



WATER STREET REDEVELOPMENT PROPERTIES

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES – PUBLIC MEETING

**WATER STREET REDEVELOPMENT SITES
(700, 900, AND 1010 WATER STREET)
AND 615 MARQUETTE STREET SITE**

DECEMBER 3, 2020

AGENDA

- USEPA Cleanup Grant
- Analysis of Brownfield Cleanup Alternatives (ABCA)
- Remedial Action Options
 - Water Street Redevelopment Sites
 - 615 Marquette Street Site
- Selected Remedial Action Alternative

USEPA FY20 CLEANUP GRANT FUNDING

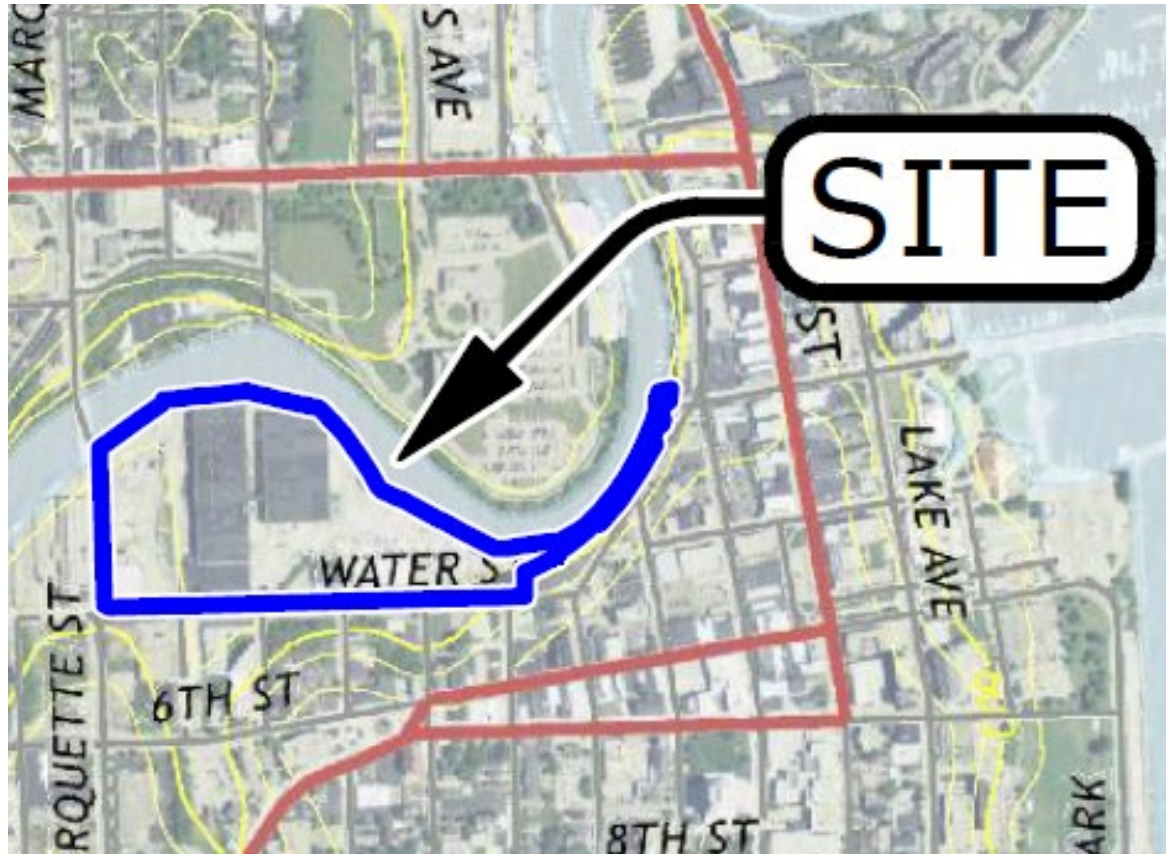
- United States Environmental Protection Agency (USEPA) awarded the CDA a Brownfields Cleanup grant for the Water Street Redevelopment Properties (including 615 Marquette Street).
- USEPA Cleanup Grant in the amount of \$500,000.
 - In addition, a \$100,000 cost share (20% of total grant) by the CDA is required.



ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES (ABCA)

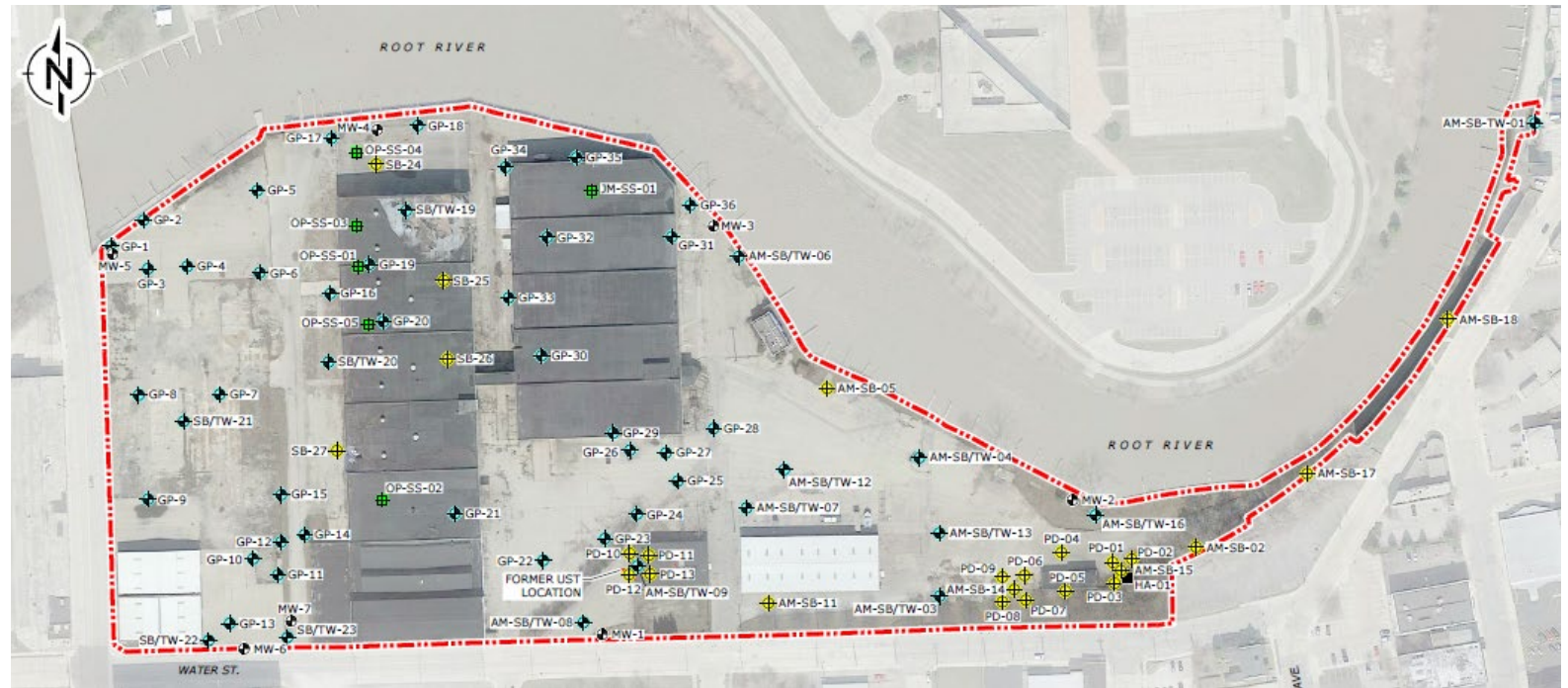
- The ABCA is a summary of technically feasible and cost-effective cleanup options.
- ABCAs were prepared for the Water Street Redevelopment sites and the 615 Marquette Street site as part the USEPA grant requirements.
- The goal for remedial actions at these sites is to protect human health and the environment.
- The goal for redevelopment of the sites is for mixed use residential/commercial development.

WATER STREET REDEVELOPMENT SITES (700, 900, AND 1010 WATER STREET)



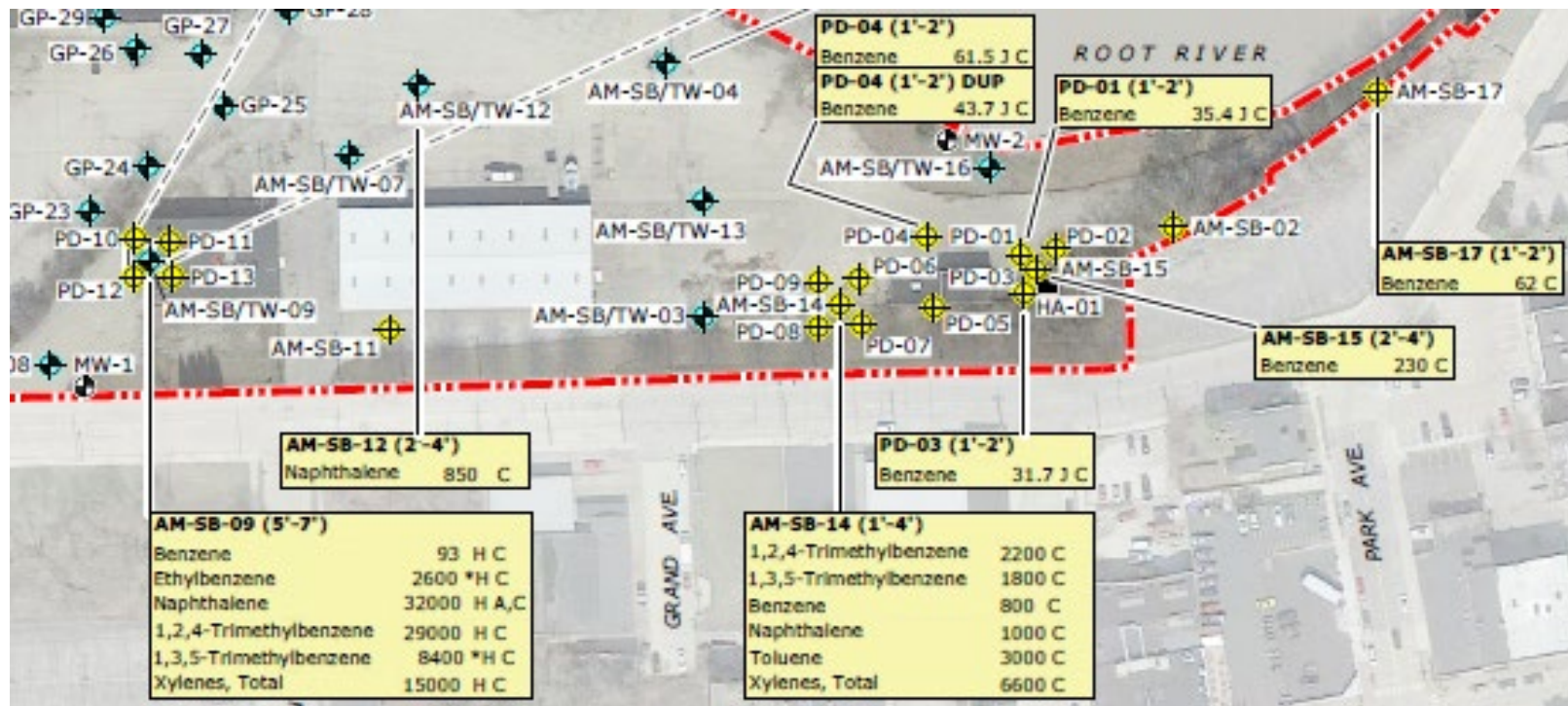
GENERAL ENVIRONMENTAL CONDITIONS

- 14.85 acres
- Long history of industrial use and multiple operators – farm machinery manufacturing, book publishing, railroad yard.
- Low-level soil contamination across site, with three areas of petroleum volatile organic compound (VOC) impacts.
- Groundwater quality impacted by low levels of metals, VOCs, and polycyclic aromatic hydrocarbons (PAHs).



WATER STREET REDEVELOPMENT SITES AREAS OF CONCERN

- Petroleum VOC impacts could create a vapor intrusion issue for future site redevelopment, if left in place.
- Areas surrounding soil borings AM-SB-09, AM-SB-14, and AM-SB-15 are of concern.



WATER STREET REDEVELOPMENT SITES – REMEDIAL OPTIONS

- Alternative 1: No Action
- Alternative 2: Installation of Vapor Mitigation Technologies, Natural Attenuation of Groundwater, and Installation of a sitewide Direct Contact Site Cap in support of proposed redevelopment (likely greenspace and/or parking areas will be targeted)
- Alternative 3: Limited Soil Excavation/Off-Site Disposal of VOC-impacted Soil with Natural Attenuation of Groundwater and Installation of Direct Contact Site Cap in limited areas in support of proposed redevelopment (likely greenspace and/or parking areas will be targeted)

ALTERNATIVE 1: NO ACTION

Alternative is not acceptable.

- Does not meet regulatory requirements.
- Does not address health risk.
- Hinders redevelopment of site.

ALTERNATIVE 2: VAPOR MITIGATION AND SITEWIDE CAPPING

- Three Components:
 - Installation of vapor mitigation technologies, such as vapor mitigation barriers or sub-slab depressurization systems as part of future site structures
 - Due to vapor intrusion concern from petroleum VOC-impacted areas
 - Natural Attenuation of Groundwater
 - Installation of direct contact site cap using concrete, pavement, and/or soil cover
- Meets regulatory requirements.
- Mitigates health risks.
- Allows for redevelopment of site, with some continuing obligations associated with potential vapor mitigation technologies.

ALTERNATIVE 3: LIMITED SOIL EXCAVATION/OFF-SITE DISPOSAL

- Three Components:
 - Limited Soil Excavation/Off-Site Disposal with Clean Fill Imported
 - Petroleum VOC-impacted areas could cause vapor intrusion issue for development
 - Three excavation areas, to depths ranging from 4 to 7.5 feet, for an approximate total of 480 cubic yards
 - Natural Attenuation of Groundwater
 - Installation of direct contact site cap using concrete, pavement, and/or soil cover
- Meets regulatory requirements.
- Mitigates health risks.
- Increases potential for redevelopment of site.

COST COMPARISON OF ACCEPTABLE ALTERNATIVES FOR WATER STREET REDEVELOPMENT SITES

- Alternative 2:

Vapor Mitigation Technologies: \$236,000

Natural Attenuation of Groundwater: \$13,000

Total Estimated Cost: \$249,000

+/- 20% = \$199,200 to \$298,800

- Alternative 3:

Limited Soil Excavation/Off-Site Disposal of Impacted Soil: \$92,700

Natural Attenuation of Groundwater: \$13,000

Total Estimated Cost: \$105,700

+/- 20% = \$85,600 to \$126,800

RECOMMENDED ALTERNATIVE FOR WATER STREET REDEVELOPMENT SITES

Alternative 3

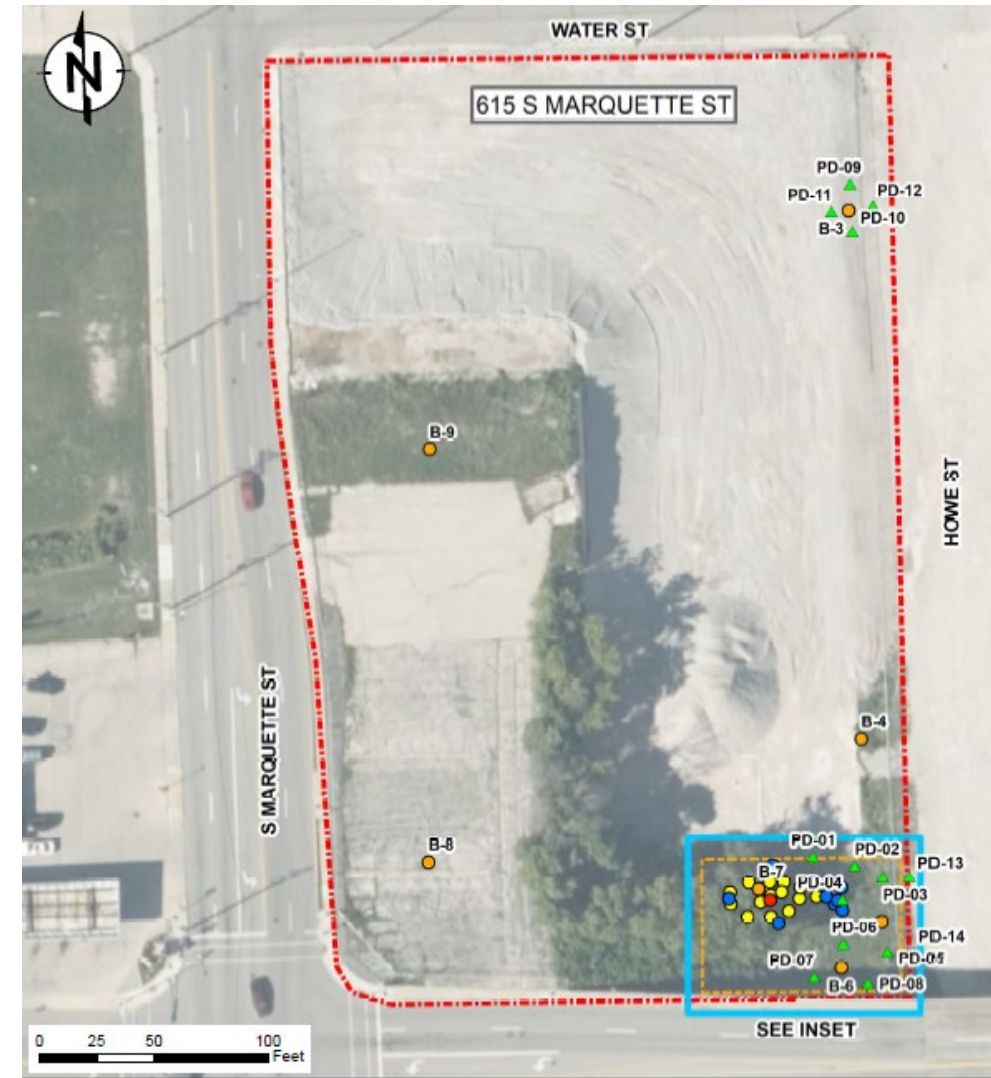
- **Limited Soil Excavation/Off-Site Disposal of VOC-impacted Soil**
- **Natural Attenuation of Groundwater**
- **Installation of Direct Contact Site Cap in Limited Areas in Support of Proposed Redevelopment**

615 MARQUETTE STREET



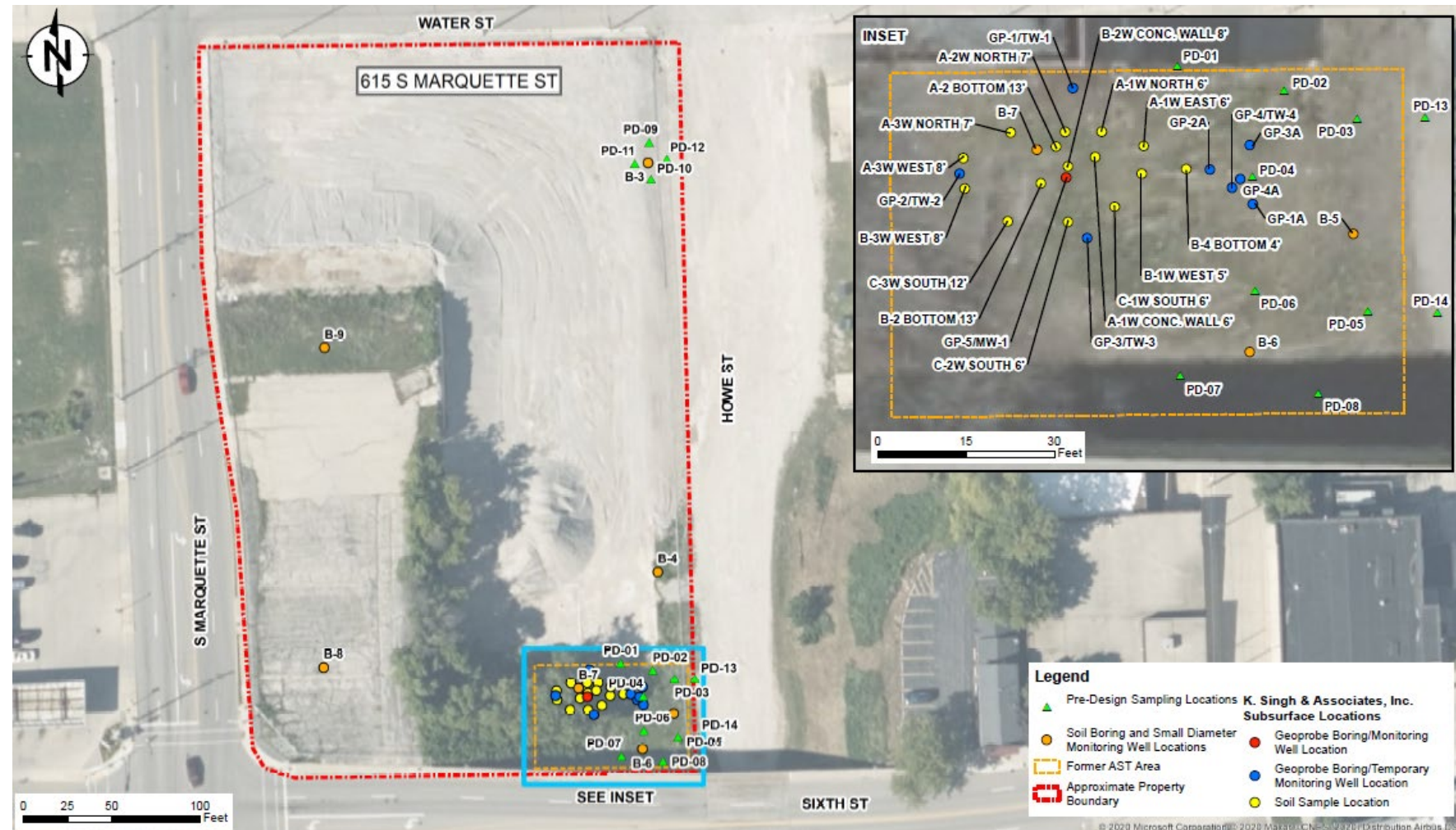
GENERAL ENVIRONMENTAL CONDITIONS

- 2.18 acres total
- Long history of industrial use and multiple operators – farm machinery manufacturing, book publishing, five former aboveground storage tanks (ASTs).
- Low-levels of petroleum and chlorinated VOCs, PAHs, and metals detected in soils at the site.
- Groundwater quality impacted by low levels of VOCs.



615 MARQUETTE STREET AREAS OF CONCERN

- Chlorinated VOC impacts could create a vapor intrusion issue for future site redevelopment, if left in place.
- Shallow soils in areas surrounding soil borings B-3 and B-6 are of concern.



615 MARQUETTE STREET – REMEDIAL OPTIONS

- Alternative 1: No Action
- Alternative 2: Limited Source Area Soil Excavation/Off-Site Disposal of Chlorinated VOC (CVOC)-impacted Soil with Natural Attenuation of Groundwater and Installation of Direct Contact Site Cap
- Alternative 3: *In-Situ* Chemical Oxidation via Hydraulic Injections for Treatment of Soil Impacts with Natural Attenuation of Groundwater and Installation of Direct Contact Site Cap

ALTERNATIVE 1: NO ACTION

Alternative is not acceptable.

- Does not meet regulatory requirements.
- Does not address health risk.
- Hinders redevelopment of site.

ALTERNATIVE 2: LIMITED SOIL EXCAVATION/OFF-SITE DISPOSAL

- Three Components:
 - Limited Soil Excavation/Off-Site Disposal with Clean Fill Imported
 - CVOC-impacted areas could cause vapor intrusion issue for development
 - Two excavation areas proposed, for an approximate total of 240 cubic yards:
 - 380-square foot excavation, to a depth of 3 feet, in northeast property corner
 - 1285-square foot excavation, to depths ranging from 3 to 5 feet, in southeast property corner
 - Natural Attenuation of Groundwater
 - Installation of limited direct contact site cap, using concrete, pavement, and/or soil cover
- Meets regulatory requirements.
- Mitigates health risks.
- Increases potential for redevelopment of site.

ALTERNATIVE 3: IN-SITU CHEMICAL OXIDATION TREATMENT OF SOIL IMPACTS

- Three Components:
 - *In-situ* Chemical Oxidation Treatment of CVOC soil impacts
 - CVOC-impacted areas could cause vapor intrusion issue for development
 - Apply treatment in northeastern and southeastern portions of the site
 - Apply chemical oxidant using hydraulic injection delivery method
 - Natural Attenuation of Groundwater
 - Installation of limited direct contact site cap, using concrete, pavement, and/or soil cover
- Meets regulatory requirements.
- Mitigates health risks.
- Increases potential for redevelopment of site.

COST COMPARISON OF ACCEPTABLE ALTERNATIVES FOR 615 MARQUETTE STREET

- Alternative 2:

Limited Soil Excavation/Off-Site Disposal of Impacted Soil: \$75,500

Natural Attenuation of Groundwater: \$19,200

Total Estimated Cost: \$94,700

+/- 20% = \$75,800 to \$113,600

- Alternative 3:

In-situ Chemical Oxidation Treatment of Impacted Soil: \$105,000

Natural Attenuation of Groundwater: \$19,200

Total Estimated Cost: \$124,200

+/- 20% = \$99,400 to \$149,000

RECOMMENDED ALTERNATIVE FOR 615 MARQUETTE STREET SITE

Alternative 2

- **Limited Soil Excavation/Off-Site Disposal of CVOC-impacted Soil**
- **Natural Attenuation of Groundwater**
- **Installation of Limited Direct Contact Site Cap in Support of Proposed Redevelopment**

OVERALL PROPOSED ALTERNATIVES BUDGET

Task	Budget
Proposed Soil and Groundwater Remediation Alternatives:	
Limited Soil Excavations/Off-Site Disposal and Natural Attenuation Monitoring at Water Street Redevelopment Sites	\$126,800
Limited Soil Excavations/Off-Site Disposal and Natural Attenuation Monitoring at 615 Marquette Street Site	\$113,600
<i>Proposed Alternatives Cost:</i>	<i>\$240,400</i>
Other Grant-Funded Cleanup Program Costs:	
Pre-Remedial Design Evaluation	\$33,000
Site Fencing Repair/Replacement	\$20,000
Additional Future Capping Activities at Both Sites and Project Contingencies and Reporting	\$259,600
Program Management and Community Involvement	\$47,000
TOTAL GRANT BUDGET	\$600,000

RESTRICTIONS FOR BOTH SITES

- Groundwater Use Restriction
- Site Cap with Inspection/Maintenance Requirements
 - Proposed redevelopment will become part of the final site cover system for the site
- Continuing Obligations Packet Registry

QUESTIONS?