INITIAL PUBLIC INVOLVEMENT PLAN MEETING AND FIELD INVESTIGATION UPDATE

Nonantum Business Park Property
459-471 Watertown Street, and 320-330 Nevada Street
(RTN 3-0033794)

WOODARD &CURRAN

Lisa J. Campe, Licensed Site Professional
November 28, 2017

Presentation Overview

- Introductions
- Public Involvement Plan
- Nonantum Business Park Property background
- Regulatory history
- Investigation Findings Summary/Update
- Next Steps
- Q & A

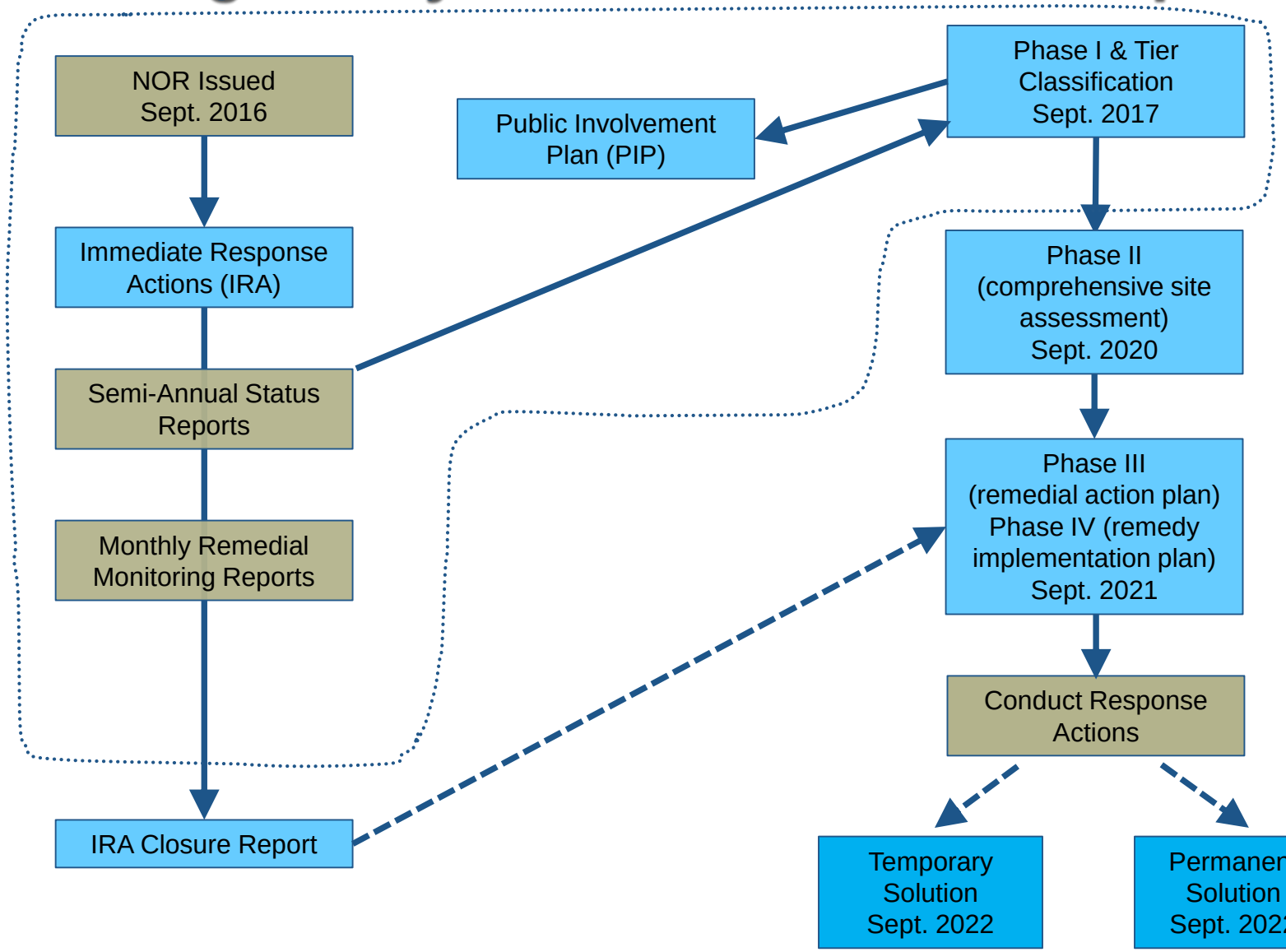
Overview of Involved Parties

- MassDEP – environmental regulatory agency
- One Nevada Realty LLC – owner of the Property
- Northrop Grumman – company that, in 2002, acquired TRW, a former owner of the Property
- O'Reilly, Talbot & Okun Associates – environmental consultant for One Nevada
- Woodard & Curran – environmental consultant for Northrop Grumman
- Lisa Campe – LSP for Northrop Grumman (LSP of Record)

Introduction to the MCP

- MCP = Massachusetts Contingency Plan, 310 CMR 40.000
  - Regulations for assessment and cleanup of "Disposal Sites" (releases of contaminants)
  - Science-based approach
  - Multi-phased approach
    - Assess types and extent of contamination
    - Assess risk to human health, environment
    - Assess cleanup options where needed
- LSP = Licensed Site Professional
  - Directs/oversees assessment and cleanup activities

Regulatory Framework – Roadmap

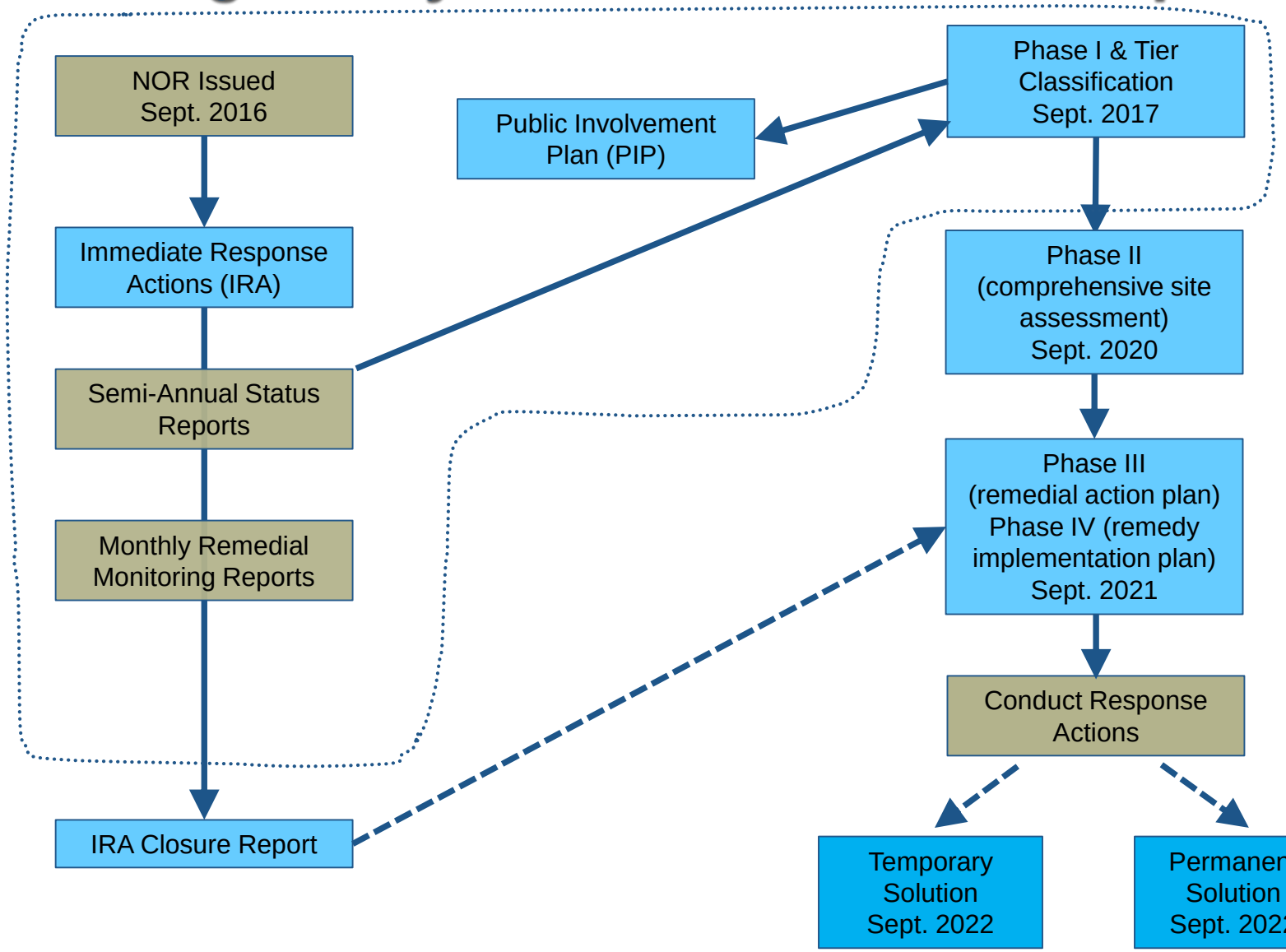


Public Involvement

Public Involvement Plan

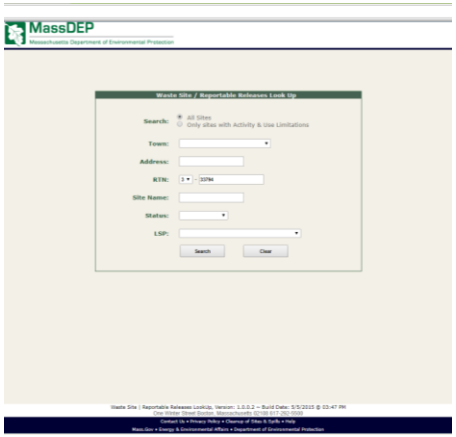
- Public Involvement Plan (PIP) petition received
- Northrop Grumman designated the Site as a PIP Site
- What is a PIP Site?
  - Development of a PIP
  - Notification of document availability
  - Opportunity to comment on certain documents
  - Public meetings at MCP “milestones”

Regulatory Framework – Roadmap



Public Information Repositories

- Online at:
  http://public.dep.state.ma.us/SearchableSites2/Search.aspx
  - (search by RTN 3-33794)
- Newton Free Library
- Copies of PIP available here!
- Contact us:



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Public Involvement Plan (PIP) Review

- Draft PIP is available for comment
  - 20 day comment period beginning today (ends December 18, 2017)
  - Final PIP will incorporate select comments
  - Responses to all comments will be prepared
  - Final PIP will be completed within 30 days of end of public comment period.

Send comments on Draft PIP by

DECEMBER 18, 2017

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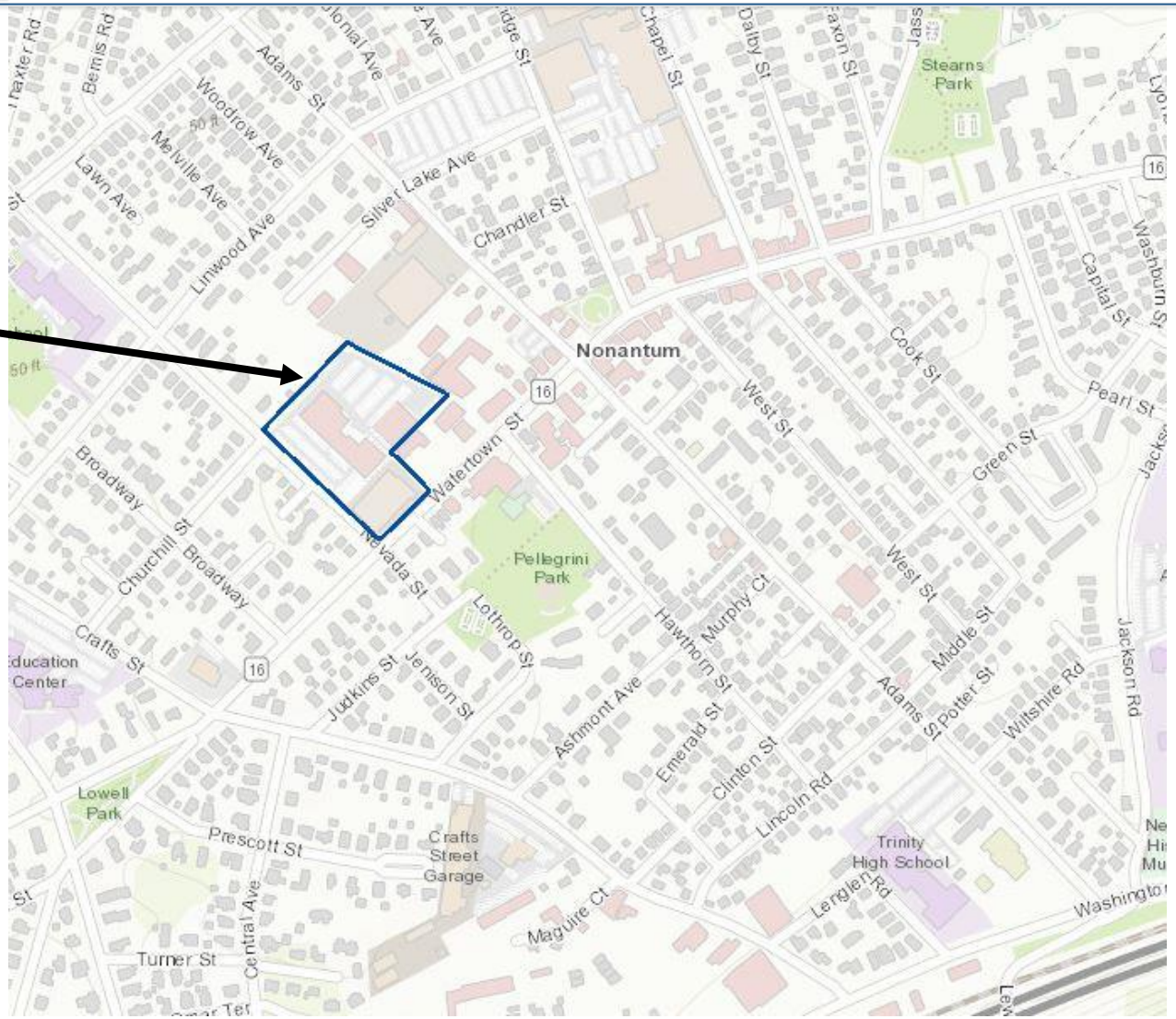
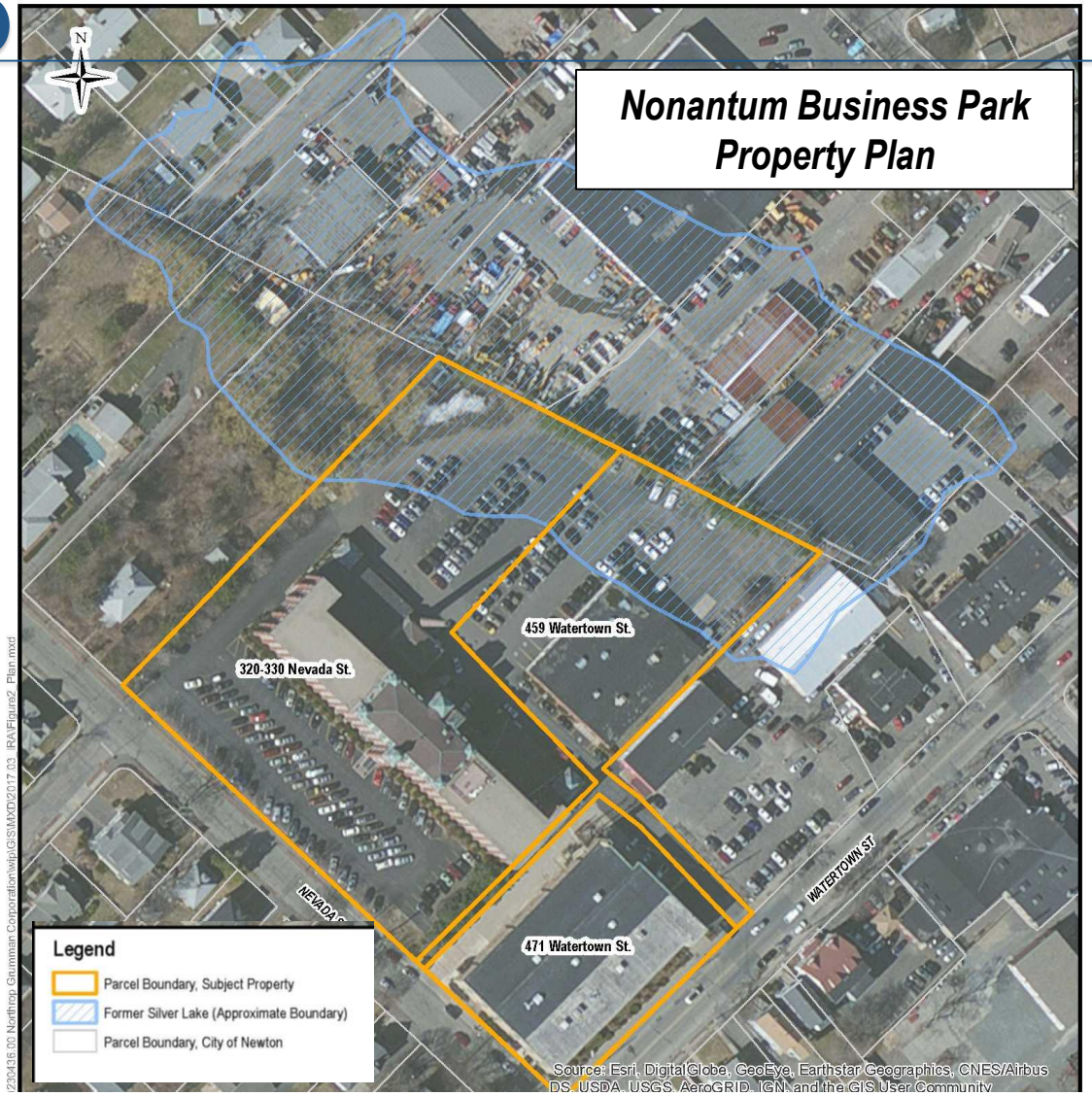
PROPERTY BACKGROUND INFORMATION

Location

Nonantum Business Park



Aerial Photo



Property Background

- 1860s: Brick mill building constructed by Silver Lake Cordage Company
- 1928: National Packaging Machine Company took over the Property
- 1938-1983: Ucinite Company, United-Carr, Inc. and TRW, Inc. occupied the Property
  - Manufacturing of specialty fasteners and assembly of electromechanical devices
- Dec. 1983-Sept. 1984: TRW Foundation
- 1984: One Nevada Realty Trust acquired property
  - Redeveloped mill building as office space
  - Mixed commercial/industrial use at other two buildings
- 2002: Northrop Grumman acquired TRW

Regulatory History

- 1980s – 1990s: MassDEP/EPA investigations
  - Nevada Street Site "closed"/no further action
- 2014: MassDEP initiated groundwater/indoor air assessment in Nonantum neighborhood following audit of former junkyard Site on West Street
  - Multiple buildings were impacted by volatile organic compounds (VOCs)
  - MassDEP installed mitigation systems where residential "Imminent Hazards" (IH) were identified
    - IH: condition that may present a *potential* health risk over a short-term exposure
  - Investigations primarily focused on shallow groundwater
- 2016: MassDEP installed groundwater monitoring wells on corner of Watertown and Nevada Streets
  - Elevated levels of trichloroethylene (TCE) detected in deep groundwater

Regulatory History, continued

- Sept. 2016 -MassDEP sent Notice of Responsibility (NOR) to One Nevada and Northrop Grumman
- NOR identified need for "Immediate Response Actions" (IRA)
  - IRA must address any Imminent Hazards (IH)
  - 2016-2017 field work focused on:
    - Indoor air impacts in Property buildings
    - Potential sources of VOCs on the Property
- Phase I Initial Site Investigation and Tier Classification (Tier I) in September 2017
- Fact sheet available

Field Investigation Updates

2016 – 2017 Field Activities

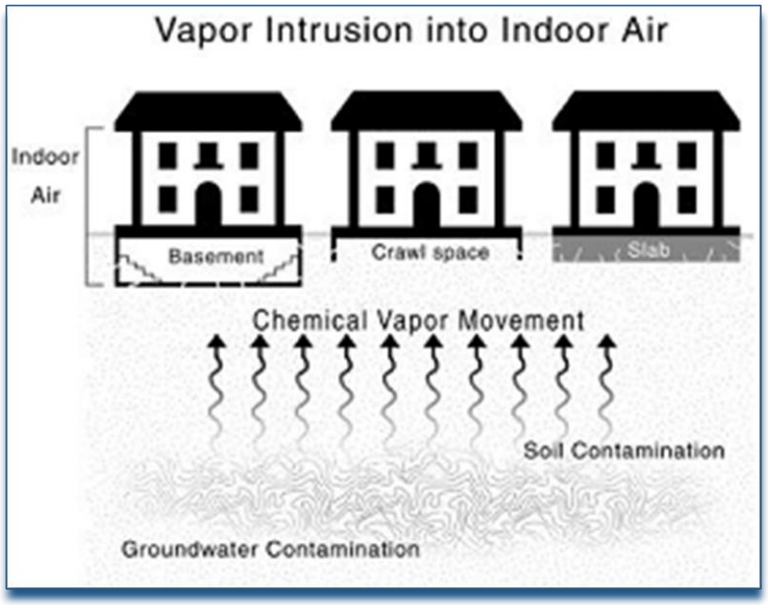
1. Vapor intrusion and IH assessment and mitigation

2. Potential source areas assessment

3. Groundwater assessment

See Phase I Initial Site Investigation Report (Sept. 2017) and IRA Status Report #2 (Oct. 2017)

Vapor Intrusion Assessment and Mitigation



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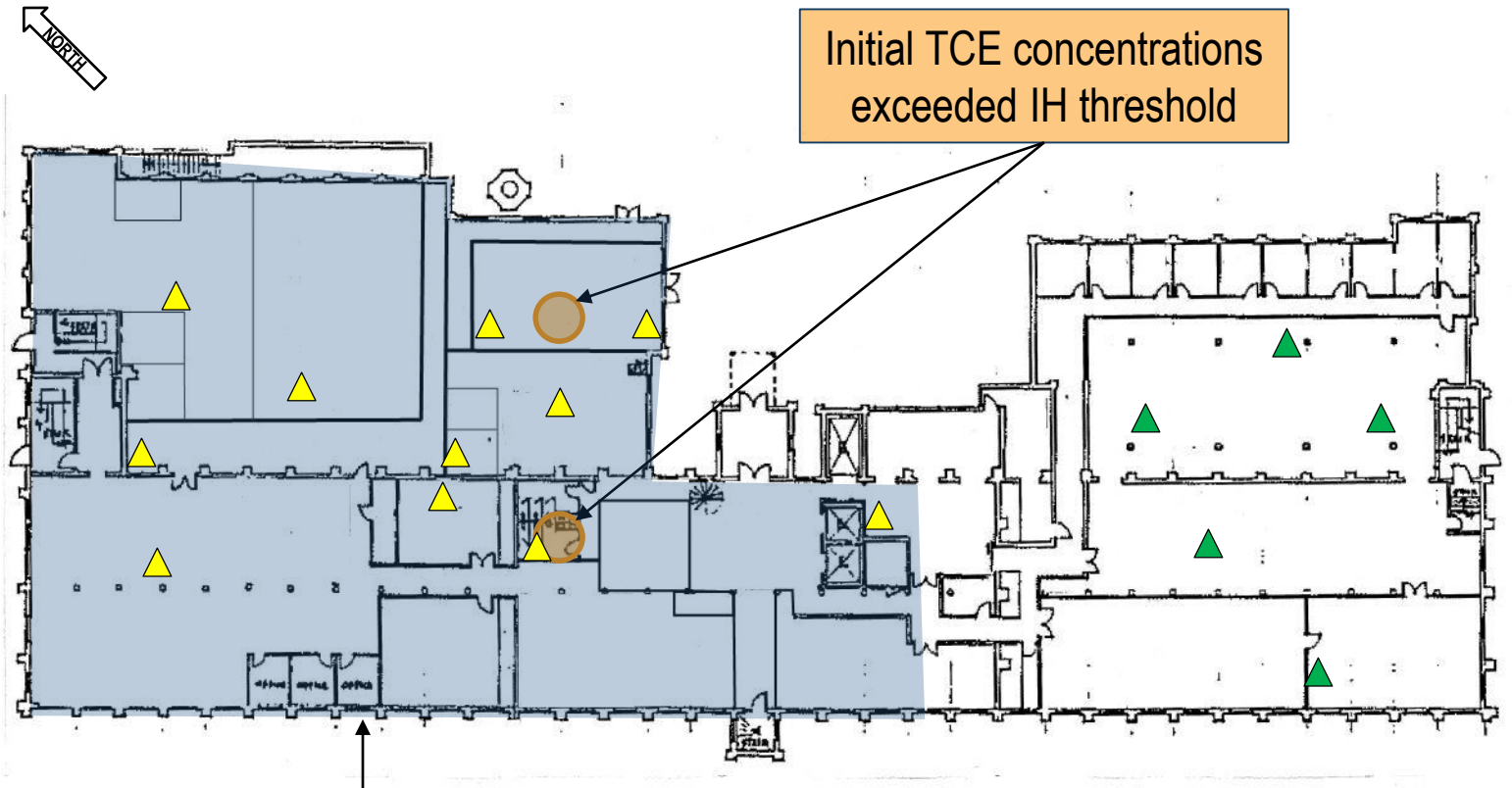
Vapor Intrusion Basics

- What is Vapor Intrusion (VI)?
  - Vapor-forming chemicals migrate through the ground into indoor air
    - Common examples: radon, VOCs
- Focus of VI investigation:
  - Conditions that may present a *potential* health risk over a short-term exposure
  - Trichloroethylene (TCE): primary contaminant of concern
- "Background" contaminants can impact indoor air quality
  - Carpeting, air fresheners, cleaners, etc.

Vapor Intrusion Assessment

- Assessments in three on-Property buildings:
  - Installed sub-slab soil gas monitoring points
  - Sampled indoor air and sub-slab soil gas
- TCE detected in indoor air and soil gas in all three buildings
  - Mitigation activities not required in 459 & 471 Watertown Street buildings
- IH conditions were identified in a portion of the former mill building
  - One ground floor office and bathroom

Vapor Intrusion Mitigation: Former Mill Building



← Nevada Street →

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Vapor Intrusion Mitigation

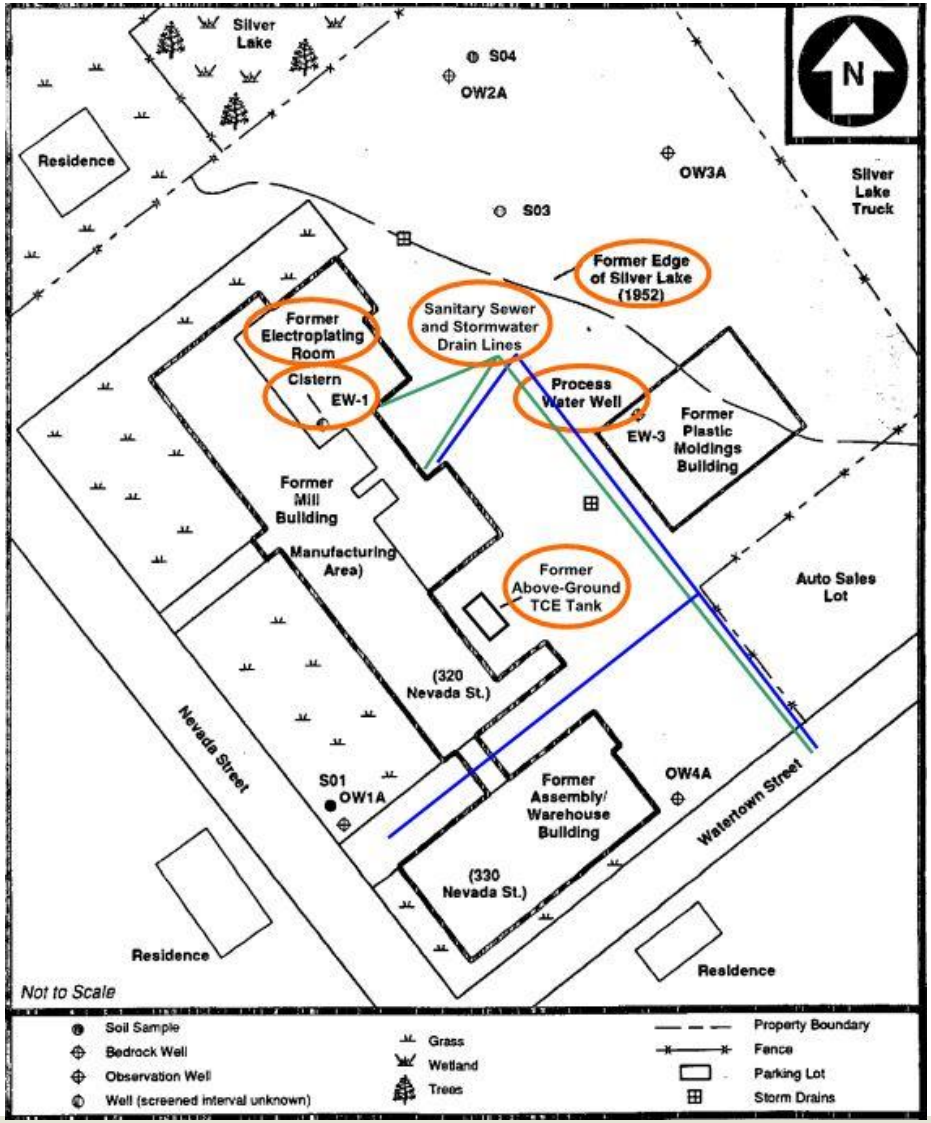
- **Imminent Hazards mitigated**: short-term response actions
- **VI pathway mitigated**: active sub-slab depressurization (SSD) systems implemented within former mill building
- **TCE concentrations reduced** in indoor air and soil gas
- Operation and monitoring of systems continue

Potential Source Areas Investigation

Investigation Goals and Approach

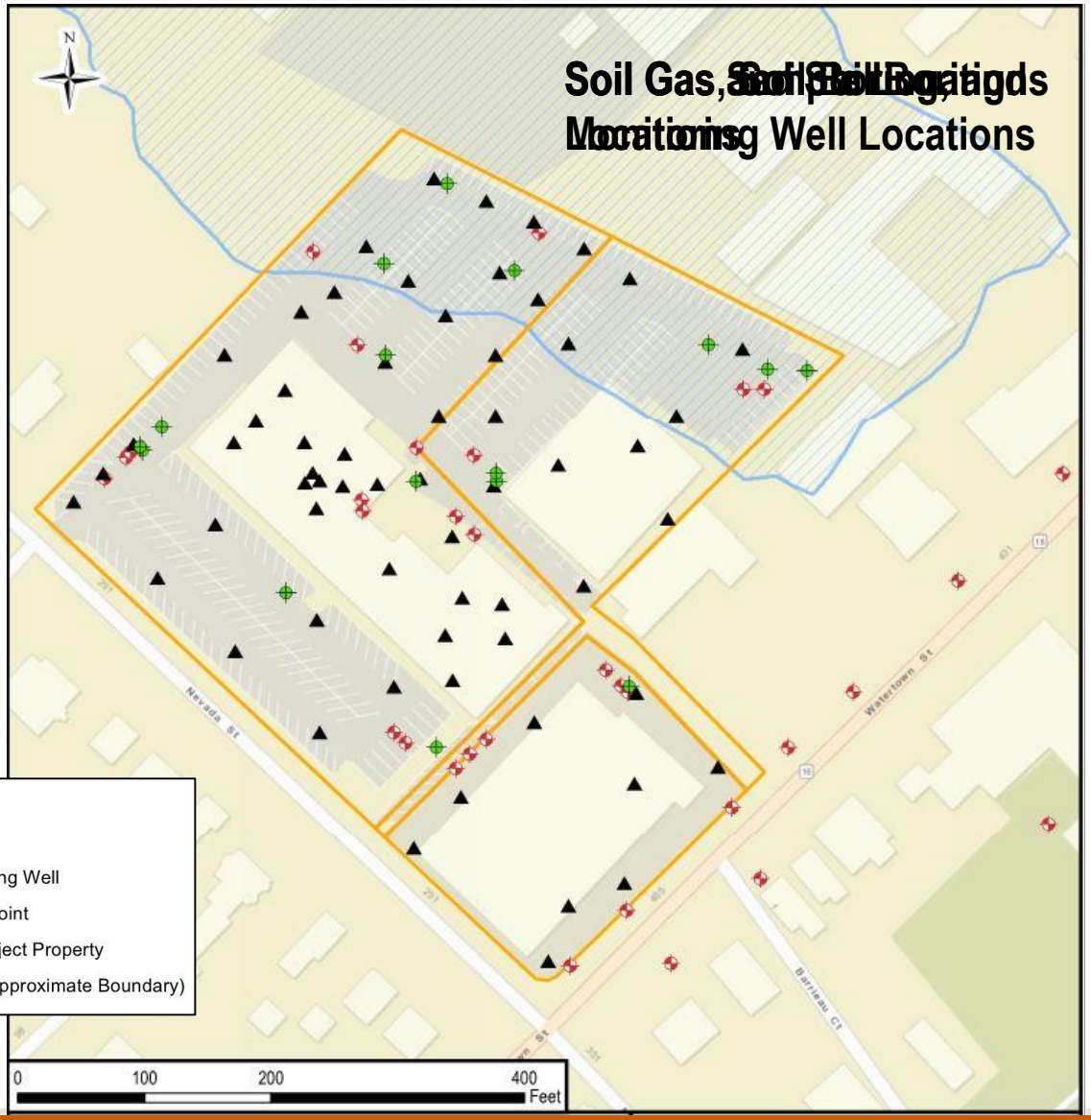
- Goals:
  1. Identify source of VOCs, if present
  2. Evaluate nature and extent of impacts
- Step-wise approach taken:
  - Review of historical site uses and prior reports
  - Soil gas (exterior of building)
  - Soil
  - Groundwater (shallow/deep)
  - Groundwater flow
  - Geophysical surveys

Potential Source Area Investigation



Site Plan, TRC, 1993

On-Property Sample Locations



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Source Area Investigation Results

Over 200 samples of environmental media collected on Property

- Silver Lake
- Former cistern
- Former process well
- Drain lines

Consistent results across property:

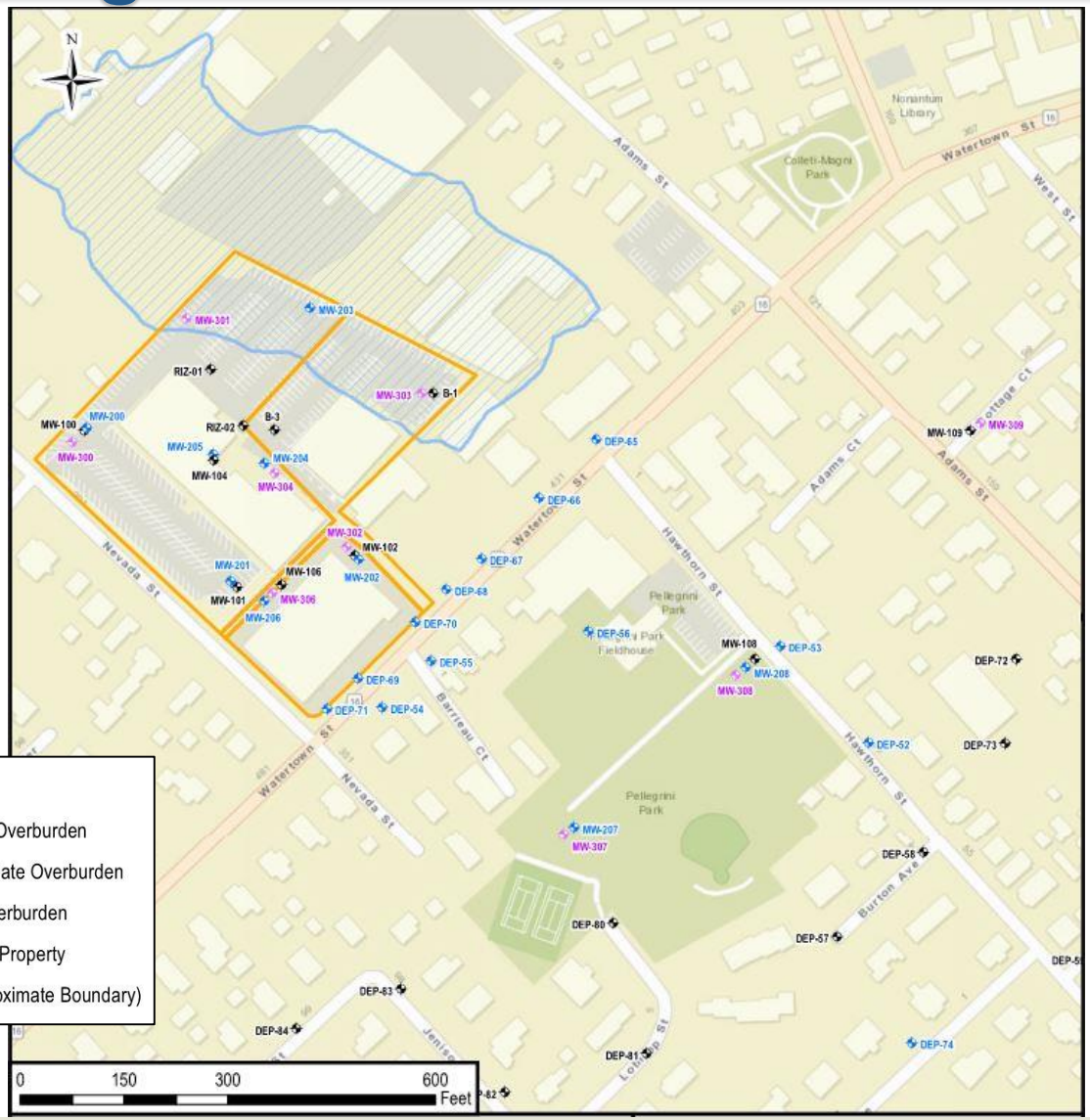
- Shallow exterior soil gas, soil, groundwater – TCE levels very low or not detected
- Deep groundwater – elevated TCE levels >50 feet

Groundwater Assessment

Groundwater Assessment

- To understand regional geology
  - Soil Borings
  - Geophysics
- To understand regional groundwater flow
  - Well gauging/surveying
- To understand extent of VOCs in groundwater
  - Well installation (shallow, intermediate and deep) on- and off-Property
  - Resample nearby MassDEP wells

Monitoring Well Locations



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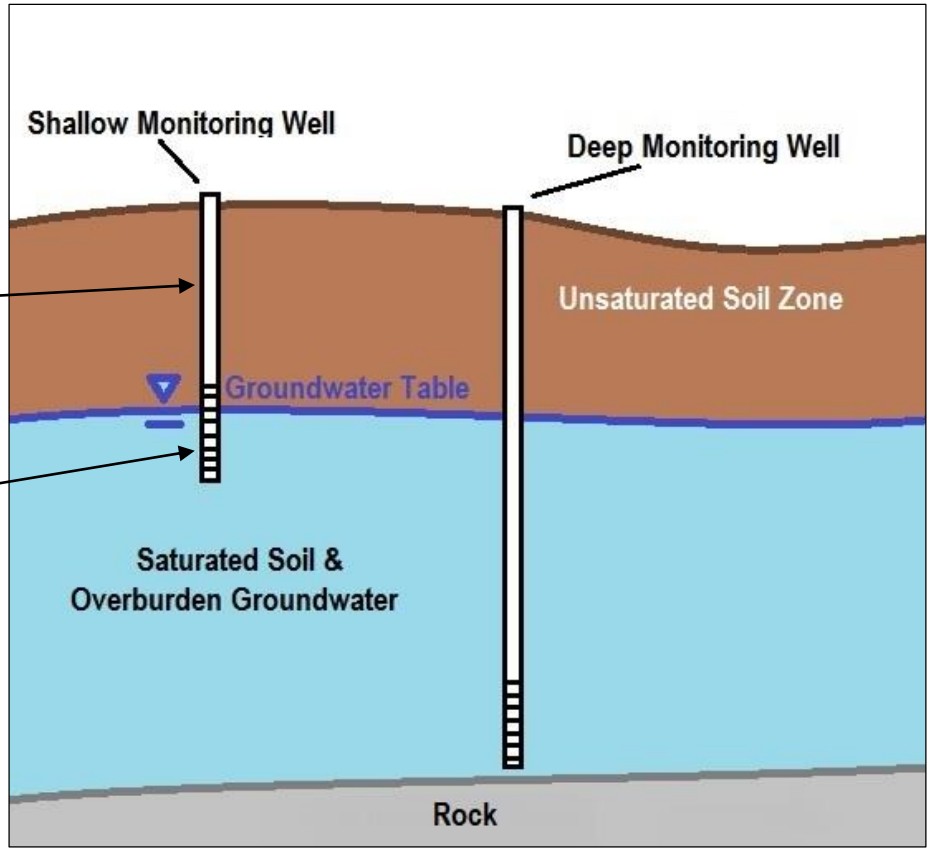
Monitoring Well Overview



Solid PVC pipe

Slotted PVC screen

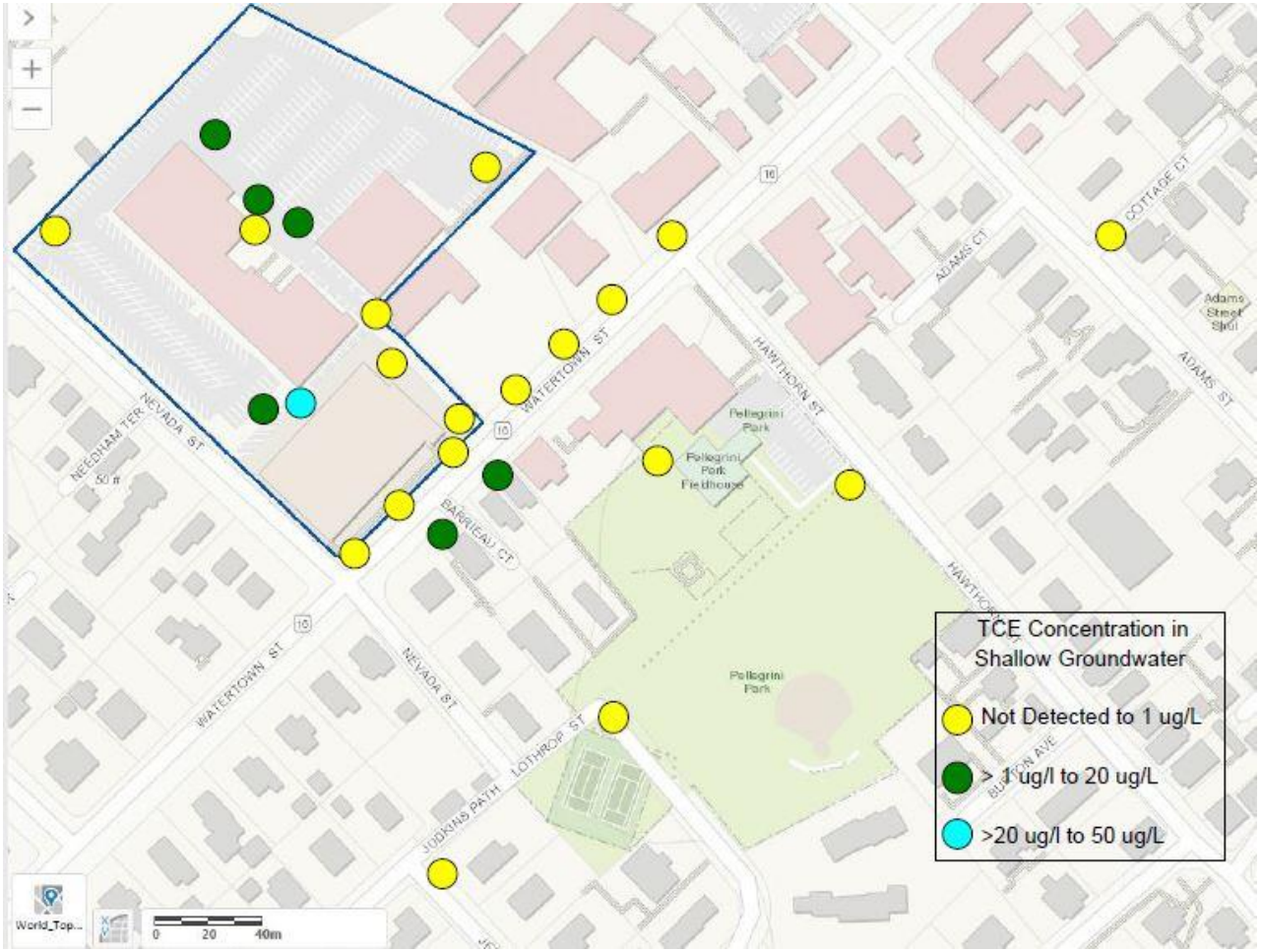
Surface topography: variable

Groundwater elevation: variable

Bedrock sloping: variable

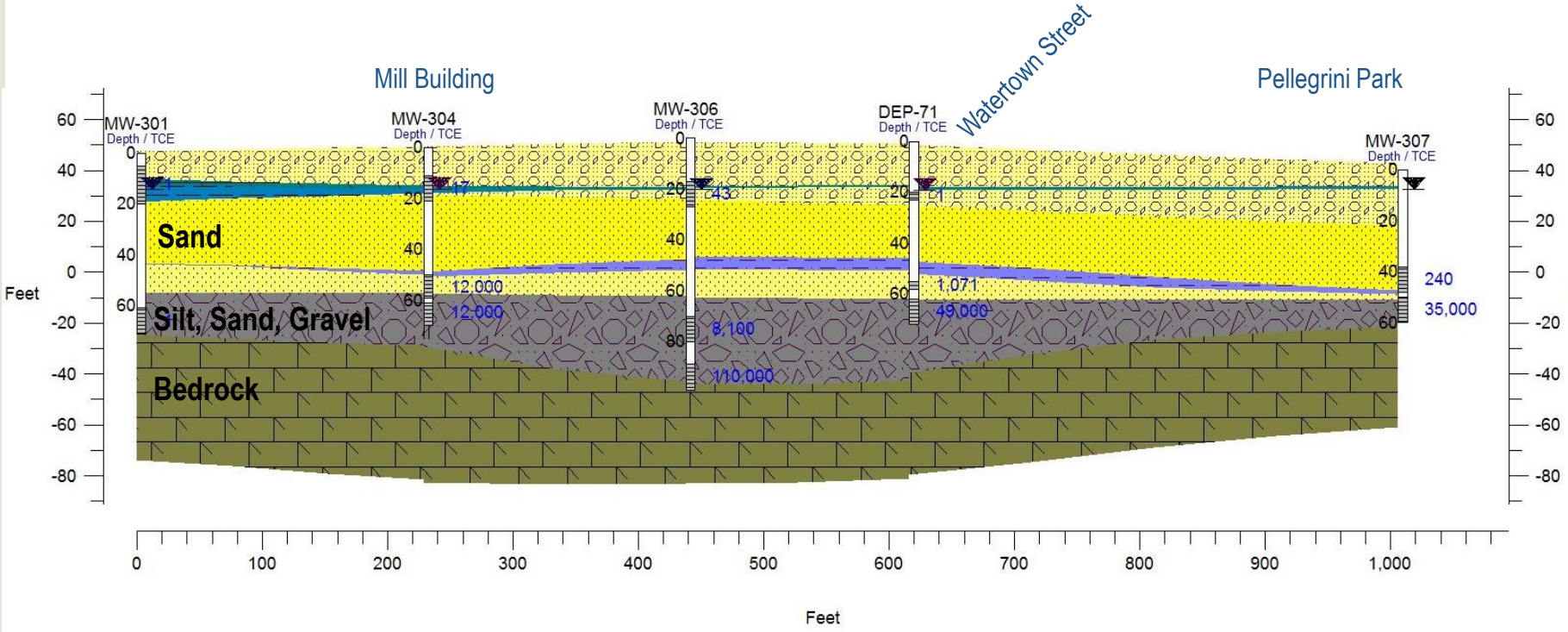
TCE Concentrations in Shallow Groundwater

- Water Table (shallow) groundwater monitoring wells



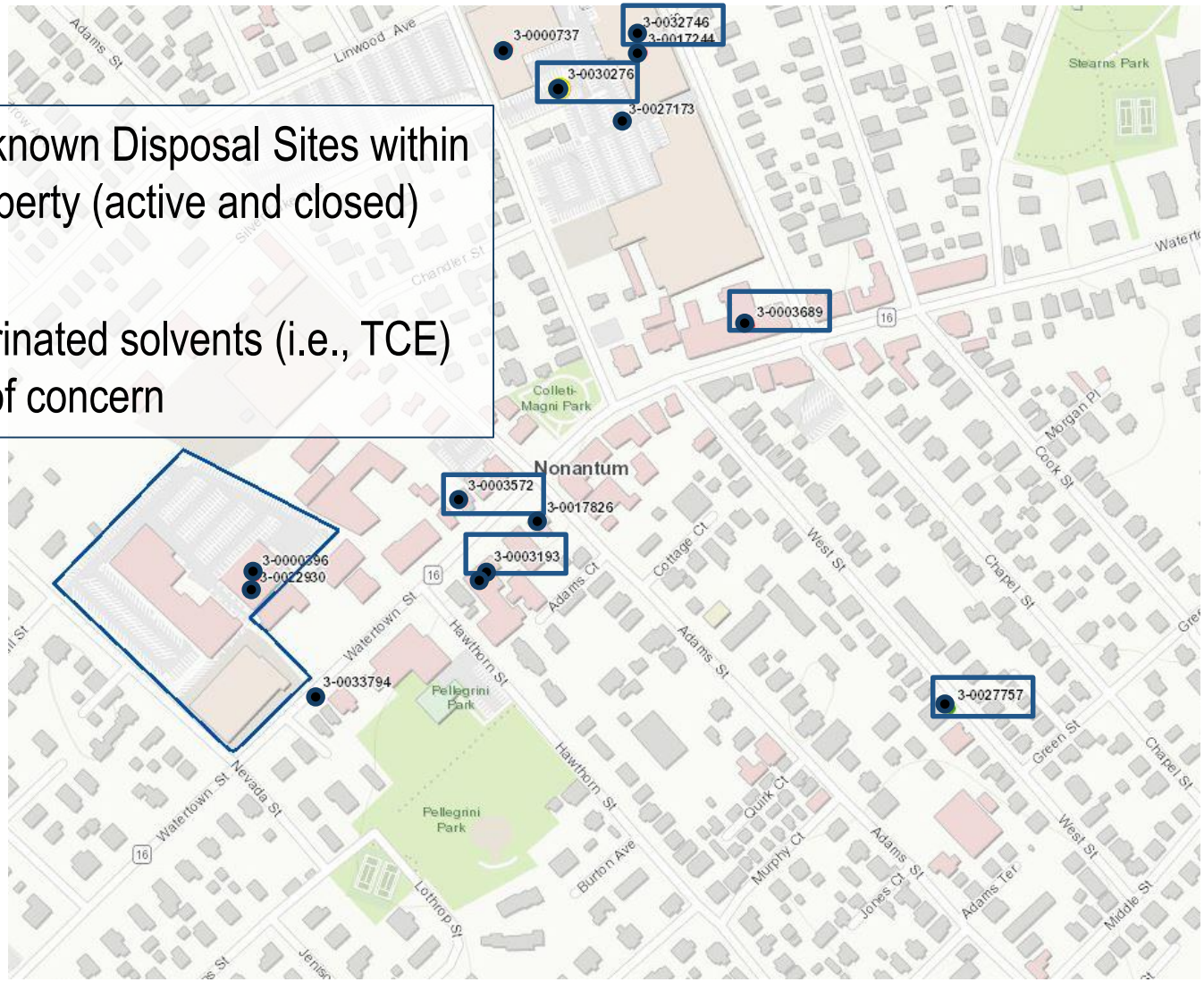
Geologic Cross Section

- TCE levels low at shallow depths
- Bedrock surface rises to east and south



Nearby MCP Sites

- Approximately 18 known Disposal Sites within 0.5-mile of the Property (active and closed)
- 6 Sites report chlorinated solvents (i.e., TCE) as a contaminant of concern



Groundwater Assessment Findings

- Shallow: low or non-detect concentrations, both on- and off-Property
- Deep: Elevated TCE concentrations at approximately 50 feet below ground surface or deeper, both on- and off-Property
- *No significant on-property sources of TCE to groundwater identified to date*
- Additional assessment needed to understand potential extent and migration of VOC plume(s)

Summary and Conclusions

Vapor Intrusion Assessment Summary

- Complete vapor intrusion pathway identified
- SSD systems installed in former mill building to mitigate potential TCE exposure
- Continued monthly monitoring of active systems
- Future air sampling planned for Nonantum Business Park Property

Source Investigation Summary

- Collected nearly 300 samples since November 2016 from various media on and near the Property
  - 29 sub-slab soil gas
  - 40 indoor air
  - 59 exterior soil gas
  - 43 soil samples
  - 82 groundwater from monitoring wells
  - 45 groundwater from temporary points
- Cistern/sewer/process well
  - Shallow groundwater concentrations low

Groundwater Assessment Summary

- Data show little to no impact in shallow groundwater
- Elevated VOC concentrations appear limited to deep (>50 feet below ground surface) groundwater
  - Highest detected concentration at approx. 100 feet below ground surface
- VOCs extend in deep groundwater off-Property
- No source of VOCs to deep groundwater identified
  - Extensive data collection at property has not identified origin of deep VOC impact.

Next Steps

- Assess extent of VOC plume off-Property
- November – December 2017:
  - Gauging and sampling of on- and off-Property wells
  - Select shallow wells in neighborhood
- Continue to refine Conceptual Site Model to identify data gaps

- **Receive and respond to comments on the PIP**

QUESTIONS?

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