ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES (ABCA)

Blum Property
501 East 15th Street
Dubuque County
Dubuque, Iowa

December 4, 2015

Prepared for:

City of Dubuque
50 W. 13th Street
Dubuque, IA 52001

HRGreen

1.0 INTRODUCTION AND BACKGROUND

1.1 Site Location

The subject property is located at 501 East 15th Street in Dubuque, Iowa. It is further located by the latitude 42.508918° North and longitude -90.663100° West.

1.2 Previous Site Use(s) and any previous cleanup/remediation

The following table outlines previous uses according to available historical records.

Date(s)	Source(s)	Property Use(s)
1884-1958	Historical city directories and Sanborn maps	Residential and commercial development • 1884: The western portion of the subject property is a two-story grocery store and saloon while the eastern portion of the subject property is vacant and has an outbuilding. • 1891 and 1909: The western portion of the subject property is a two-story grocery store and saloon while the eastern portion contains multiple two-story dwellings. • 1950: The western portion of the subject property is a two-story flat while the eastern portion contains multiple dwellings. City directories identified the subject property as 501-511 East 15th Street and listed it as multiple individuals in 1954 and 1958.
1963-present	Historical aerial photographs and city directories, Dubuque Assessor's Office website, and site reconnaissance	Industrial development Historical Sanborn maps display the following: • 1970: The subject property is depicted as "steel storage" with two two-story buildings and one one-story building. City directories identified the subject property as 501-509 East 15th Street and listed it as "Blum Co Storage" in 1963, 1968, 1973, 1978, 1983, and 1988; unlisted in 1992, 1995, 1999, 2003, 2008, and 2013. Observations made during the site reconnaissance identified an incinerator, staining on the ground and stored material, and hydraulic equipment on the subject property. The subject property currently operates as a scrap yard/recycling business.

No previous cleanup or remediation activities have taken place at the subject property.

1.3 Site Assessment Findings

HR Green, Inc. prepared a Phase I ESA on the subject property in conformance with the scope and limitations of ASTM Practice E 1527-13 on behalf of the City of Dubuque as part of its EPA Brownfields Petroleum Assessment Grant. The report, dated December 1, 2015, identified several on-and-off-site recognized environmental concerns (RECs) including the following:

On-Site REC:

1. The subject property has operated as a scrap yard and recycling facility since 1963.
2. HR Green observed leaking batteries and car parts stored on pallets with associated staining on the ground.

3. HR Green observed hydraulic machinery that may contain PCBs with associated staining in the north building on the subject property.

4. HR Green observed stained pavement throughout the subject property associated with past and present scrap material storage on the subject property.

Off-Site RECs:

5. The historical use of the adjacent parcel to the north as an automotive repair shop from 2004-2013.
6. The historical use of the adjacent property to the west of the subject property as railroad tracks from prior to 1884 until present.
7. The historical use of adjacent property to the southeast of the subject property as scrap yard from 1994-2002.
8. The historical and current use of the adjacent properties to the southwest as a coal yard, garage, and automotive repair operation. Currently a truck repair shop is located on a one of these properties.

HR Green, Inc. prepared a Phase II ESA on the subject property in conformance with the scope and limitations of ASTM Practice E 1903-11 on behalf of the City of Dubuque as part of its EPA Brownfields Petroleum Assessment Grant. The investigation identified the following:

- **Range 1 Soil:** Sample results identified eleven (11) PAH compounds above laboratory reporting limits. Only benzo[a]pyrene at location SB5 was identified at a level *above* Statewide Standards. Sample results identified up to six (6) RCRA metals above laboratory reporting limits. Lead and arsenic at locations SB1, SB2 and SB5 were identified at levels *above* Statewide Standards.

  The concentrations detected present an *unacceptable* cancer and non-cancer risk for a site resident, site worker, and construction worker.

- **Range 2 Soil:** No VOC or TEH compounds were detected above laboratory reporting limits in Range 2 soil samples.

- **Groundwater:** Ten (10) PAHs, one (1) VOC, and one (1) RCRA metal were detected above laboratory reporting limits in the collected groundwater samples. Benzo[a]pyrene, benzo[b]fluoranthene, dibenz(a,h)anthracene, indeno[1,2,3-cd]pyrene, and tetrachloroethene were detected *above* protected groundwater Statewide Standards and *below* non-protected groundwater Statewide Standards.

  The concentrations detected present an *unacceptable* cancer risk for a site resident. Non-cancer risk for site resident is *acceptable*. Risk factors for cancer and non-cancer risk for a site worker and construction worker were *acceptable*.

- **Vapor Intrusion:** Benzo[b]fluoranthene, chrysene, tetrachloroethene, and pyrene are sufficiently volatile and sufficiently toxic to present a vapor intrusion risk for slab-on-grade buildings.

The concentrations detected present an *acceptable* cancer and non-cancer risk for site resident, site worker, and construction worker.

- **PCB:** Analytical results did not indicate the presence of PCBs in the sampled areas on the subject property.

The City of Dubuque has an ordinance (Section No. 16-11-20) that prevents the installation of private wells unless public water is not available. This requires permit approval by the County's Health Department. Further, no wells may be installed within 500 feet of a LUST site. The County's Health Department prevents the installation of new wells on the subject property or adjacent properties. This action will sever the groundwater ingestion pathway for the subject property.

The results of this study indicate that the subject property is not suitable for future residential, commercial, or industrial purposes without remediation of shallow soil. The levels of lead, arsenic, and benzo[a]pyrene contamination detected at SB5 indicate that the surface material covering the slab indoors will likely need to be managed as hazardous waste, and should be mitigated prior to demolition. TCLP sampling (utilizing appropriate personal protective equipment) of this material is recommended in order to determine proper disposal and safety procedures.

Lead and arsenic exceedances were noted in several locations around the building footprint. Further Range 1 soil sampling should be conducted once demolition of existing structures is completed. While not found in exceedance during this study, mercury was also detected in Range 1 soil. Observations including improper storage of liquid mercury on the adjoining subject property indicate that further mercury sampling in Range 1 soil should also be conducted once demolition is completed.

The source of tetrachloroethene exceedances in the groundwater samples is unknown and warrants further investigation.

In addition to the soil, groundwater, and PCB wipe samples, an asbestos assessment was completed on the subject property under a separate scope of work. Asbestos containing material (ACM) was identified on the subject property in this assessment. Abatement of the ACM is required before the structure is demolished.

1.4 Project Goal

Re-use plans for the subject property include constructing a bike trail, bike pavilion, playground equipment, and public bathroom to serve the adjoining Bee Branch Creek daylighting project. The trail will provide important connectivity to the South Port area via the national Mississippi River Trail.

2.0 APPLICABLE REGULATIONS AND CLEANUP STANDARDS

2.1 Cleanup Oversight Responsibility

The City of Dubuque will enroll the subject property into the Iowa Department of Natural Resources (IDNR) Land Recycling Program (LRP). A qualified environmental professional will oversee the cleanup in conjunction with IDNR. The qualified environmental professional will comply with and submit all required LRP documentation to IDNR. A certified asbestos contractor will complete all mitigation of identified asbestos containing material (ACM) and will comply with all documentation and notification requirements issued by the IDNR Air Quality

Bureau. A professional engineer will develop and review any necessary design and institutional control plans, as needed.

2.2 Cleanup Standards for major contaminants

The City of Dubuque plans to compare soil and groundwater results to the IDNR's Statewide Standards. However, it is possible that site-specific standards will be generated for compounds of concern, in accordance IAC Chapter 137. For ACM monitoring all material containing more than one percent asbestos will be mitigated as ACM. Screening during the removal and associated cleanup of asbestos will be completed per 40 CFR61.145 and 40 CFR61.150.

2.3 Laws & Regulations Applicable to the Cleanup

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, state environmental law, and City regulations and ordinances. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed.

In addition, all appropriate permits (*e.g.*, notify before you dig, soil transport/disposal manifests) will be obtained prior to the work commencing.

3.0 EVALUATION OF CLEANUP ALTERNATIVES

3.1 Cleanup Alternatives Considered

The City of Dubuque considered three alternatives to address contamination at the site including the following Alternative #1: No Action, Alternative #2: Removal of Structures and Capping, and Alternative #3: Removal of Structures and Excavation with Off-site Disposal.

3.2 Cost Estimate of Cleanup Alternatives

To following outlines the effectiveness, ability to implement, and cost of each alternative:

<u>Effectiveness</u>

Alternative #1: Undertaking no action is not effective in controlling or preventing the exposure to receptors to contamination at the subject property.

Alternative #2: Capping after the completion of structure removal (including ACM mitigation and lead-impacted surface material and debris) is an effective way to prevent recreational receptors that could come into direct contact with contaminated soils, building material, and debris currently located on the subject property, if the cap is maintained. However, mitigation of ACM and contaminated debris followed by capping is not effective in accomplishing the redevelopment goals for this site which include recreational space; nor does it control exposures, such as direct contact risks for construction and utility workers who would be on-site for redevelopment. In order to accommodate these risks and allow access to the area where contaminated soil has been identified, that soil would require remediation prior to development. In addition, an institutional control (environmental covenant) would need to be recorded on the deed to prevent any uncontrolled digging or subsurface work (in order to meet the objective of eliminating the direct contact pathway of exposure). This institutional control would limit access to the site for authorized construction and properly trained utility workers to handle potentially contaminated soils.

Alternative #3: Excavation with off-site disposal after the completion of structure removal (including ACM mitigation and lead-impacted surface material and debris) is an effective way to eliminate risk at the subject property for all receptors and pathways while still allowing access to the subsurface for future development, as contamination will be removed and the exposure pathways will no longer exist. An environmental covenant could be included for any identified contamination beyond three (3) feet below ground surface outside of designated utility trench areas, if such contamination is identified.

Ability to Implement

Alternative #1: The City is easily able to implement no action.

Alternative #2: The mitigation of ACM and lead-contaminated debris followed by the demolition of the structure is moderately difficult to implement due to the coordination (dust suppression, confirmation and perimeter screening, etc.) while scheduling all parties to be on-site as needed and the transportation of hazardous materials off of the subject property. Once this process is completed, capping is relatively easy to implement; however, ongoing monitoring and maintenance of the cap will require periodic coordination and reporting. While implementing this alternative may not be the most difficult, it does limit the access to the subsurface preventing the installation of utilities and footings for any structures that would be placed on the property in the future. Therefore, while this alternative is not considered the most difficult to implement, it is restrictive to redevelopment.

Alternative #3: The mitigation of ACM and lead-contaminated debris followed by the demolition of the structure is moderately difficult to implement due to the coordination (dust suppression, confirmation and perimeter screening, etc.) while scheduling all parties to be on-site as needed and the transportation of hazardous materials off of the subject property. Excavation with off-site disposal is also moderately difficult to implement. Again, due to coordination (dust suppression, monitoring and screening, etc.) during cleanup activities and short-term disturbance to the community (*e.g.*, trucks transporting contaminated soils and backfill) are anticipated. However, ongoing monitoring and maintenance will not be required following excavation and off-site disposal. Further, utilizing an institutional control in the form of an environmental covenant to address any contaminated soil beyond three (3) feet below ground surface and outside of utility trenches is easy to implement. Therefore, this alternative is considered the most difficult to implement, however, it is the least restrictive to redevelopment.

Cost

Alternative #1: No cost.

Alternative #2: Removal of Structures and Capping costs will be on the order of $210,000.

Alternative #3: Removal of Structures and Excavation with Off-site Disposal is estimated to cost roughly $250,000.

3.3 Recommended Cleanup Alternative

Alternative #3: Removal of Structures and Excavation with Off-site Disposal is the preferred method. The City cannot recommend Alternative #1 as it does not address the identified risks. Alternative #2 is less expensive than excavating soils and disposing of them off-site. However, Alternative #2 would restrict access to subsurface material preventing the installation of new utilities and footings for structures in future site development. Much of the moderately difficult work is included in both Alternatives #2 and #3, however the addition of off-site disposal of soil does make Alternative #3 more difficult. This being said, the removal of the impacted soil severs exposure pathways and limits restrictions to development or utility access in the future on the subject property. For these reasons, Alternative #3 is the recommended alternative.