Plan

The remedial work will be conducted under the existing Health and Safety Plan (HASP) for the Site, which was implemented as part of the RI work. In addition, the NYSDOH Generic Community Air Monitoring Plan (CAMP) will also be implemented during all remedial work at the Site.

2. Final Engineering Report

A Final Engineering Report (FER) documenting the active remedial work conducted will be developed and submitted to NYSDEC subsequent to completing the soil removal work. The FER will include the laboratory data, DUSRs, and other monitoring data. The FER will include as an Appendix the SMP for managing the Site (see below).

3. Long Term Groundwater Monitoring

Groundwater samples will be collected from the following wells on an annual basis: RITB-3, RITB-4, RITB-5, RITB-7, RITB-13, RITB-14, MW-8, MW-18, MW-20 and MW-21.

Samples will be collected using low flow sampling techniques and will be analyzed for TCL VOCs by USEPA Method 8260. Subsequent to receipt of validated data a groundwater monitoring report will be prepared summarizing all sampling activities and submitted on an annual basis.

4. Site Management Plan/Institutional Controls

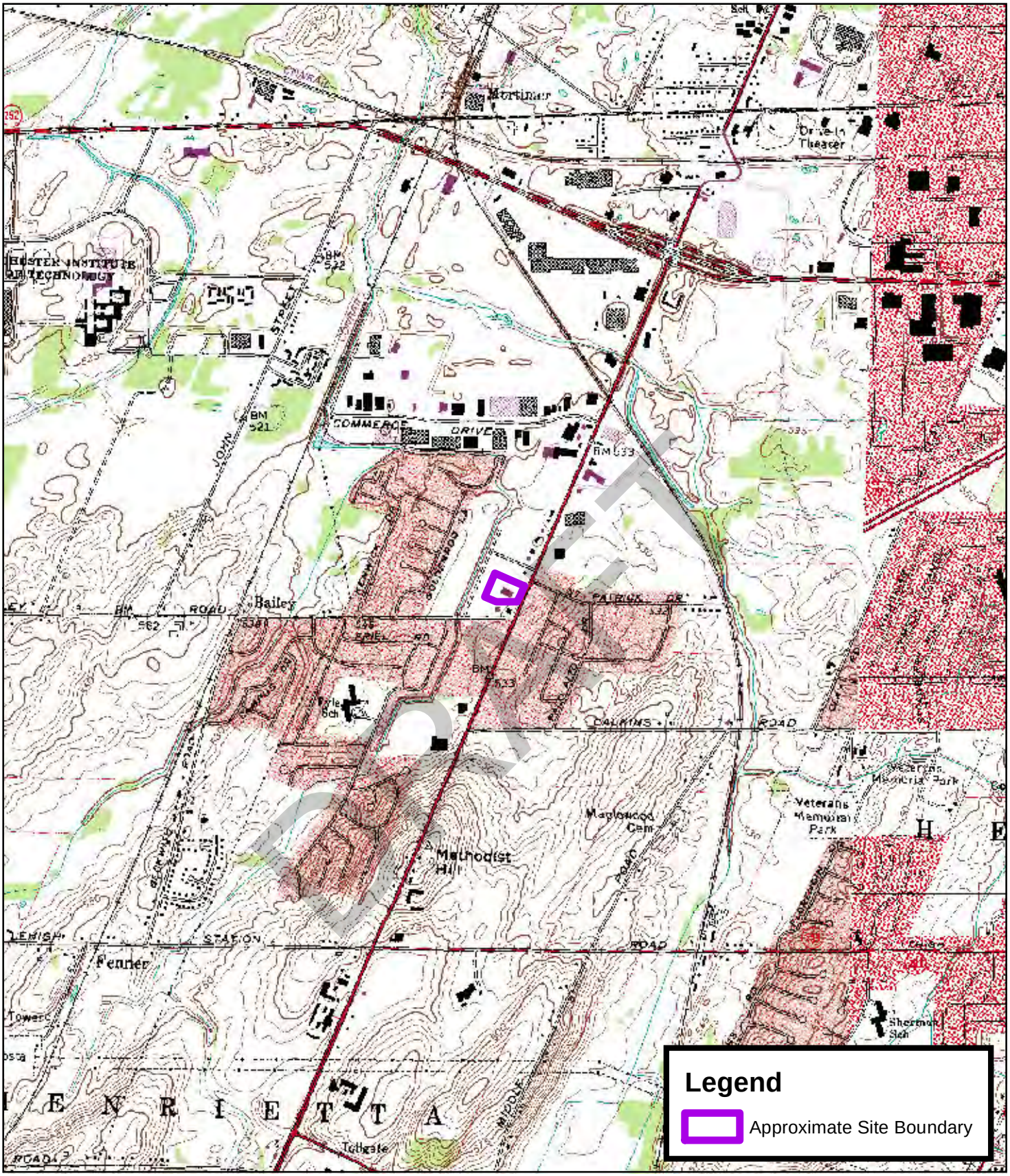
The remedy for the Site assumes that a SMP will be utilized for long-term management of the residual impacts at the Site. A SMP coupled with Institutional Controls will be developed for the entire Site, including all AOCs not part of the remedy. The intent of this document will be to manage any soil impacts remaining at the Site at levels above the Part 375-6 Unrestricted Use SCOs (i.e., AOC #1 and AOC #2A) and to restrict groundwater use at the Site (i.e., AOC #3). The SMP will include the following:

- Identify specific areas of residual impacted soil and groundwater that remain on-site (based on the RI and remedial data) and illustrate these areas on mapping.
- Identify proper handling, characterization, transportation and disposal requirements of the various impacted material should such material be encountered during any site redevelopment or future construction activities (e.g., underground utility work).
- Indicate that groundwater cannot be used as a source of drinking water or extracted for any reason without prior approval from regulatory agencies.
- Indicate that a provision for an evaluation of the potential for soil vapor intrusion shall be included should the site use change from an automotive sales and repair facility.
- Indicate that these measures are included in an environmental easement that is recorded with the Monroe County Clerk.
- Indicate that a certification be submitted to NYSDEC every three years certifying that the requirements of the SMP were adhered to.
- Record an environmental easement with the Monroe County Clerk that indicates the above requirements

The SMP and environmental easement to be recorded with the Clerk will be provided to NYSDEC prior to finalizing/recording these documents.

LaBella Associates, P.C.
300 State Street
Rochester, New York 14614

Figures



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300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585)454-3066
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FIGURE 1

Holtz Porsche Audi Mazda
3955 West Henrietta Road
Town of Henrietta, New York

Scale: 1:24,000

N

I:\Linleigh Realty, LP\212300\Drawings\RIR\Figure 1 USGS Holtz PAM.mxd

Path: I:\Linleigh Realty, LP\212300\Drawings\RAA-RWP\Figure 2 RI Soil Exceedences.mxd

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ROCHESTER, NY 14614
P: (585) 454-6110
F: (585)454-3066
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FORMER HOLTZ PORSCHE, AUDI, MAZDA
3955 WEST HENRIETTA ROAD
HENRIETTA, NEW YORK

REMEDIAL ALTERNATIVES ANALYSIS & REMEDIAL WORK PLAN
BCP SITE NO. C828181

PRE BCP AND RI SOIL SAMPLE EXCEEDANCES

N
W E
S

0 20 40

1 inch = 20 feet

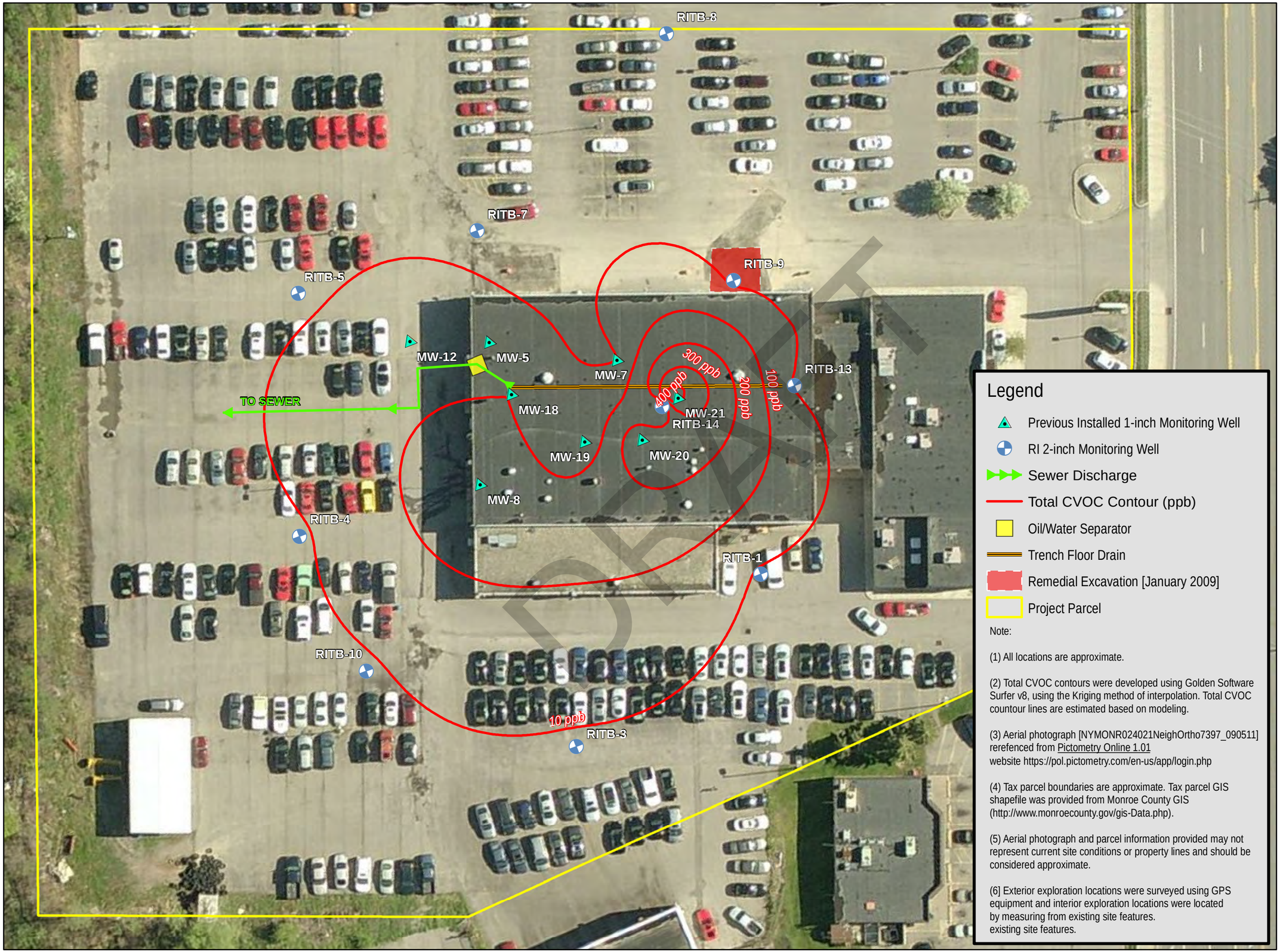
Issued For:
FINAL

Date: 07/26/2012

Drawn By: MFP

212300

FIGURE 2



Legend

- Previous Installed 1-inch Monitoring Well
- RI 2-inch Monitoring Well
- Sewer Discharge
- Total CVOC Contour (ppb)
- Oil/Water Separator
- Trench Floor Drain
- Remedial Excavation [January 2009]
- Project Parcel

Note:

(1) All locations are approximate.

(2) Total CVOC contours were developed using Golden Software Surfer v8, using the Kriging method of interpolation. Total CVOC countour lines are estimated based on modeling.

(3) Aerial photograph [NYMONR024021NeighOrtho7397_090511] rerefenced from Pictometry Online 1.01 website https://pol.pictometry.com/en-us/app/login.php

(4) Tax parcel boundaries are approximate. Tax parcel GIS shapefile was provided from Monroe County GIS (http://www.monroecounty.gov/gis-Data.php).

(5) Aerial photograph and parcel information provided may not represent current site conditions or property lines and should be considered approximate.

(6) Exterior exploration locations were surveyed using GPS equipment and interior exploration locations were located by measuring from existing site features. existing site features.

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300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585)454-3066
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HENRIETTA, NEW YORK

REMEDIAL ALTERNATIVES ANALYSIS & REMEDIAL WORK PLAN
BCP SITE NO. C828181

TOTAL CVOC GROUNDWATER COUNTOURS
REMEDIAL INVESTIGATION
3RD ROUND SAMPLES

N E W S

0 10 20 40

1 inch = 40 feet

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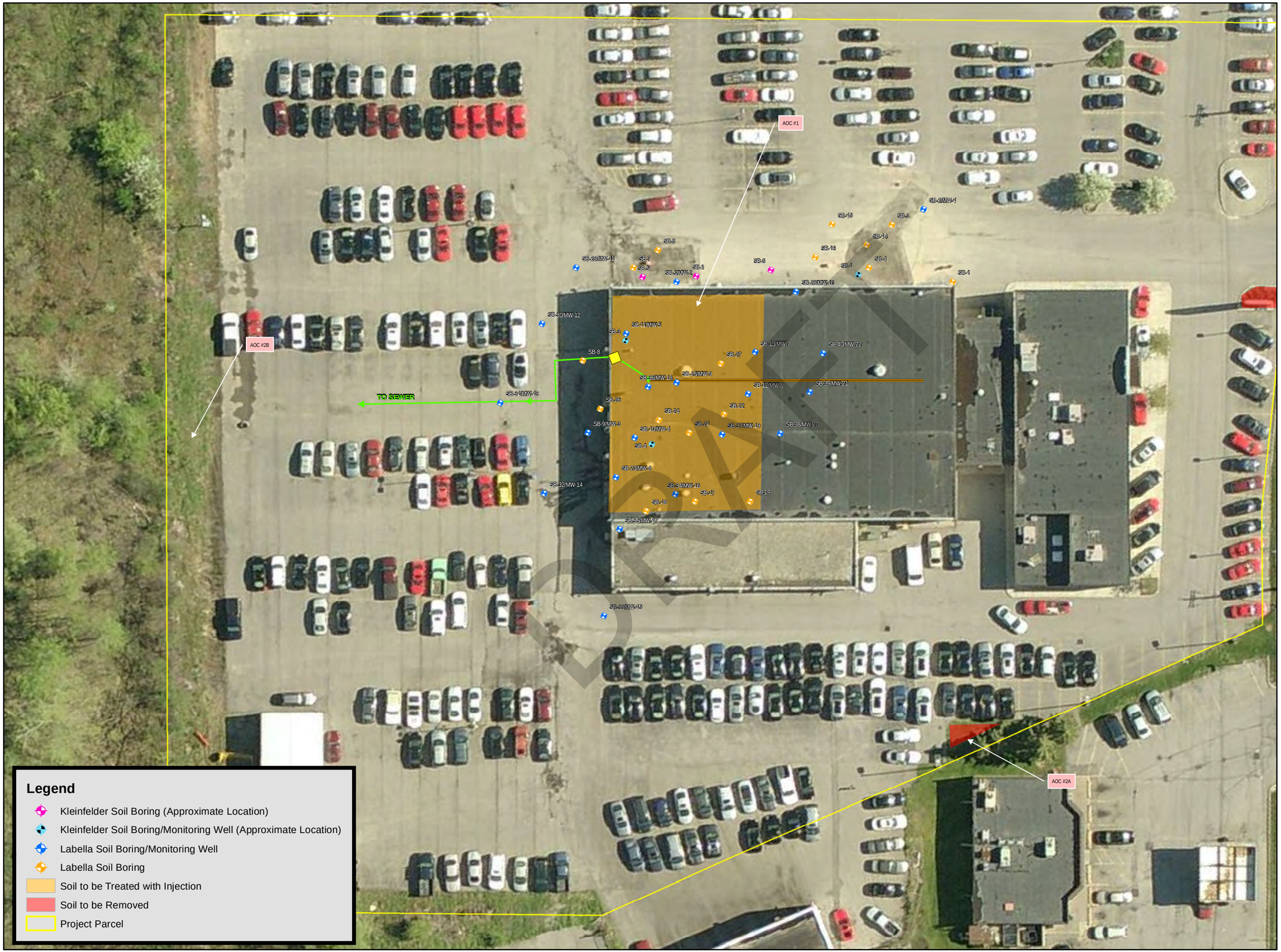
FIGURE 3

I:\Linleigh Realty, LP\212300\Drawings\RI\RIFigure 5B RI Well Locations.mxd



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300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585)454-3066
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REMEDIAL ALTERNATIVES ANALYSIS & REMEDIAL WORK PLAN
BCP SITE NO. C828181

Unrestricted Use Soil Removal & Injection Areas

N
E
W
S

0 10 20 40

1 inch = 40 feet

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Date: 02/06/2014
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FIGURE 4

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Associates, D.P.C.
300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585)454-3066
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FORMER HOLTZ PORSCHE,
AUDI, MAZDA
3955 WEST HENRIETTA ROAD
HENRIETTA, NEW YORK

SITE MANAGEMENT PLAN
BCP SITE NO. C828181

Cover System Location

N
W E
S

0 10 20 40

1 inch = 43 feet

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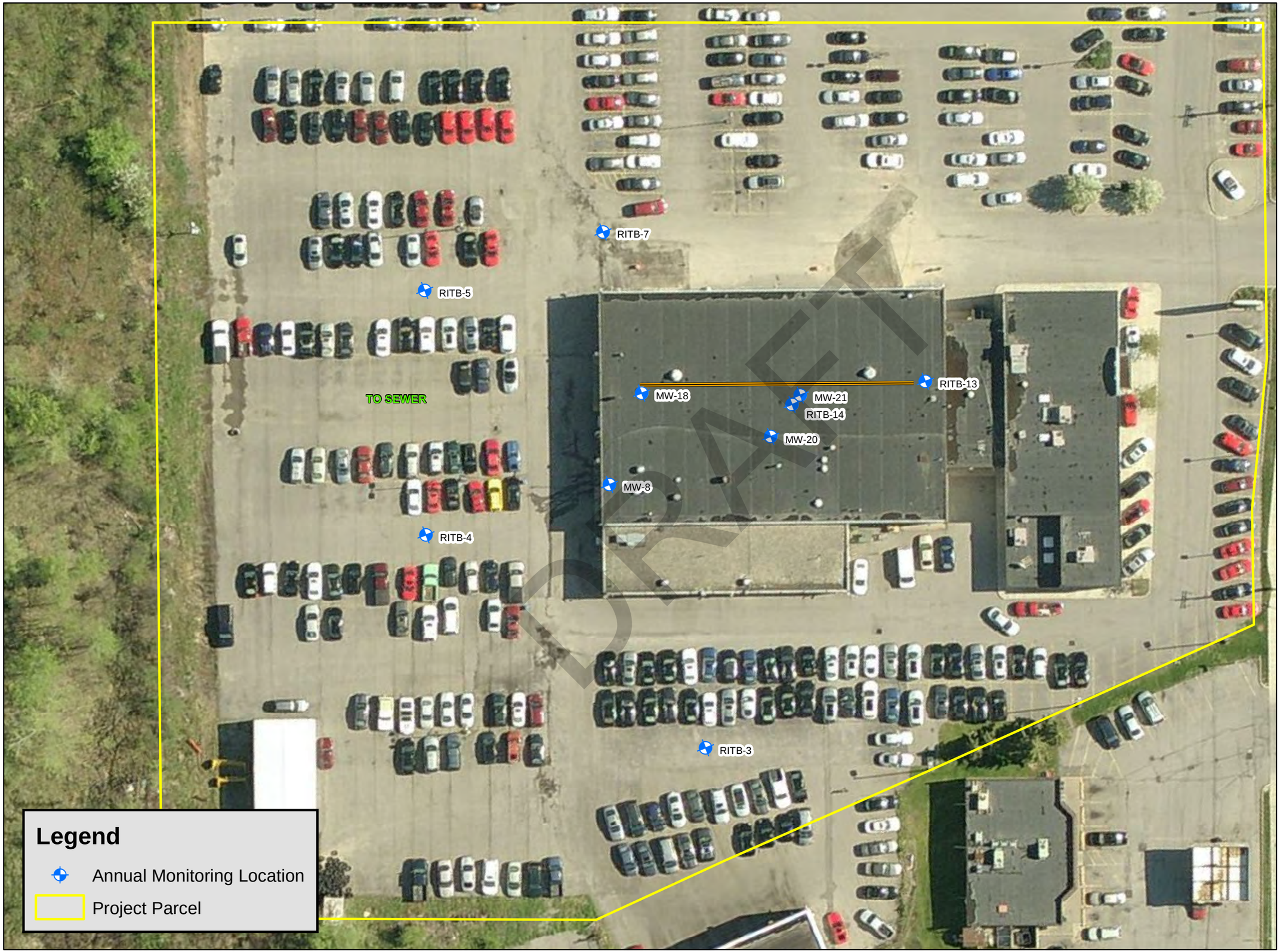
Date: 07/23/2013
Drawn By: MFP

212300

FIGURE 5

I:\Lehigh Realty, LLP\212300\Drawings\RI\RI\Figure 5B RI Well Locations.mxd



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300 STATE STREET
ROCHESTER, NY 14614
P: (585) 454-6110
F: (585)454-3066
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FORMER HOLTZ PORSCHE, AUDI, MAZDA
3955 WEST HENRIETTA ROAD
HENRIETTA, NEW YORK

REMEDIAL ALTERNATIVES ANALYSIS & REMEDIAL WORK PLAN
BCP SITE NO. C828181

ANNUAL SAMPLING LOCATIONS

N
W E
S

0 10 20 40

1 inch = 40 feet

Issued For:
FINAL

Date: 02/06/2014
Drawn By: DKE

212300

FIGURE 6

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Rochester, New York 14614

Tables

TABLE 1

Former Holtz Porsche Audi Mazda
3955 West Henrietta Road
Rochester, New York

ESTIMATE OF COST FOR REMEDIAL ALTERNATIVES

Alternative	Subcontractor Cost	Laboratory Analytical & Equipment Cost	Professional Services Cost	Estimated Regulatory Fees	Contingency	Estimated Cost
No Action	$0	$0	$0	$0	$0	$0
Unrestricted Use: BCP Track 1 Cleanup	$109,220	$15,000	$30,500	$28,875	$44,500	$228,095*
Restricted Use, Commercial with Groundwater Treatment: BCP Track 2 Cleanup	$15,360	$9,250	$29,000	$21,750	$18,850	$94,210*
Restricted Use, Commercial without Groundwater Treatment: BCP Track 4 Cleanup	$17,500	$9,750	$25,500	$19,125	$17,950	$89,825*

*** Does not include costs associated with disruption of the on-going business during remediation.**

TABLE 2

Former Holtz Porsche Audi Mazda
3955 West Henrietta Road
Rochester, New York

Unrestricted Use, BCP Track 1 Alternative

Sub-contractor Costs		
Soil Excavation, AOCs 2A & 2B (est. 8 yds^3)	$	1,500
Soil Transportation and Disposal (est. 15 tons)	$	900
Supply/Install Topsoil (est. 8 yds^3 @ \$40/ yd^3)	$	320
Pilot Study	$	5,000
Potassium Permanganate (est. 20,000 lbs @ \$3.50/lb.)	$	70,000
Permanganate Injection	$	30,000
Follow Up Soil Borings	$	1,500
Sub-contractor Costs Subtotal	**$**	**109,220**
Laboratory & Equipment Costs		
Soil Oxidant Demand Samples	$	1,500
Low-flow Sampling Equipment (3 events @ \$1,500)	$	4,500
Annual Groundwater Samples (estimate 2 years)	$	5,000
Confirmatory Soil Samples (1)	$	5,000
Laboratory Costs Subtotal	**$**	**15,000**
Professional Costs		
Work Plan	$	5,000
Oversight and Sampling (\$75/hr x 100 hours)	$	7,500
Annual Sampling (initial plus estimate 2 years, total 100 hours x \$75/hr)	$	7,500
Groundwater Monitoring Reports (3 @ \$1,500)	$	4,500
Final Engineering Report	$	5,000
Deed Restrictions	$	1,000
Professional Costs Subtotal	**$**	**30,500**
Estimated Regulatory Fees (75% of Professional Cost)	$	28,875
25% Contingency	*$*	*44,500*
Total Estimated Costs		**$228,095(2)**

Notes:

(1) Assumes analysis for United States Environmental Protection Agency (USEPA) Target Compound List (TCL) & New York State Department of Environmental Conservation (NYSDEC) Commissioner's Policy 51 (CP-51)-list SVOCs via Method 8270C

(2) Does not include costs associated with disruption of the on-going business during remediation.

TABLE 3

Former Holtz Porsche Audi Mazda
3955 West Henrietta Road
Rochester, New York

Restricted Use, Commercial with Groundwater Treatment, BCP Track 2 Alternative

Sub-contractor Costs		
Soil Excavation, AOC #2B	$	1,500
Soil Transportation and Disposal (est. 12 tons @ $45/ton)	$	540
Potassium Permanganate (est. 2,000 lbs @ $3.50/lb.)	$	7,000
Permanganate Injection	$	6,000
Supply/Install Topsoil (est. 8 yds^3 @ $40/ yd^3)	$	320
Sub-contractor Costs Subtotal	**$**	**15,360**
Laboratory & Equipment Costs		
Soil Waste Characterization Samples	$	500
Low-flow Sampling Equipment (5 events @ $750)	$	3,750
Annual Groundwater Samples (estimate 5 years)	$	4,500
Confirmatory Soil Samples	$	500
Laboratory Costs Subtotal	**$**	**9,250**
Professional Costs		
Work Plan	$	3,000
Oversight and Sampling	$	5,000
Annual Sampling (estimate 5 years, total 80 hours x $75/hr)	$	6,000
Groundwater Monitoring Reports (5 @ $1,500)	$	7,500
Final Engineering Report	$	3,000
Deed Restrictions	$	1,000
Environmental Management Plan (including Health and Safety Plan)	$	3,500
Total Professional Costs	**$**	**29,000**
Estimated Regulatory Fees (75% of Professional Cost)	$	21,750
25% Contingency	*$*	*18,850*
Total Estimated Costs		**$94,210**

TABLE 4

Former Holtz Porsche Audi Mazda
3955 West Henrietta Road
Rochester, New York

Restricted Use, Commercial without Groundwater Treatment, BCP Track 4 Alternative

Sub-contractor Costs		
Cover Installation	$	17,500
Sub-contractor Costs Subtotal	**$**	**17,500**
Laboratory & Equipment Costs		
Low-flow Sampling Equipment (5 events @ $750)	$	3,750
Annual Groundwater Samples (estimate 5 years)	$	6,000
Laboratory & Equipment Costs Subtotal	**$**	**9,750**
Professional Costs		
Work Plan	$	2,000
Oversight and Sampling	$	1,000
Annual Sampling (estimate 5 years, total 100 hours x $75/hr)	$	7,500
Groundwater Monitoring Reports (5 @ $1,500)	$	7,500
Final Engineering Report	$	3,000
Deed Restrictions	$	1,000
Environmental Management Plan (including Health and Safety Plan)	$	3,500
Total Professional Costs	**$**	**25,500**
Estimated Regulatory Fees (75% of Professional Cost)	$	19,125
25% Contingency	*$*	*17,950*
Total Estimated Costs	**$**	**89,825**

Table 5

Former Holtz Porsche Audi Mazda
3955 West Henrietta Road
Rochester, New York

Comparison of Remedial Alternatives

Alternative	Compliance with SCGs	Protective of Human Health and the Environment	Short Term Impacts	Long Term Effectiveness and Permanence	Reduction of Toxicity Mobility and Volume	Implementability	Estimated Cost
No Action	Does Not Comply	No action will most likely not impact human health due to groundwater not being used as source of drinking water. Contact with soil and/or groundwater may be limited to possible future utility or landscaping work.	None	No treatment/disposal of soil and therefore may not be effective in the long term, not a permanent remedy	Does not change waste characteristics in soil	Easy	$0
Unrestricted Use: BCP Track 1 Cleanup	Complies	In comparison to the no action alternative, provides a high level of protection of human health and the environment	Yes, elevated risk to workers during removal activities and oxidant injection activities	Permanent removal or chemical treatment of soils that exceed SCGs. Significant reduction if not elimination of VOCs in groundwater	Removes or treats soil that exceeds SCGs, Reduces VOCs in groundwater	Difficult	$228,095
Restricted Use, Commercial With Groundwater Treatment: BCP Track 2 Cleanup	Does Not Comply	In comparison to the no action alternative, provides protection of human health	Yes, minor risk to workers during soil removal and oxidant injection activities	Permanent removal of soil above commercial use SCOs, restricts/controls activities with soil (thus, reduce exposure risks) above unrestricted use SCOs. Groundwater treatment reduces VOC concentrations. SMP & environmental easement control exposure to residual concentrations in groundwater.	Reduces volume and toxicity in soil, Reduces VOCs in groundwater	Moderate	$94,210
Restricted Use, Commercial Without Groundwater Treatment: BCP Track 4 Cleanup	Does Not Comply	In comparison to the no action alternative, provides protection of human health	Yes, minor risk to workers during soil removal activities	Covers soil above commercial use SCOs, and restricts/controls activities with soil (thus, reduce exposure risks) above unrestricted and commercial use SCOs. Groundwater monitoring assists with any risk management. SMP & environmental easement control exposure to groundwater.	Does not change waste characteristics in soil	Easy	$89,825