

# City of Rensselaer – The Hollow Draft Analysis of Brownfield Cleanup Alternatives (ABCA)

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## Introduction and Background

The site is located in the northeastern portion of the City of Rensselaer, Rensselaer County, New York. The western edge of the site borders City streets from Fourth Street to Tenth Street. The site consists of approximately 60 acres of undeveloped land and is zoned as a playground and residential vacant land, known as “The Hollow.” The site consists of steep ridges on either side of the Quackenderry Creek valley and is mostly wooded land. The Quackenderry Creek is a tributary of the Hudson River, which is located approximately one-half mile west of the site. The site was part of what was known as Rensselaerwyck Manor, a large feudal landholding established by Kiliaen Van Rensselaer in 1629 (Fraser and Associates, 2009). An 11 acre section of the Site was used as the Rensselaerwyck Rifle Range from approximately 1894 to 1938. A concrete bunker in the former rifle range remains on the property. There are also remains of the former main guard shed on the site.

The Phase I ESA conducted at the site in May 2011 (Malcolm Pirnie [ARCADIS], 2011) identified evidence of recognized environmental conditions associated with the site as defined by the American Society for Testing and Materials (ASTM) Standard E 1527-05 guideline for Phase I ESAs. Recognized environmental conditions (RECs) identified in the Phase I ESA include:

- The use of the property as a rifle range for almost 50 years;
- Newhall Chain and Forge and Iron Company, depicted on the corner of Seventh Street and Dale on the 1925, 1949, and 1967 Sanborn® maps;
- W.J. La Grange, depicted on the 1925, 1949, and 1967 Sanborn® maps appears to have been a machine shop with two garages that borders the southwestern edge of the site near Garden Place;
- The automobile repair shop that borders the western edge of the site at 1578 Fifth Street on the 1925, 1949 and 1967 Sanborn® maps; and
- Solid waste along the western embankment of the site.

The results of the subsequent Phase II ESA conducted at the site in August 2012 (ARCADIS, 2012) are summarized below.

- Contaminants associated with ammunition, predominantly lead and copper, were found at concentrations exceeding NYCRR Part 375 Restricted Residential Soil Cleanup Objectives (SCOs) in the bunker hill behind the target area of the historic firing range.
- Lead was found in a concentration exceeding NYCRR Part 375 Restricted Residential SCOs in one soil sample in the solid waste debris area.
- No impacted surface soil was found down-gradient of Newhall Chain and Forge, and no further action is recommended.
- No exceedances were found in surface soil or groundwater down-gradient of Lagrange Iron and Fence, and no further action is recommended.
- No impacted soil was observed down-gradient of the automobile repair shop, and no further action is recommended.

## **Applicable Regulations and Cleanup Standards**

The City of Rensselaer, through its consultant, will provide a qualified environmental professional to oversee the cleanup activities. The City and its consultant will coordinate additional oversight by the NYSDEC. The City would like to build an accessible, multi-use trail network throughout the site to be used by City residents and the City of Rensselaer High School cross country team. In accordance with DER-10 Technical Guidance for Site Investigation and Remediation (DER-10) (NYSDEC, 2010), the NYCRR Part 375 Restricted Residential Use Standards are appropriate for active recreational uses with a reasonable potential for soil contact, and will therefore be the objectives of the cleanup.

## **Evaluation of Cleanup Alternatives**

### **Cleanup Alternatives Considered**

#### **Alternative 1: No Further Action**

The “no further action” alternative, by definition, involves no further institutional controls, environmental monitoring, or remedial action, and therefore, includes no technological barriers. This alternative defines the minimum steps that would be taken at the site in the absence of any type of action directed at the existing contamination and must be evaluated in accordance with US E.P.A. Cleanup Grant requirements.

#### **Alternative 2: Excavation**

Excavation is a useful remedial option when the location of the source of contamination is known or if there is a well delineated contaminated area. The Phase II ESA has sufficiently characterized the bunker hill by soil sampling results containing metals at concentrations greater than the corresponding 6 NYCRR Part 375 Restricted Residential SCOs. Adequate source removal, including unsaturated impacted soil is considered an important component of any selected remedy. This alternative would include excavation

of soil within the remediation area up to approximately four feet below ground surface (bgs), off-site disposal of excavated soil in accordance with applicable federal, state, and local regulations, and backfilling of the excavation with clean fill following confirmation sampling that indicates that impacted soil has been removed.

### **Alternative 3: Capping**

Capping systems prevent dermal contact of surface soil by installing an impermeable barrier. The cap also prevents infiltration of water through contaminated soil, inhibiting potential release of contaminants to groundwater. This alternative would include the implementation of land use restrictions to minimize access and exposure to potentially contaminated soil, clearing and grubbing of the remediation area, excavation of the top two feet of soil that contains lead and copper at concentrations greater than SCOs, off-site disposal of excavated soil in accordance with applicable federal, state, and local regulations, backfilling of the excavation with 0.5 feet of clean fill, installation of an engineered cap on top of clean fill consisting of: geotextile fabric, one foot of item four crushed stone, and 0.5 foot top course consisting of topsoil that is subsequently seeded for stabilizing vegetative growth, and annual cap inspections/maintenance.

## **Cost Estimate of Cleanup Alternatives**

### **Alternative 1: No Further Action**

The No Further Action alternative would not be protective of public health and the environment. Soil impacted by metals including lead and copper would be left at the site and could provide a potential for human exposure. This alternative is not likely to meet standards over the long term or reduce environmental impacts as the contaminants have been present at the site for at least 70 years and still exceed standards. The No Further Action alternative would not reduce the toxicity or mobility of the contaminants. This alternative would not require any time to implement, could be easily implemented, and would not require any additional costs to implement.

### **Alternative 2: Excavation**

Alternative 2 would be protective of public health and the environment in that this alternative removes source material. This alternative should meet soil standards. Alternative 2 would not reduce the toxicity of the contaminants, but would reduce their mobility and contaminant mass in the soil. The time required to implement this alternative is approximately one year and it could be implemented using readily available technologies. The estimated cost to construct and implement Alternative 2 is \$240,000.

### **Alternative 3: Capping**

Alternative 3 would be protective of public health and the environment because an engineered cap would eliminate the exposure pathway for contaminants in the surface soil. Alternative 3 does not address all of the subsurface soil contamination, and therefore this alternative would not likely meet standards over the long term as the contaminants have been present at the site for at least 70 years and still exceed standards. However, institutional controls would be used to reduce exposure pathways in the subsurface soil. Because contamination would remain on-site, a Site Management Plan (SMP) would

be required that would provide specific requirements for site development and use, including annual site inspections. Alternative 3 would not reduce the toxicity or mobility of the contaminants. The time required to implement this alternative is approximately one year and it could be implemented using readily available technologies. The estimated cost to construct and implement Alternative 3 is \$182,000.

### **Recommended Cleanup Alternative**

Based on the anticipated future use of the site and cost comparison of each alternative, Alternative 2 which includes complete excavation and off-site disposal of soil containing metals at concentrations greater than the SCOs is the recommended alternative.

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