



“Urban Creek Impacted Sediment Removal and Isolation Utilizing a Geosynthetic Clay Liner”

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Background

- Manufactured Gas Plant located in Indianapolis, Indiana
 - 1908 to 2007
 - 87 acres
- Produced manufactured gas and metallurgical coke
- Urban waterway:
 - Pleasant Run Creek (PRC)
 - 3,000 linear ft of channel bisects the property
 - Section of on-Site channel relocated in the 1940's

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Background



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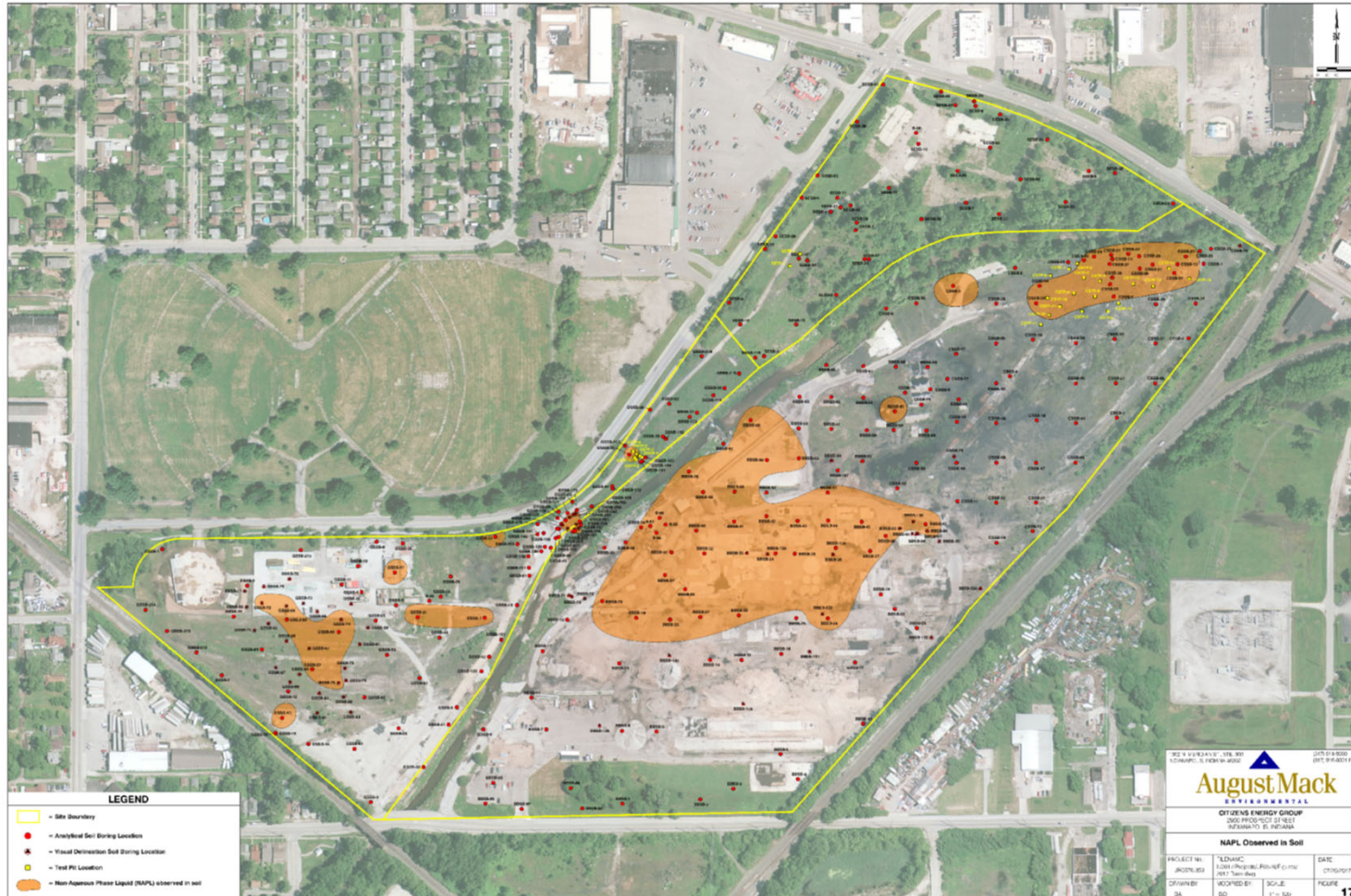


Site Investigation

- Indiana Voluntary Remediation Program (VRP) (2005)
- Investigation activities (2009-2016)
 - 120 monitoring wells;
 - 800 groundwater samples
 - 350 soil borings;
 - 600 soil samples
 - 500 surface soil samples; and,
 - 20 test pits.

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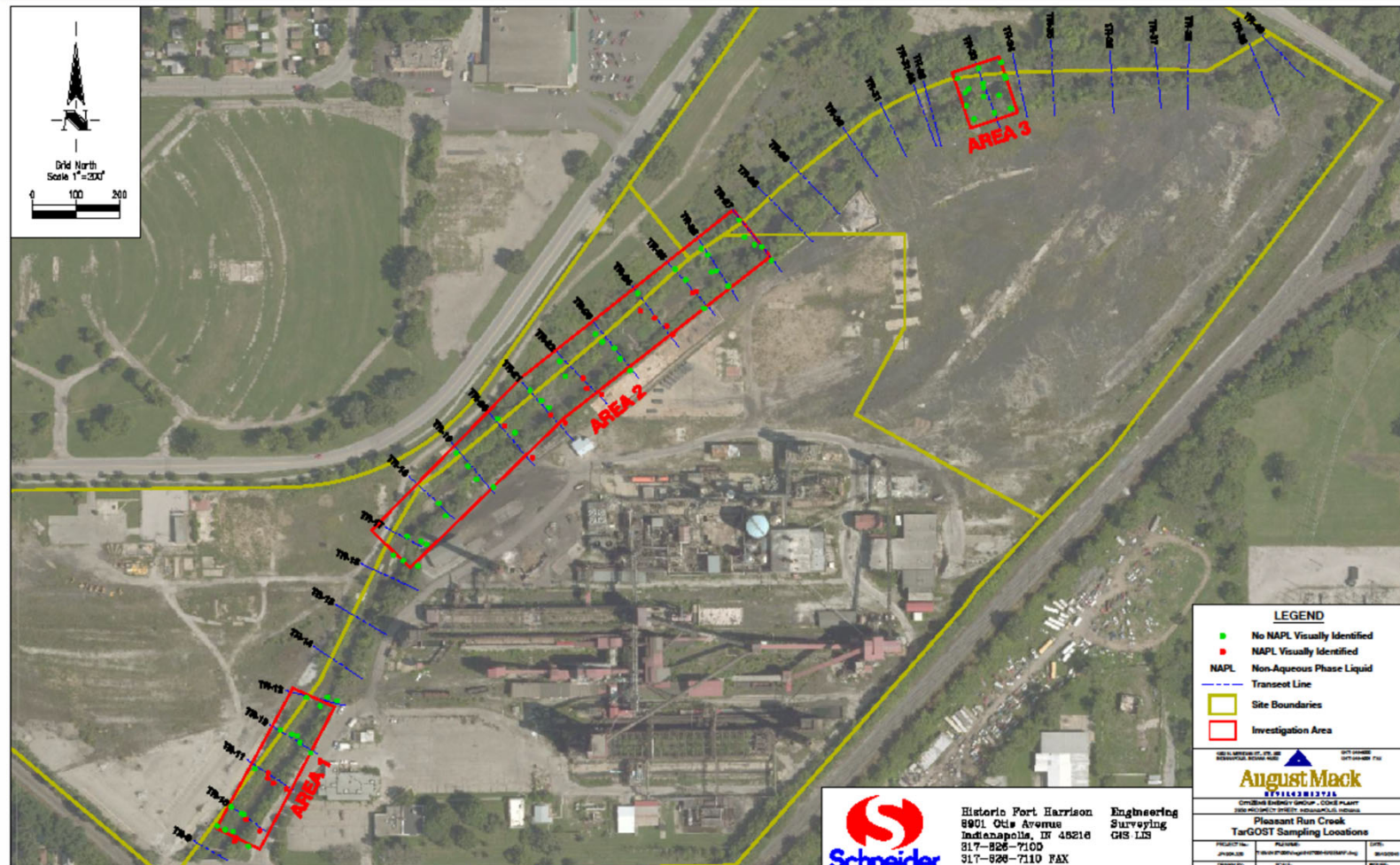
Pleasant Run Creek (PRC)

- Combined Sewer Overflow (CSO) discharge
- Highly incised channel
- Flow range from <10 MGD to >500 MGD
- Multiple investigations:
 - Visual inspections
 - Poling
 - Habitat Assessment
 - Bulk Sediment/Soil Sampling
 - Pore Water Sampling
- Human Health and Ecological Assessment
- TarGOST

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2016 PRC Investigation



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TarGOST Investigation



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TarGOST Investigation



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PRC IM Design Objectives

- Two (2) areas tied to gross contamination (2,000 linear ft)
- Objectives:
 - Mitigate direct contact potential with impacted soil/sediment
 - Mitigate potential for ecological risk from groundwater discharge
 - Protect PRC from being re-contaminated
- Hydraulic Control + Surficial Excavation/Capping

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Design Considerations

- Hydraulic Control System
 - Upland Groundwater Control
 - Minimal upwelling (approx. 0.8 cm/day)
- Creek Diversion “Pump Around”
 - “Dry” application
- Isolation Barrier
- Restoration
 - Armoring
 - Overburden

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PRC Interim Measure Design

- Expansion of the Hydraulic Control System
- Soil Excavation and Disposal



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PRC Interim Measure Design

Isolation Barrier:

- Geosynthetic Clay Liner (GCL)
 - Components
 - Advantages
 - Site-Specific Application



https://www.geosyntheticssociety.org/corporatome/cpany_details/6507/



http://www.gseworld.com/content/documents/product-sheets/BentoLiner_Installation_QA_.pdf

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Project Implementation

- “Phased” Work Approach
(April-December 2017)

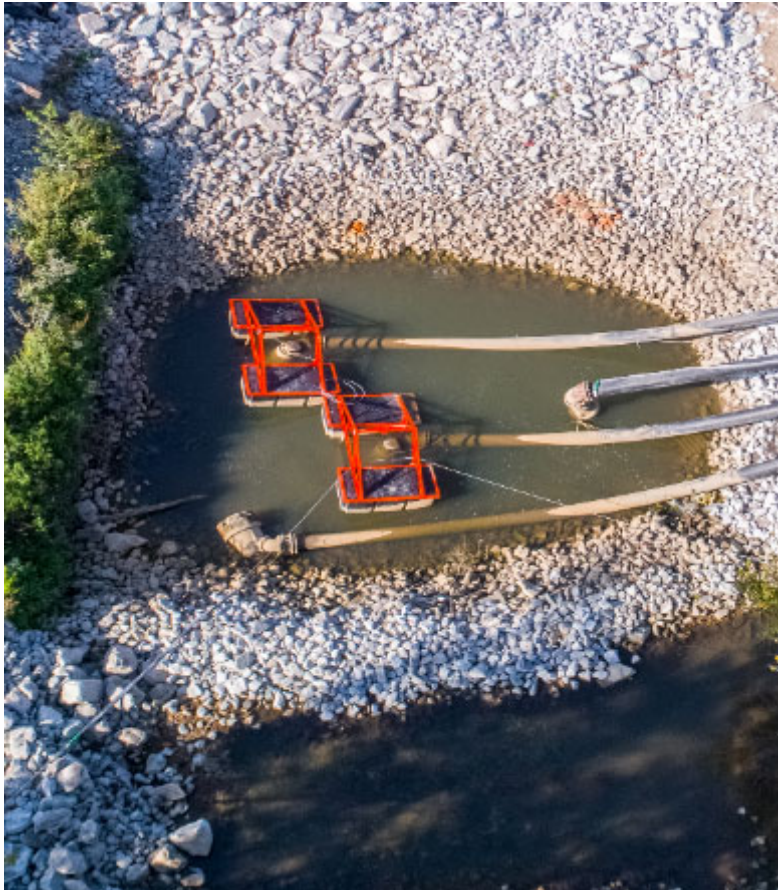


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Project Implementation

- Creek Pump-Around



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Project Implementation

- Low Permeability Barrier



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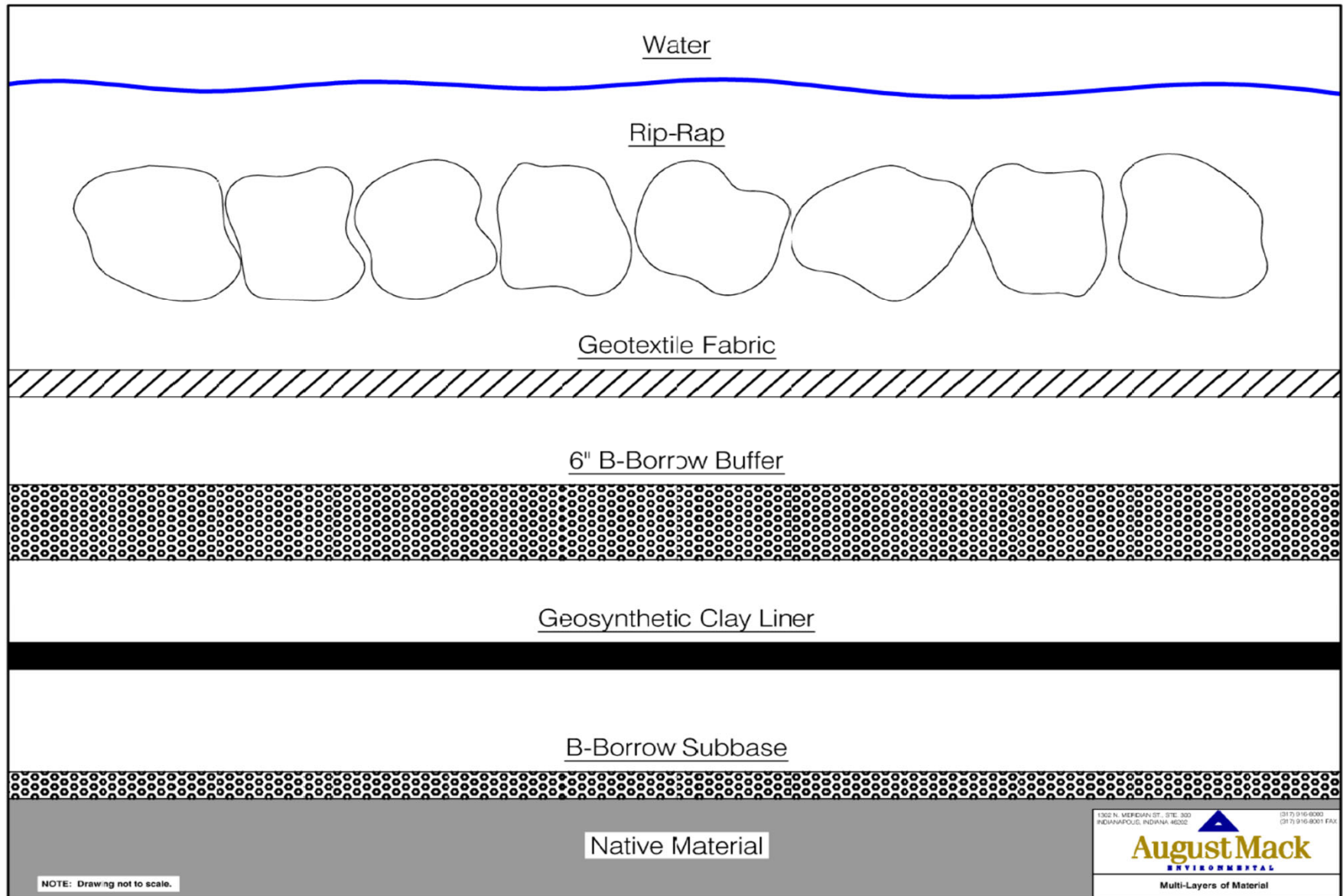
Project Implementation

- GCL and Material Placement



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Project Implementation

- Restoration



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Project Success

- ✓ Design-build process allowed for implementation challenges to be quickly addressed
- ✓ Consistent application of the low permeability layer
- ✓ Uniform hydraulic conductivity and transmissivity
- ✓ Site characteristics made use of GCL viable.
- Future Obligations:
 - Ongoing visual inspections (5-10 years).
 - Institutional Controls

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Q & A

- Questions?



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