



Bureau of Environmental Cleanup & Brownfields

BISHOP TUBE HSCA SITE

Community Update Meeting

September 12, 2023

Josh Shapiro, Governor

Richard Negrin, Secretary

PRESENTATION OUTLINE

- SITE INFORMATION
- SELECTED RESPONSE
- RESPONSE SEQUENCING
- PRE-DESIGN WORK
- INSTITUTIONAL & ENGINEERING CONTROLS
- REMEDIAL DESIGN
- PROTECTIVE MEASURES

SITE INFORMATION: Site Location



- Legend**
- ★ Site Location
 - Stream
 - - - Drainage Swale
 - Site Boundary
 - Parcels

Note:
 1. Service Layer Credits: ESRI, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Layer Access Date: 8/27/2015.



Title: LOCAL AREA MAP

FORMER BISHOP TUBE FACILITY
 CHESTER COUNTY, PENNSYLVANIA

Prepared For: BISHOP TUBE PROJECT TEAM

 ROUX ASSOCIATES, INC. Environmental Consulting & Management	Compiled by: SET Prepared by: SET Project Mgr: JAK File No: 1016.F2(6)	Date: 8/27/2015 Scale: 1:7,200 Office: NJ Project: 0839 000-000	FIGURE 3
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SITE INFORMATION: Site Layout Map



➤ SITE INFORMATION: COCs

Contaminants of Concern (“COCs”)

- Chlorinated Solvents (“CVOCs”)
- Primary COC: [Trichloroethene](#) (“TCE”)
- Inorganic Compounds
- Other Organic Compounds
- Perfluorooctanoic acid (“PFOA”)

SELECTED RESPONSE

The Site has been divided into three operable units (“OU”).

- OU1 (Soils) - In Situ Chemical Reduction (“ISCR”), coupled with Soil Mixing
- OU2 (Groundwater) - In Situ Injection (ISCR/Bioremediation)
- OU3 (Drinking water) - Public Waterline

OU1 SOILS

ISCR coupled with Soil Mixing:

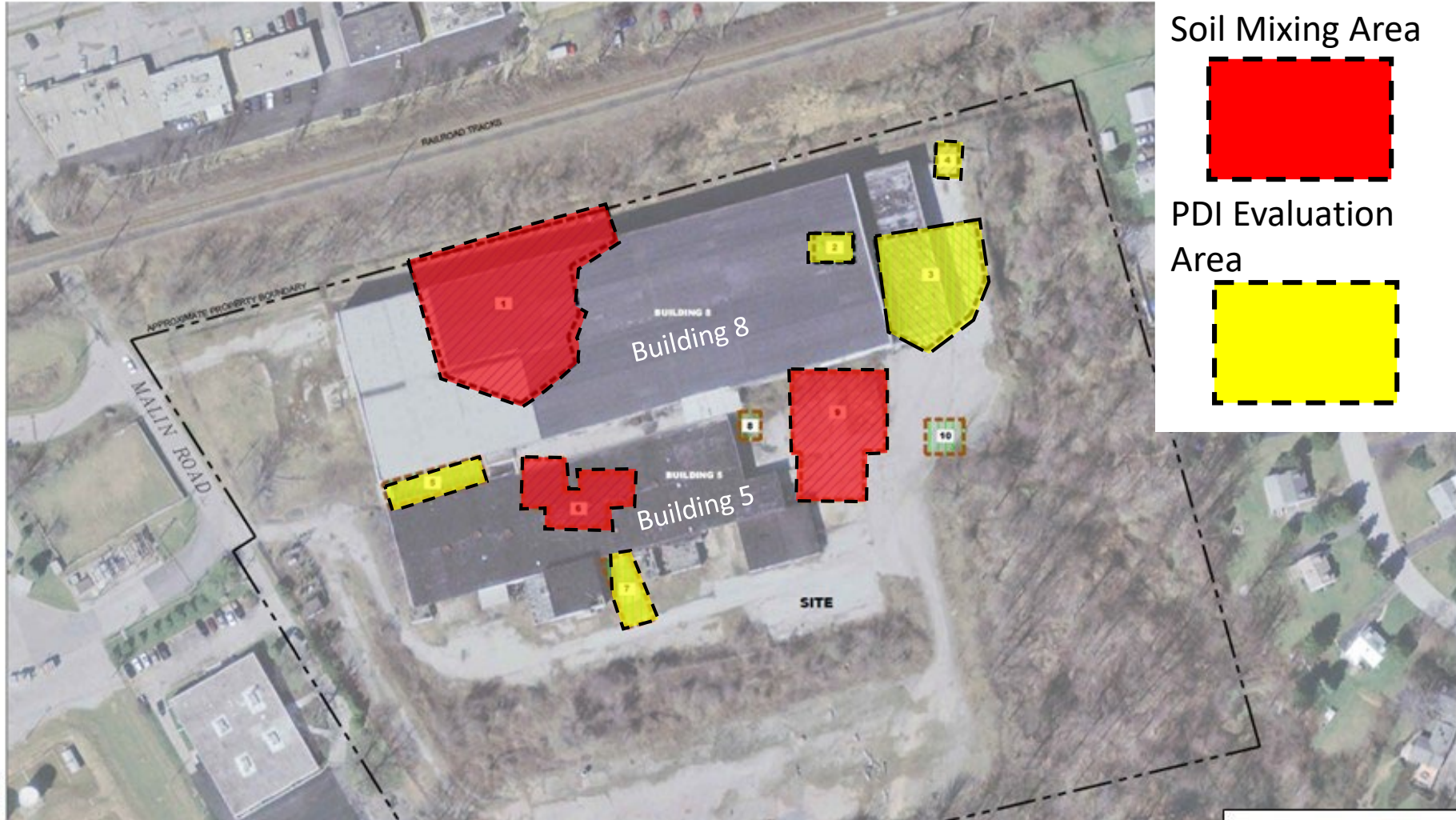
- **In situ means the treatment is happening in place or in the ground.**
- Involves adding a substance or amendment to create chemical reactions that break down hazardous compounds into nonhazardous or less toxic compounds.
- When used properly, amendments are not harmful.

OU1 SOILS

A remedial design investigation will be utilized to identify & select the optimal amendment. Examples of potential amendments include:

- Zero valent iron (“ZVI”)
 - Non-toxic (inert metallic shavings or particles)
- Carbon Additive
- Commercially available mixtures

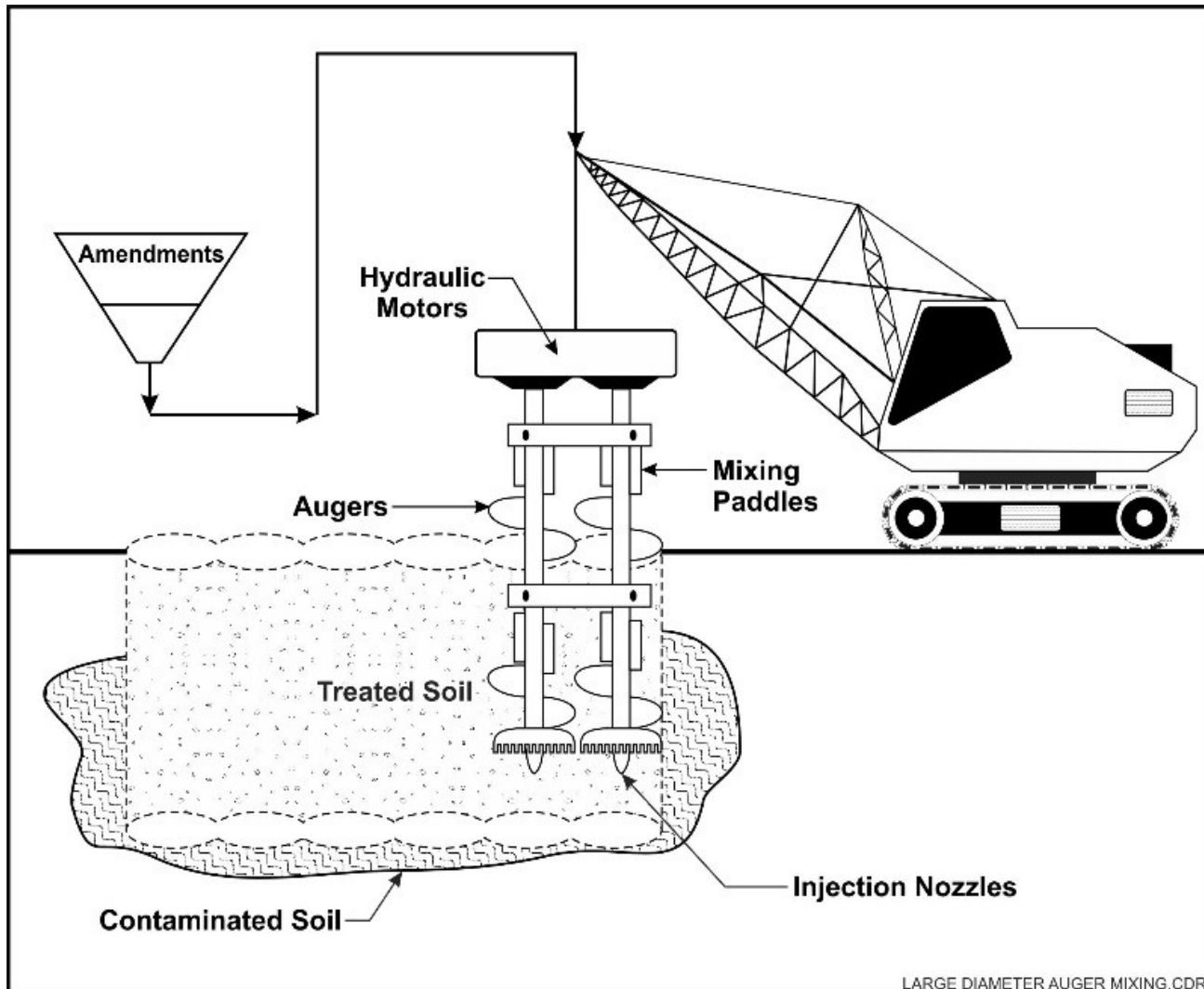
OU1 SOILS - REMEDIATION AREAS



****EXACT areas will be further refined during Pre-design &/or Remedial Design Investigations****

OU1 SOILS

SOIL MIXING



▶ OU1 SOILS

SOIL MIXING



▶ OU1 SOILS

SOIL MIXING USING AN EXCAVATOR WITH A LANG TOOL



▶ OU1 SOILS

SOIL MIXING USING AN EXCAVATOR WITH A LANG TOOL

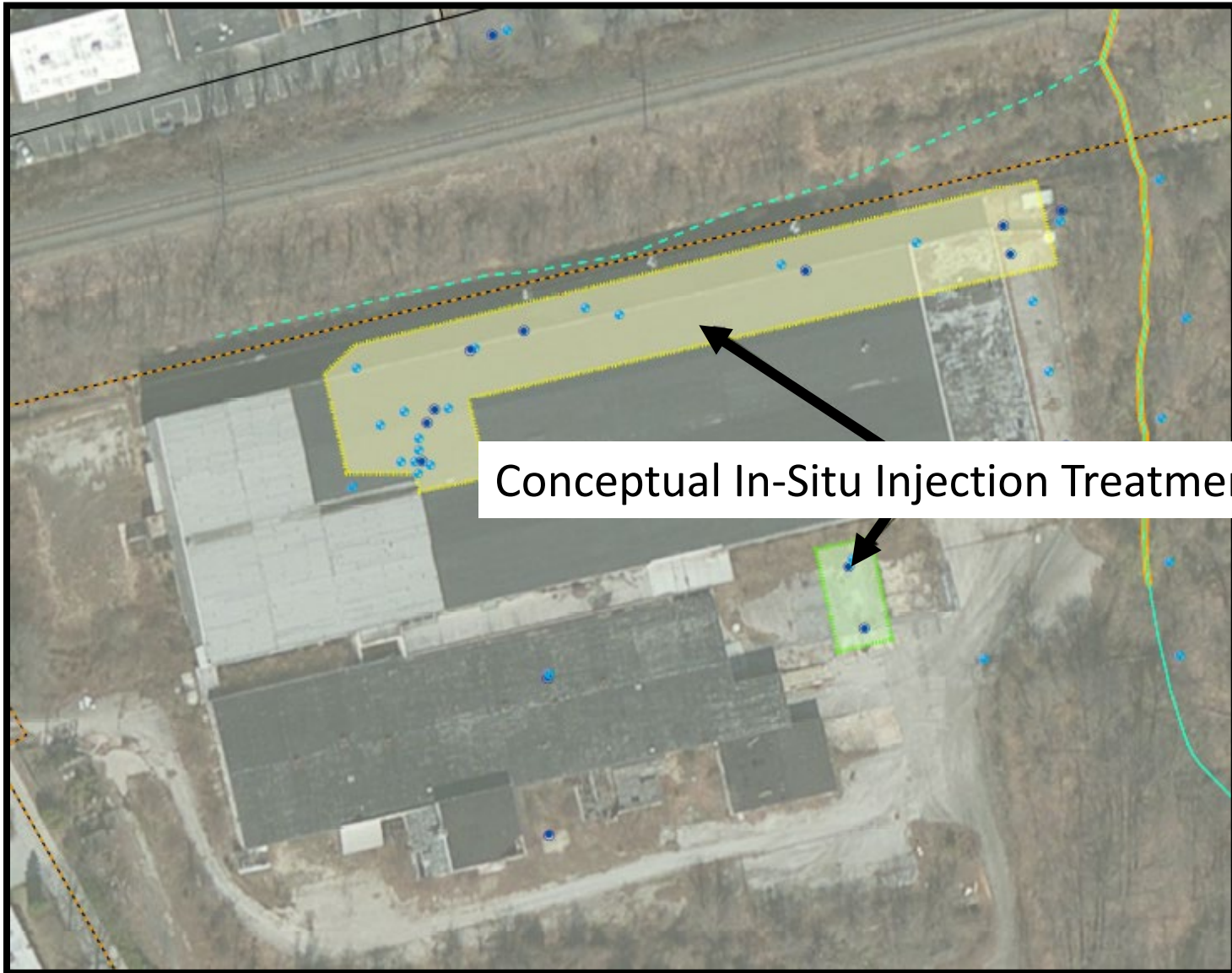


▶ OU2 GROUNDWATER

In Situ Injection (ISCR/Bioremediation):

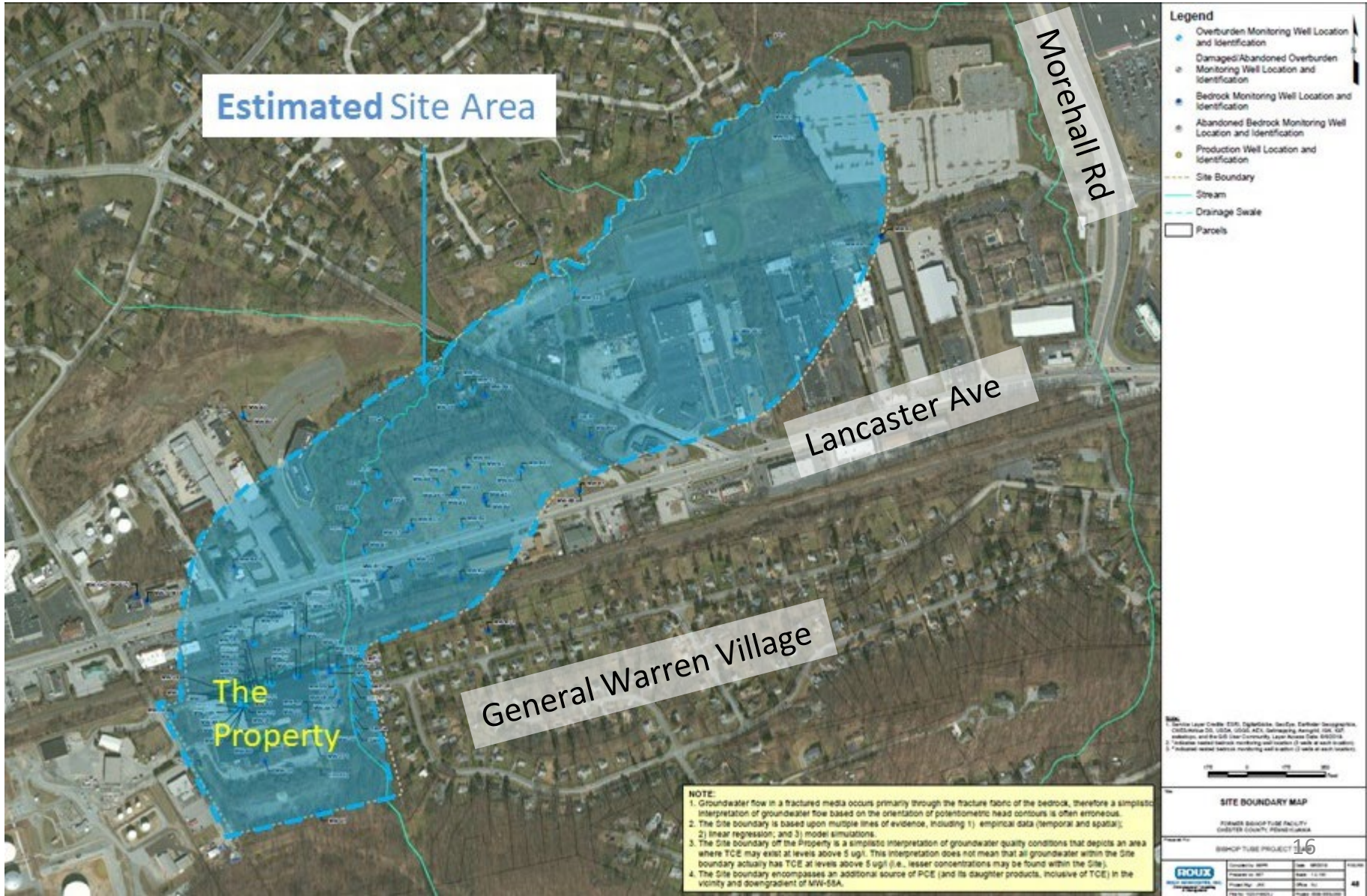
- Involves introducing amendments directly into the contaminated aquifer.
- Focused to the Building 8 Degreaser & the Drum Storage Areas.
- A phased strategy would be implemented following implementation of the OU1 Soils remedy.

OU2 GROUNDWATER



Conceptual In-Situ Injection Treatment Areas

OU2 GROUNDWATER



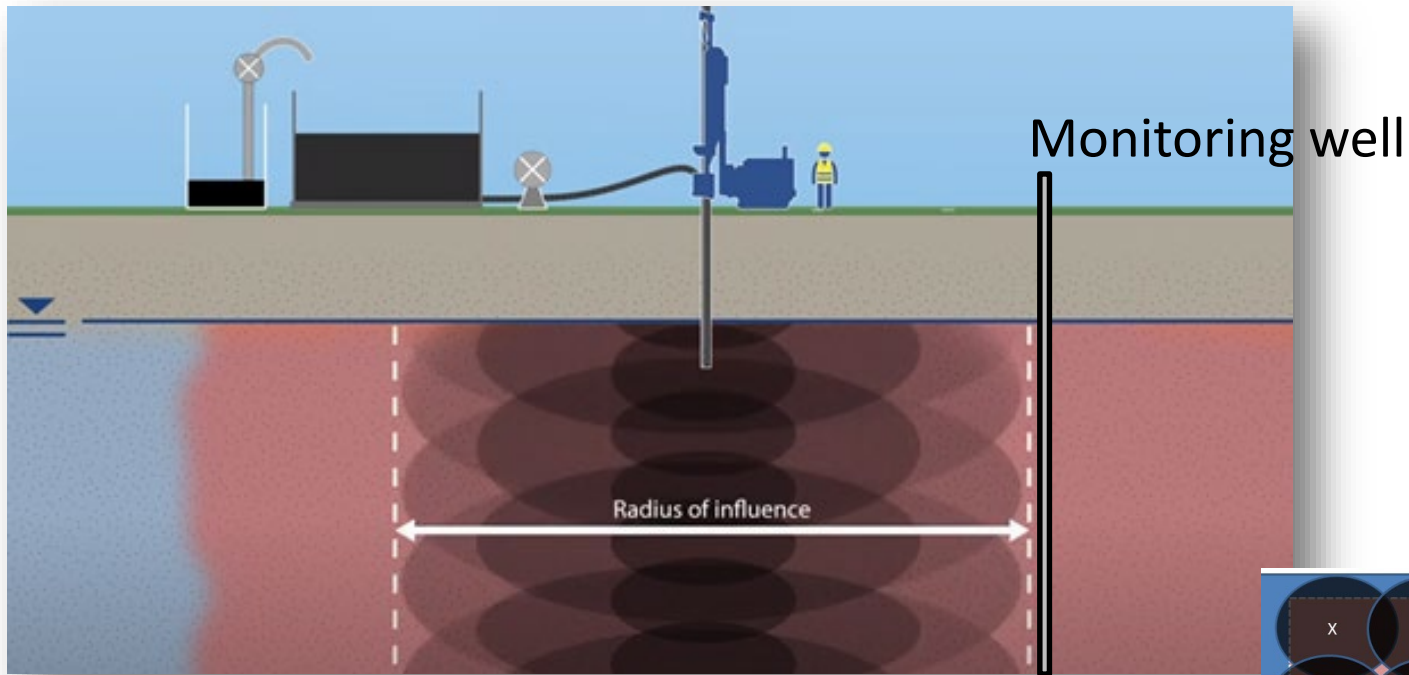
➤ OU2 Groundwater

A remedial design investigation will be utilized to identify & select the optimal amendment. Examples of potential amendments include:

- Zero valent iron (ZVI)
- Molasses or emulsified vegetable oil
- Nutrients
- Carbon
- Commercially available mixtures

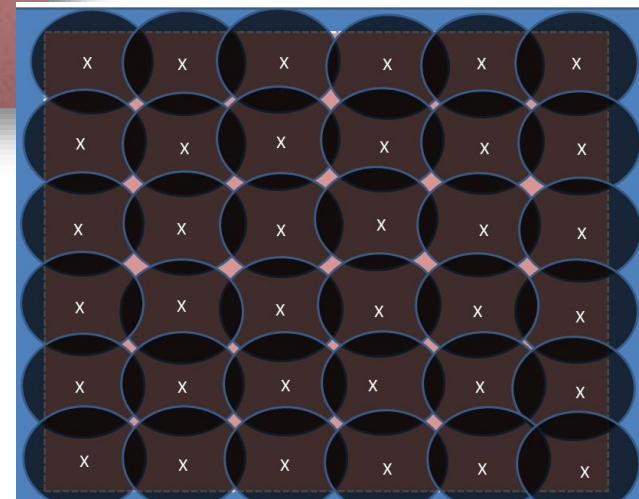
OU2 GROUNDWATER

Injections



Cross Section View

Plan View



▶ OU2 GROUNDWATER

Amendment Injection













▶ OU3 DRINKING WATER - COMPLETE

In June 2023 - one home with a contaminated drinking water well was connected to the existing public water supply waterline.



▶ RESPONSE SEQUENCING

	Pre-Design work
	Implementation of certain Institutional Controls
	Planning for Engineering Controls
	OU1 Soils Remedial Design Investigation
	OU1 Soils Remedial Design
	OU1 Remedial Action
	OU2 Groundwater Remedial Design Investigation
	OU2 Groundwater Remedial Design
	OU2 Remedial Action
	Operations, Maintenance, & Monitoring

 **Current Step**

 **Future Step**

PRE-DESIGN WORK

Northeast corner investigation

- Assessment of groundwater quality and flow direction

PFAS investigation

- Groundwater, Surface water, and Soil

Additional soil delineation

- Fluoride delineation in the former acid handling areas.
- Evaluation of background (naturally occurring) conditions in soil.

➤ INSTITUTIONAL CONTROLS

Administrative or legal measures taken to limit or prohibit certain activities that may interfere with the integrity of a remedial action or result in human exposure to contamination.

1. Chester County Health Department Rules and Regulations require a permit for any new supply wells prior to installation.
2. An Environmental Covenant would be attached to the deed of the Source Property.

ENGINEERING CONTROLS

Remedial actions designed to contain or control physical contact with or migration of COCs in soil, surface water and/or groundwater.

- Certain engineering controls related to remedial actions (e.g., capping) may be established on the source property along with surface water best management practices (“BMPs”).
- Developer will be responsible for activities related to redevelopment (e.g., vapor intrusion mitigation measures such as vapor barriers)

REMEDIAL DESIGN

- REMEDIAL DESIGN INVESTIGATION
 - includes refinement of treatment zones and bench-scale testing
- PRELIMINARY DESIGN (30% DESIGN)
 - includes an in-situ amendment alternatives analysis
- PRE-FINAL (90% DESIGN)
- FINAL DESIGN

PROTECTIVE MEASURES

The Remedial Action Contingency Plan established during the design phase will include:

- Dust Control
- Monitoring (i.e., Air, Groundwater, Surface Water)
- Stream Protection (i.e., Soil Erosion & Sediment Control)
- Daily inspections during active implementation

A Remedial Action Health and Safety Plan will identify measures to protect onsite workers

PROTECTIVE MEASURES

Dust/vapor control systems



PROTECTIVE MEASURES

Dust Control



▶ PROTECTIVE MEASURES

STREAM PROTECTION: Erosion Controls



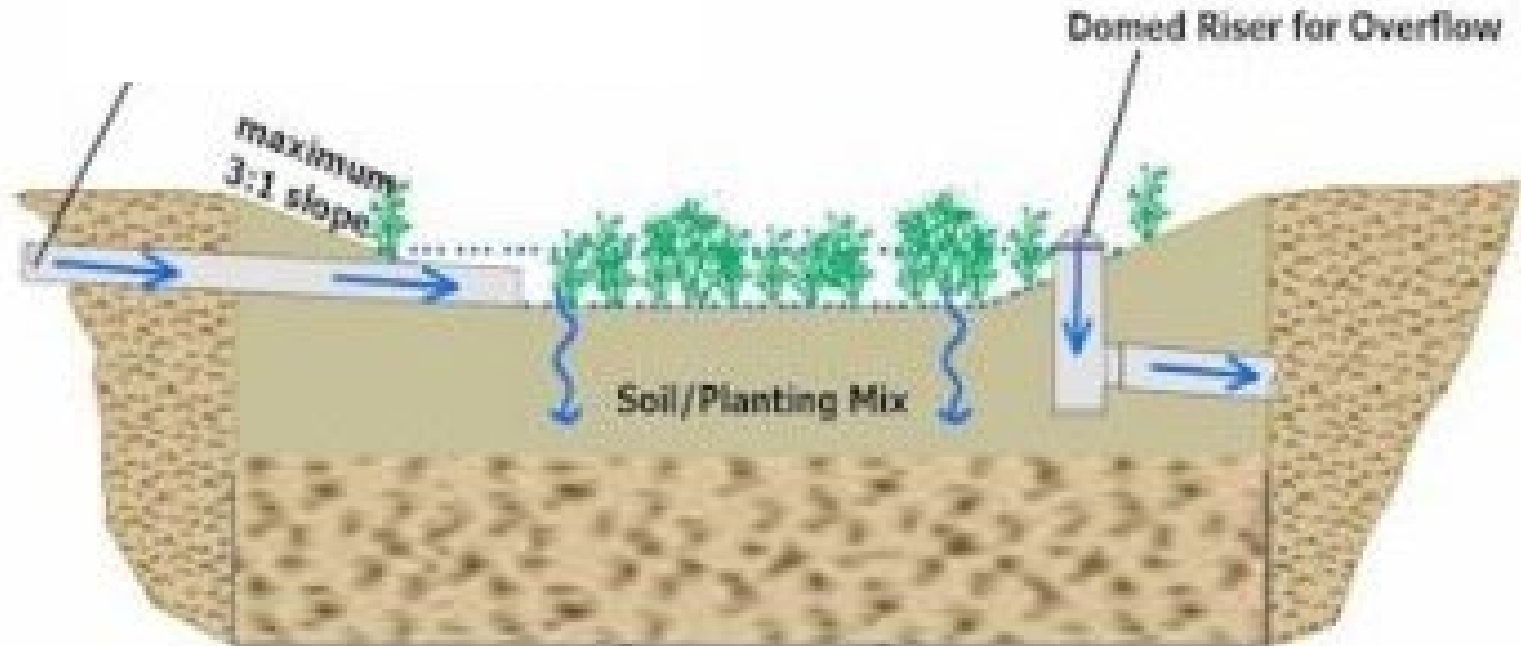
PROTECTIVE MEASURES

STREAM PROTECTION: Erosion Controls



PROTECTIVE MEASURES

STREAM PROTECTION: Best Management Practices (BMPs)



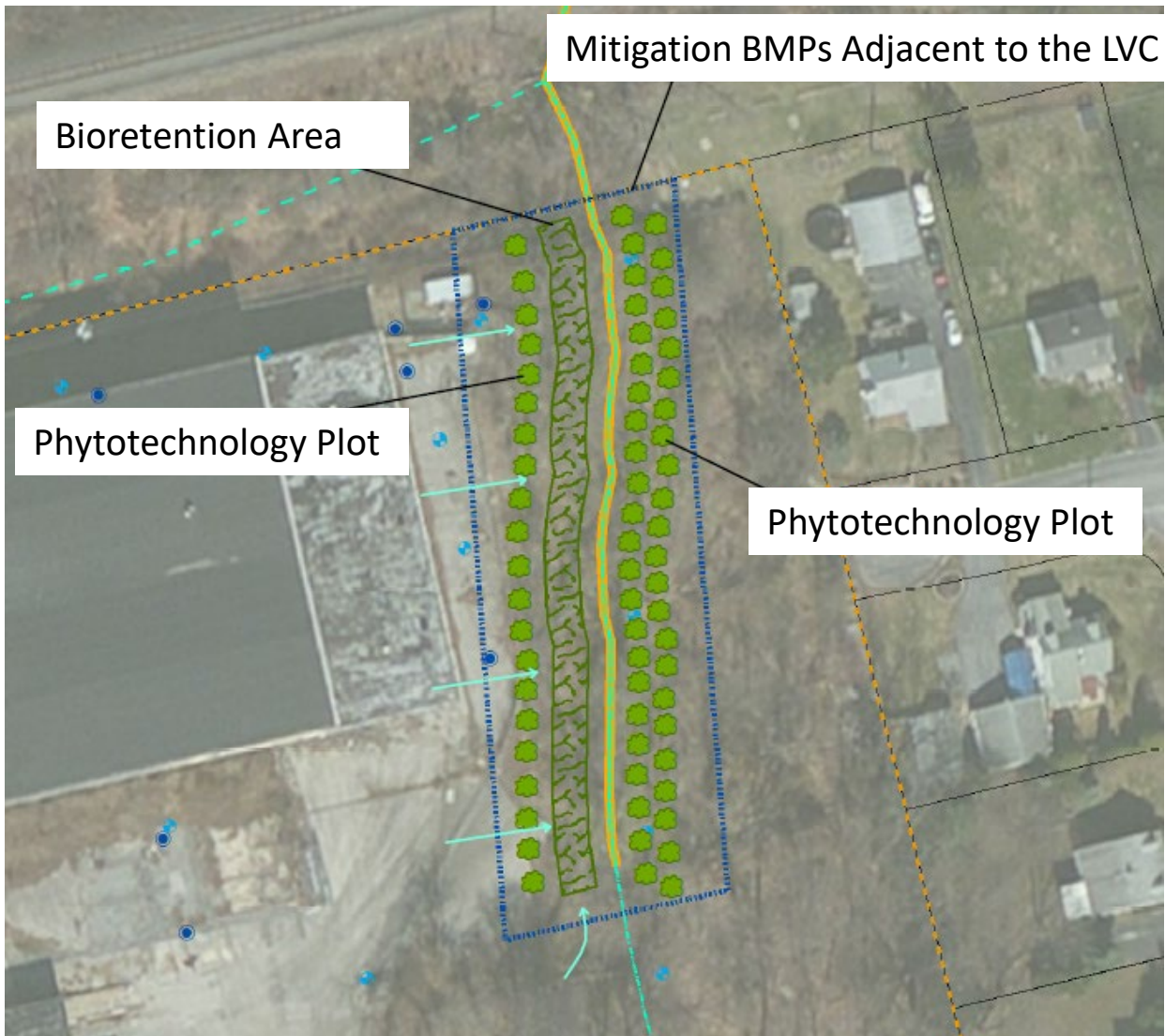
PROTECTIVE MEASURES

STREAM PROTECTION



PROTECTIVE MEASURES

STREAM PROTECTION



Legend

- Property Boundary
- Parcels
- Stream
- Drainage Swale
- Overburden Monitoring Well Location and Identification
- Bedrock Monitoring Well Location and Identification
- LVC Tributary Functional Area**
 - LVC-1: Functional Area
- Remedial Process Options**
 - Mitigation BMP Adjacent to the LVC Tributary
 - Bioretention Area
 - Hybrid Poplar Tree for Phytotechnology Plot (Example Species)
 - Stormwater Flow (To Be Addressed by Property Grading)





For more information:

Email - Dustin Armstrong: RA-EP-SEROECB@pa.gov

DEP's Bishop Tube Website: www.dep.pa.gov/bishoptube

DEP will routinely update the website & send email updates to the community distribution list.

Please go to the website and subscribe

REFERENCES

- [EPA's Community Guide to In Situ Chemical Reduction](#)
- [EPA's Community Guide to In Situ Carbon Amendments for Groundwater](#)
- [EPA's Community Guide to Bioremediation](#)