



welcome



DIVISION OF
CAPITAL ASSET
MANAGEMENT &
MAINTENANCE

Weston & SampsonSM

SPD AREA Phase IV Remedy Implementation Plan Modification

Former Medfield State Hospital
February 17, 2021

Project Team Members & Introductions



DIVISION OF
CAPITAL ASSET
MANAGEMENT &
MAINTENANCE

- Susan Ruch: Director of Environmental Services
- James Matz, LSP, PG: Environmental Project Manager
- Jason Kruckas: Senior Operations Manager



- Frank Ricciardi, PE, LSP: LSP of Record
- Daron Kurkjian, PE: Lead Remediation Engineer
- Rebecca Mauser-Hoye, PE: Project Manager

Agenda

Questions &
Answers at
the End of
the
Presentation



Objective



Background & Conceptual Site Model



What is Zero Valent Iron?



Phase IV Modified Approach



Monitoring & Restoration

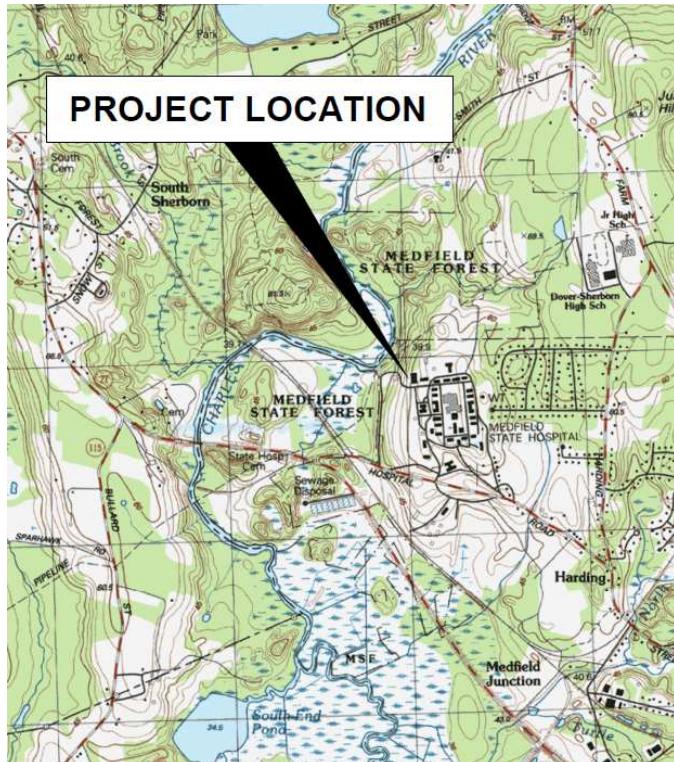


Health & Safety



Town Comments & Questions

Phase IV Objectives



MCP Cleanup & Closure of Laundry Parcel

Achieved Horizontal & Vertical Delineation

Public Safety During Construction

Going Above & Beyond

Exceeding MCP Requirements

Comprehensive & Robust Hybrid Approach

Background



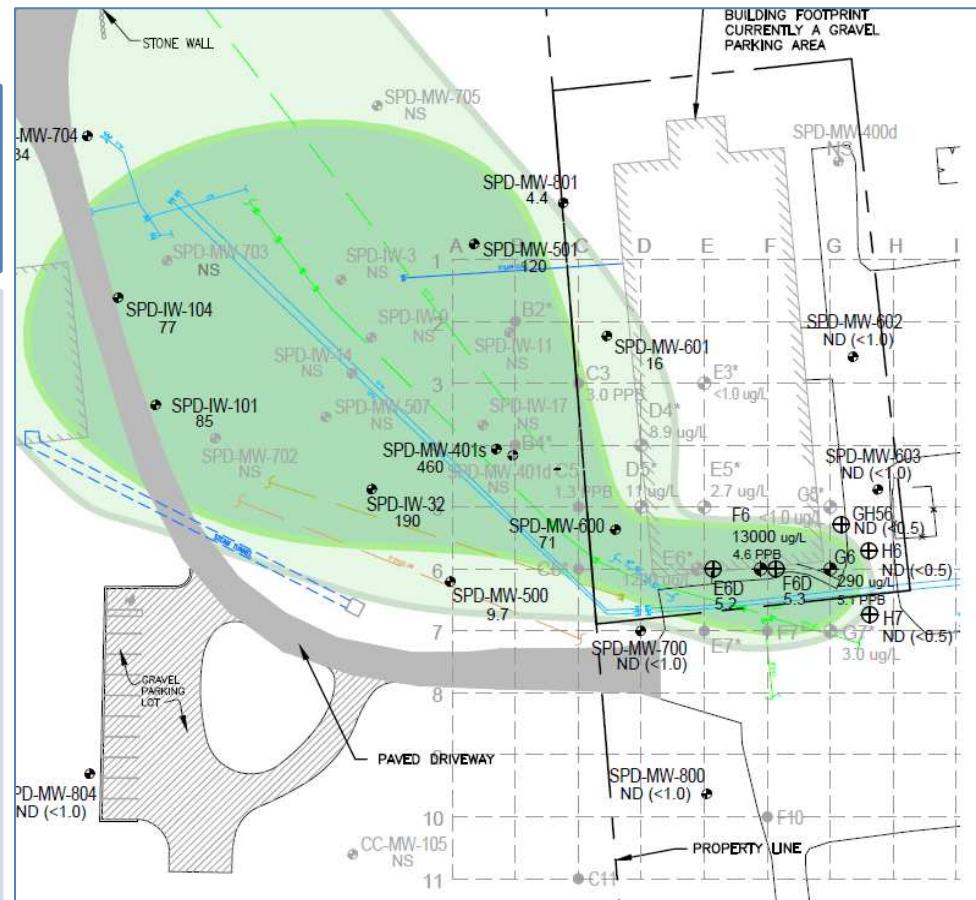
SPD Area

- Refined Source Area
- Non-Detect PCE in Soil < Cleanup Standard of 10 mg/kg
- PCE in Groundwater > Cleanup Standard
- Seasonal Groundwater Sampling Nov 2009 – Feb 2021

Conceptual Site Model

Supplemental Delineation

- Achieved Horizontal & Vertical Delineation
- June & Sept 2019, March 2020:
 - 22 Soil Borings (18-23 ft bgs)
 - 14 Monitoring Wells
- Results
 - Elevated PCE Concentrations along South End of Former Laundry Building
 - PCE Present at Highest Concentration from Approximately 10 to 22 ft bgs



March 2020 Results with Supplemental Delineation Grid



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What is ZVI?

Bench Scale Study

Ferox Zero Valent Iron (ZVI) reduced PCE concentrations in bench-scale study

99% Reduction in Total VOC Mass

Conservative Results – assuming treatment of highest PCE detection of 5 mg/kg

Demonstrated PCE reduction at bench-scale with long-lasting (months) reagent

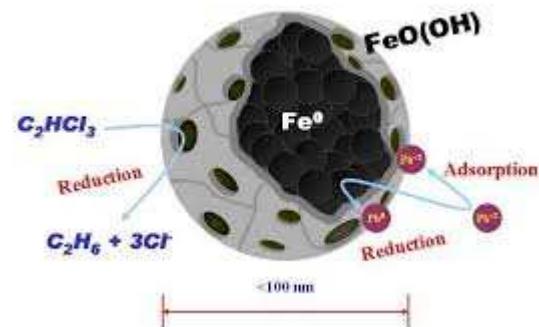
ZVI

ZVI (Fe^0)

Chemical Reducing Agent

Initiates an Abiotic Oxidation-Reduction Reaction

Breaks Down PCE



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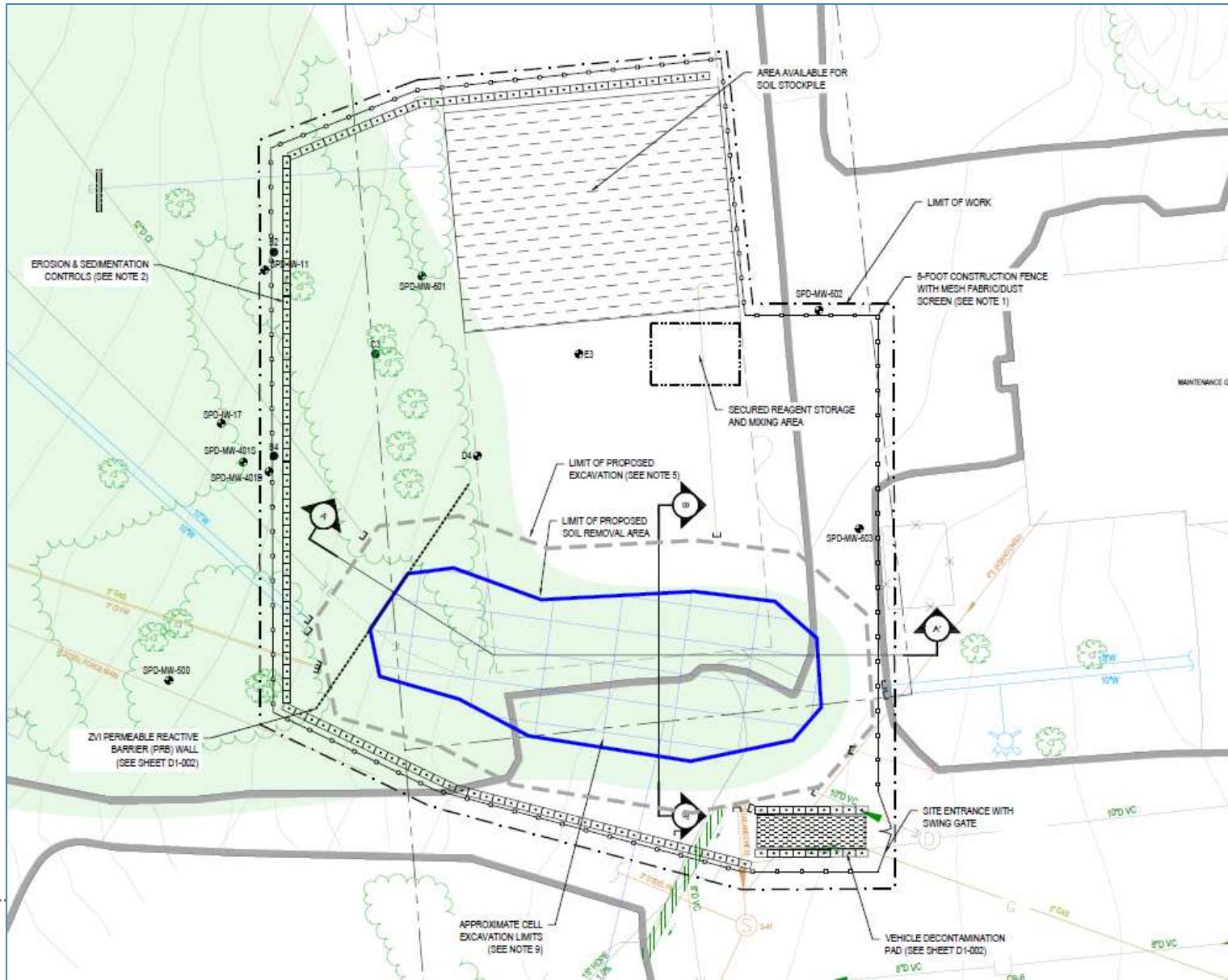
<https://clu-in.org/download/studentpapers/zero-valent-iron-cook.pdf>

Site Preparation

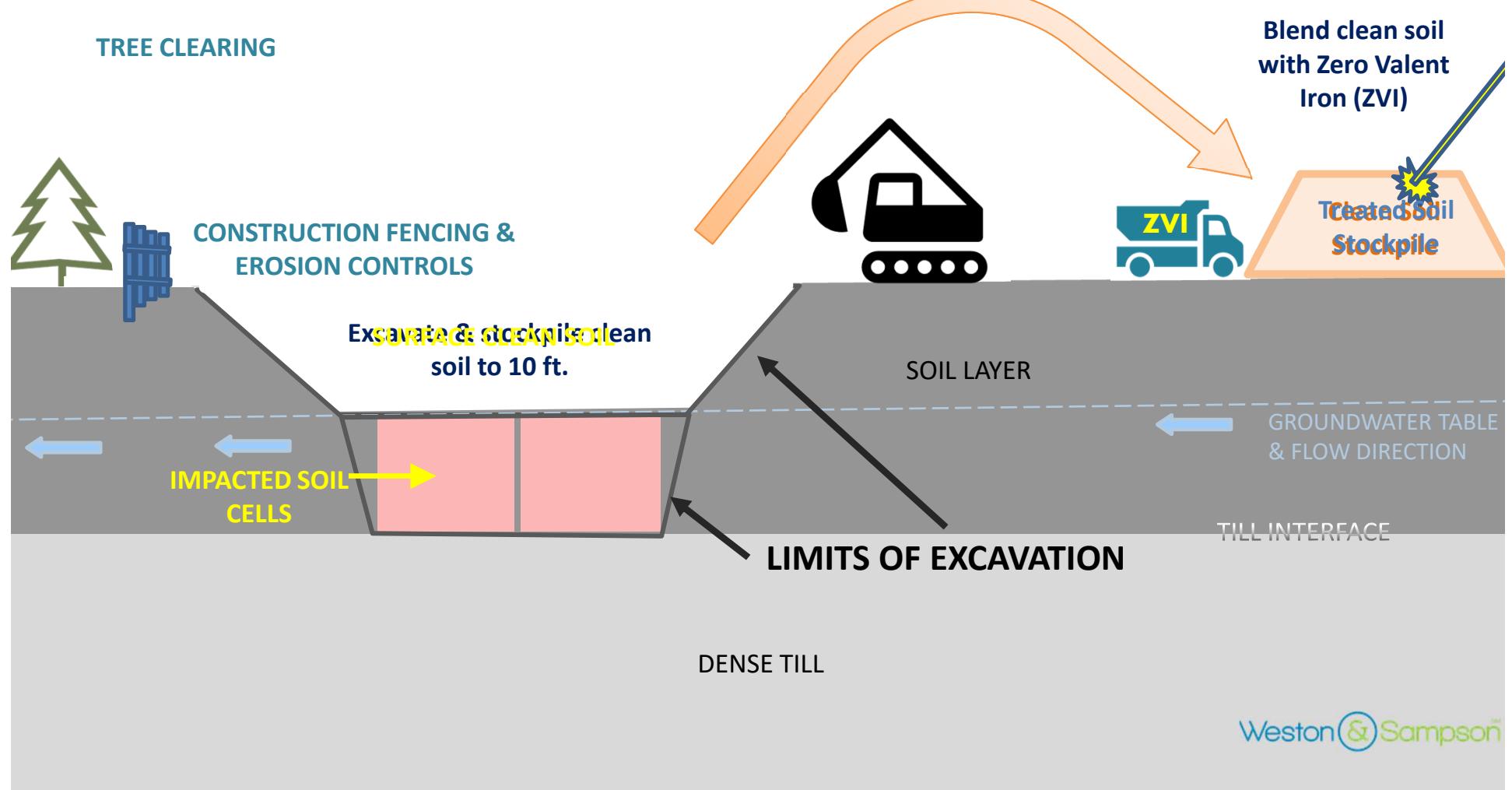
- Erosion Controls
- Work Conducted Outside of Wetland Resource Area/Buffer Zone
- Utility Investigation Prior to Construction (GPR)
- Utility Abandonment



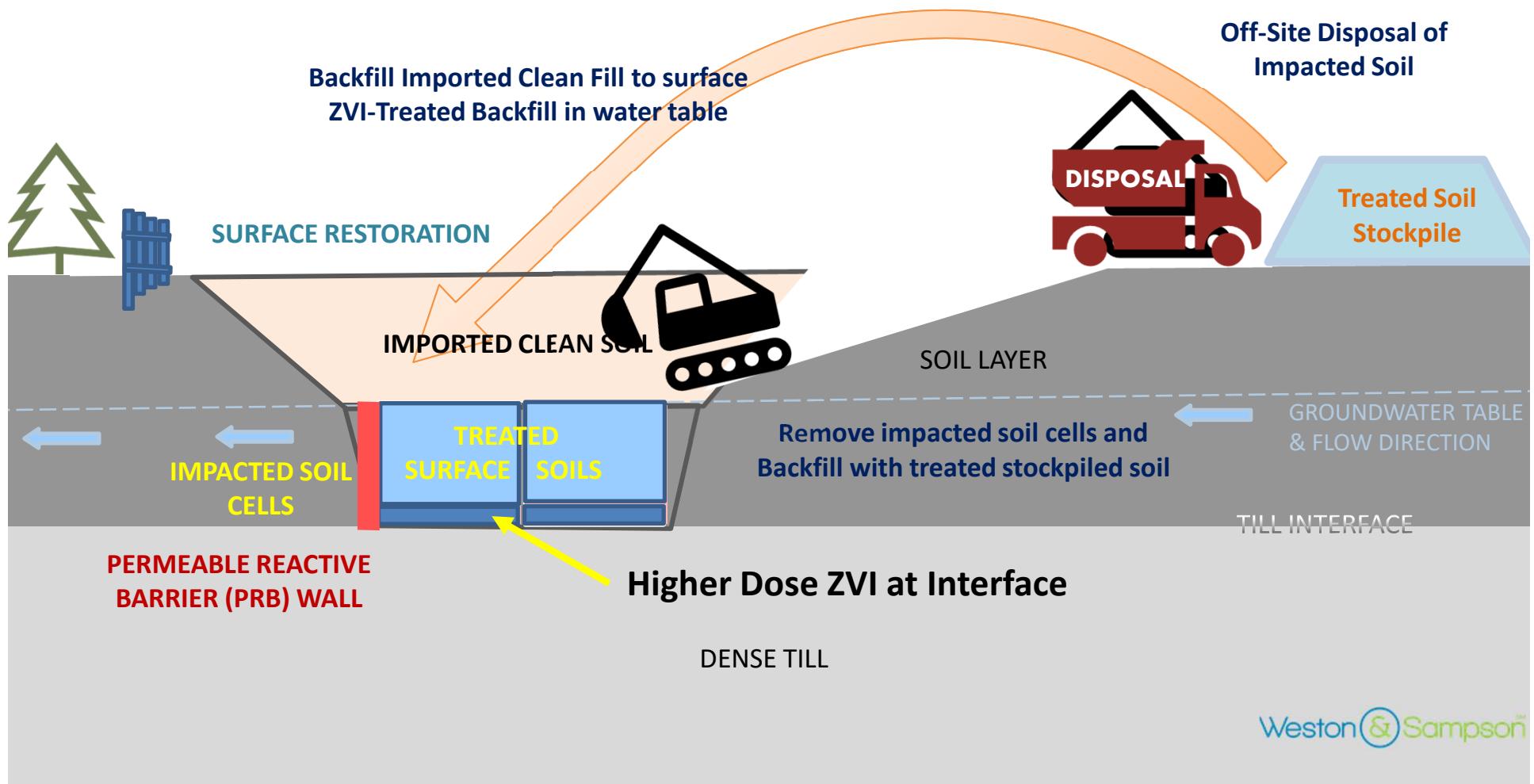
Source Area Treatment



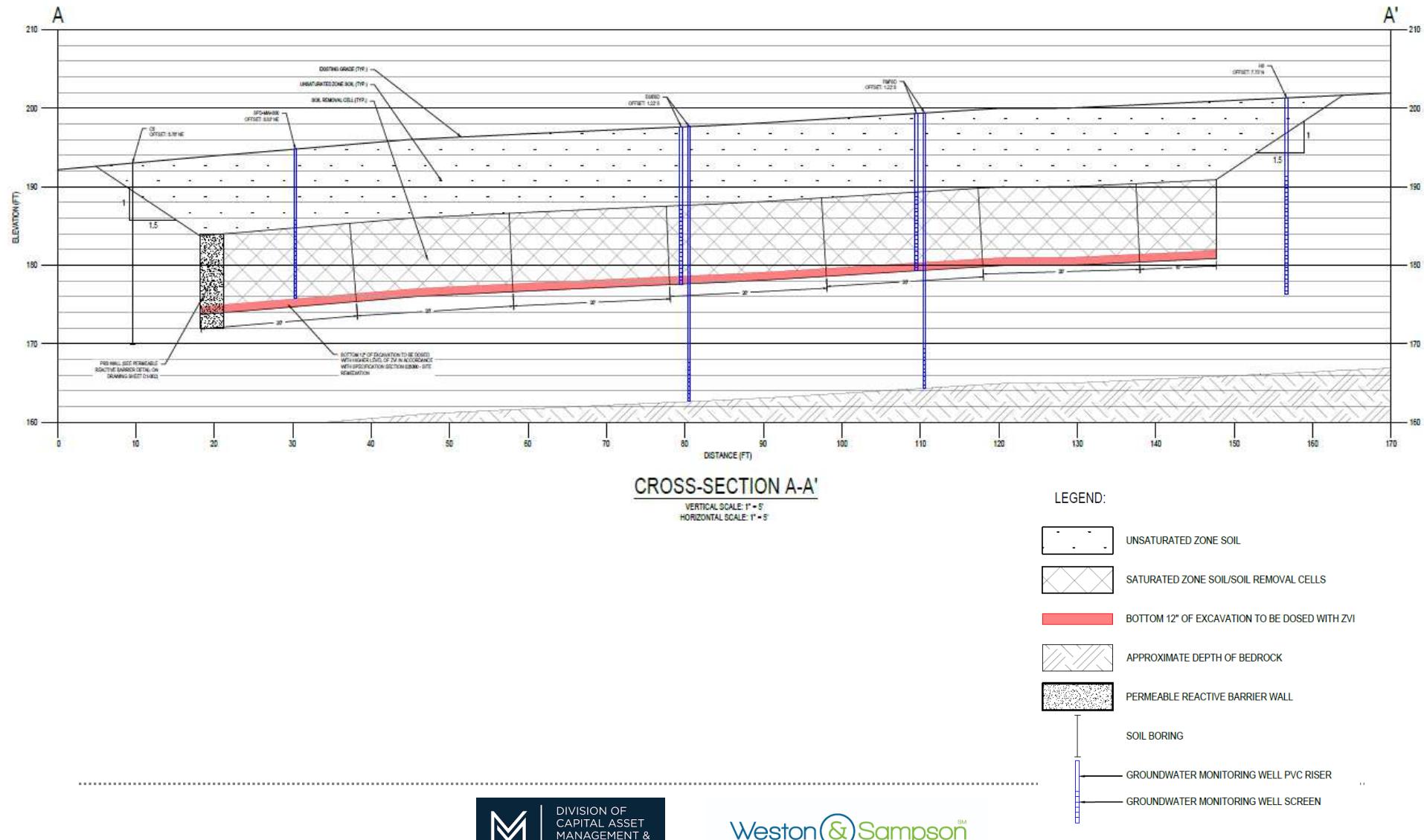
DCAMM MEDFIELD SITE – SPD AREA REMEDIATION ANIMATION



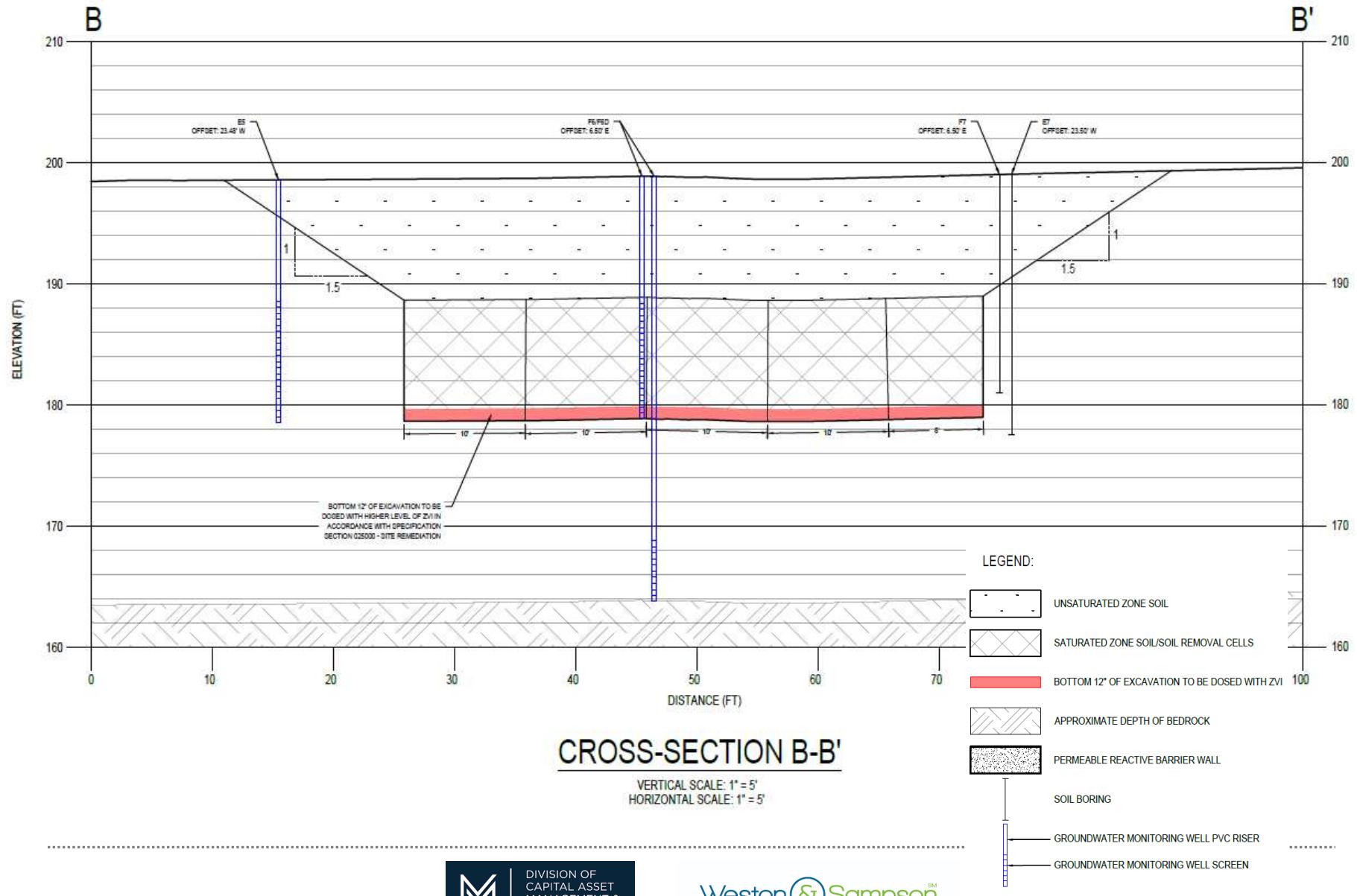
DCAMM MEDFIELD SITE – SPD AREA REMEDIATION ANIMATION



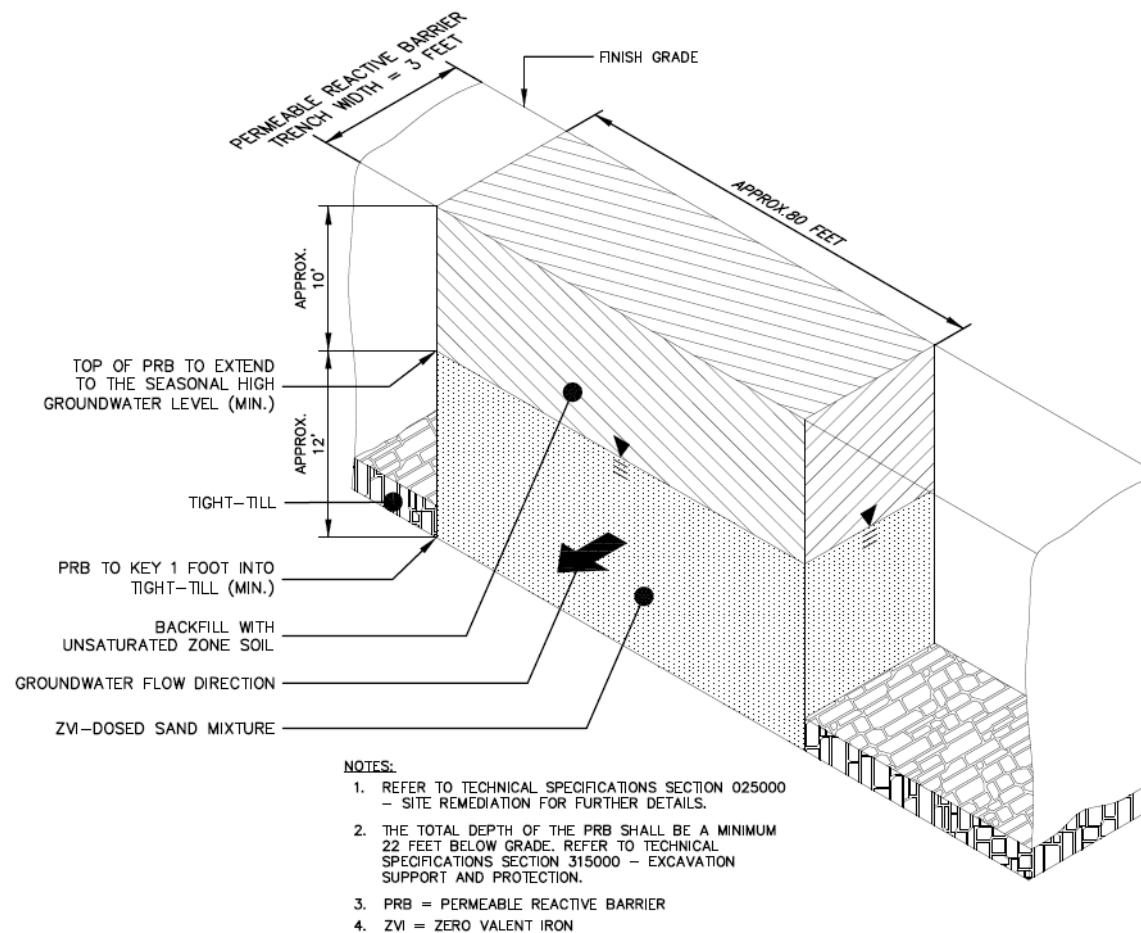
Section View



Section View



Permeable Reactive Barrier



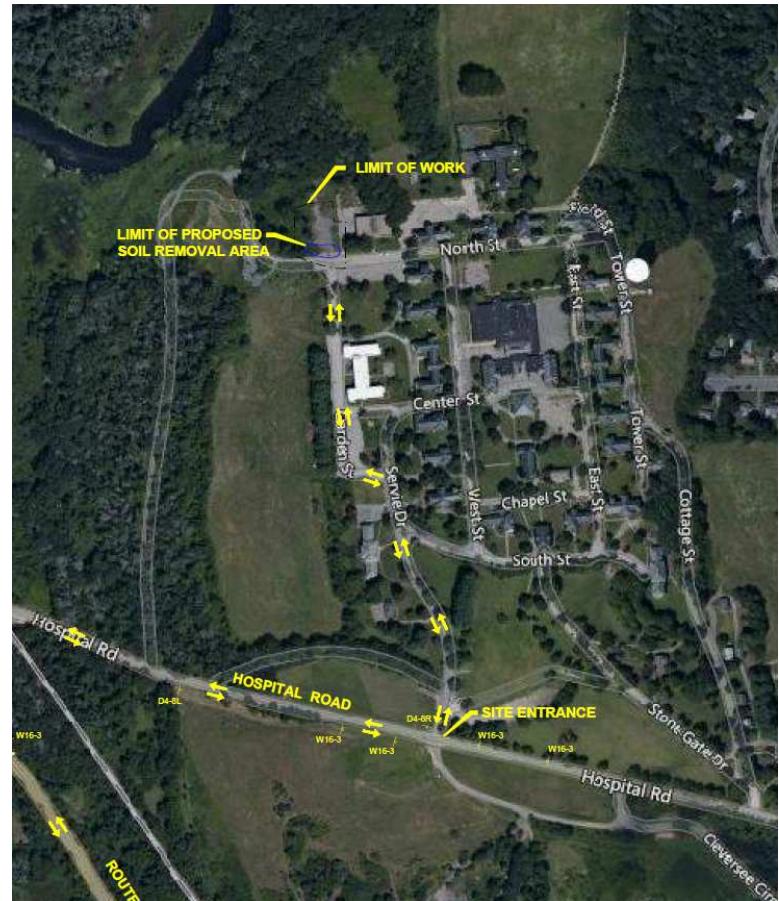
PERMEABLE REACTIVE BARRIER DETAIL N.T.S.

Health & Safety

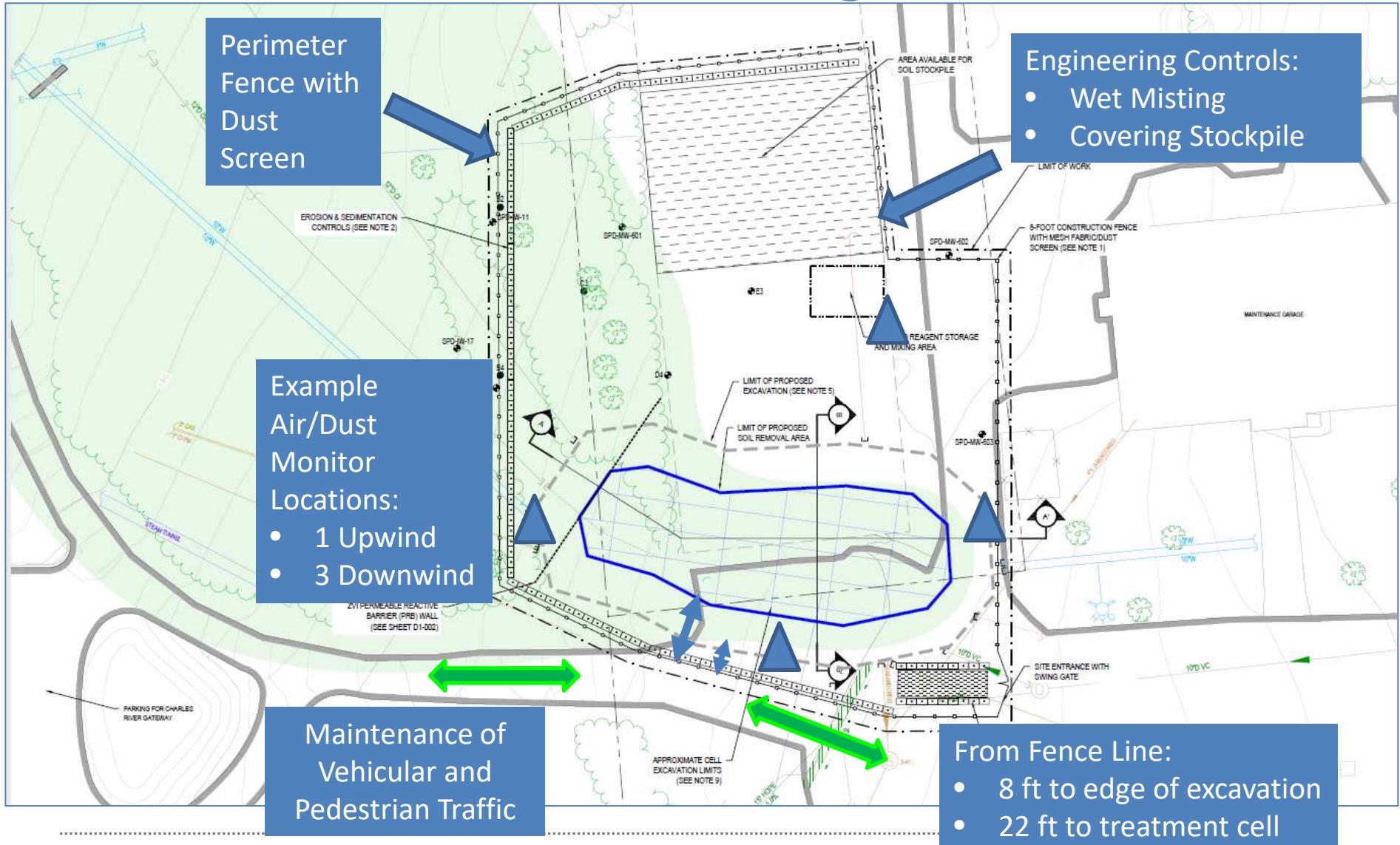
- Site Specific Health & Safety Plan
- Support of Excavation
- Truck Route for Traffic Control



- Signage
- Dust Screens & Controls
- Air/Dust Monitoring



Air/Dust Monitoring & Control

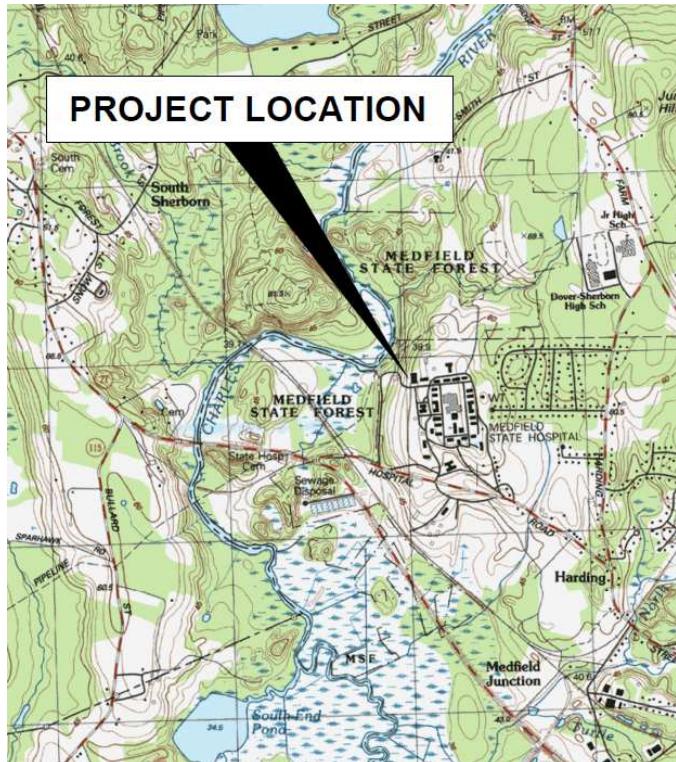


Restoration & Monitoring

- Construction Monitoring
 - pH, Conductivity, ORP, DO of Existing Wells
- Post Remedial Monitoring
 - Existing Quarterly GW Sampling
 - 4 consecutive rounds, but in no event, less than 2 years
 - New Monitoring Well Installation Expanding Network
- Site Restoration
 - Match Existing Conditions



Recap



MCP Cleanup & Closure of Laundry Parcel

Achieved Horizontal & Vertical Delineation

Public Safety During Construction

Going Above & Beyond

Exceeding MCP Requirements

Comprehensive & Robust Hybrid Approach

Town Comments

Shoring & Trench Boxing

- Included in Design Documents, Contractor to provide Excavation Support Plan developed and stamped by Profession Engineer

TCLP VOC Soil Sampling for Disposal

- Included in Design Documents: TCLP VOC Testing if 20x EPA Rule is Exceeded

Clean Fill Testing Requirements/Certifications

- Included in Plans & Specs

10" Water Lines / Northern Access Easement

- Current cut & cap moved upgradient to east of excavation. Lines still tied into the existing hydrant by the Maintenance Bldg to provide water to A-2.

Intent of Remediation

- Close Out the Laundry Parcel
- Source Area ZVI, Downgradient PRB, and MNA

PIP Requirements

- Will adhere to MCP PIP Requirements

Groundwater Sampling

- For 4 consecutive rounds, but in no event less than 2 years

Public Health & Safety

- HASP, dust screens & controls, air/dust monitoring, signage, etc.

Public Comment

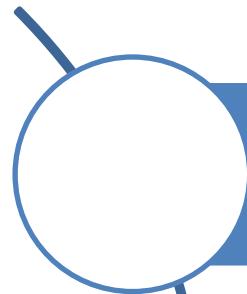
For additional information or to submit written questions/comments, please contact:

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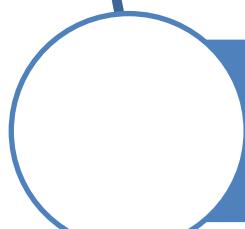


Public comments are due on or before March 9, 2021

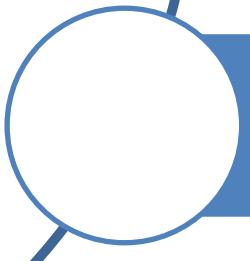
Document Availability



Electronic Sharefile Link (and/or hard copy): Available Upon Request



Hard Copy: Medfield Library Repository
Electronic Copies: Town Offices (Town Admin. & BOH)



Hard Copy: MassDEP CERO (finalized reports following PIP Review)
8 New Bond Street, Worcester, MA

