

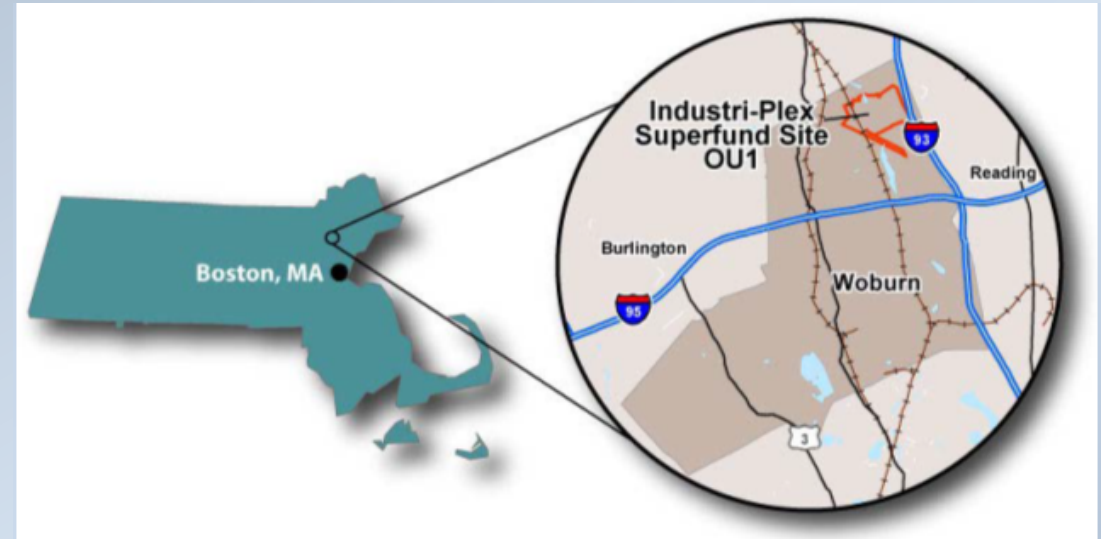
Industri-Plex Superfund Site – SRI Case Study

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EPA Region 1



Industri-Plex Superfund Site – SRI Case Study

- Unique setting of original 245-acre site approximately 10 miles north of Boston, Massachusetts
- Adjacent Interstate 95 and Interstate 93 highways
- Adjacent rail/commuter rail service to Boston
- **Location, Location, Location**



Industri-Plex Superfund Site – SRI Case Study

- Over 110 years of chemical and glue manufacturing (1853- 1969)
- Development in 1970s and early 1980s disturbed animal hide piles causing obnoxious “rotten egg” odors released to atmosphere (known at the time as the “Woburn Odor”)
- Rotten egg odors from hydrogen sulfide spread across multiple towns, causing many lawsuits and leading to Superfund site listing in 1983
- Area known as “Moon Scape” with its barren appearance from 1960s-80s



1993 – Former
Manufacturing Area



1988 – Arsenic Pit Area



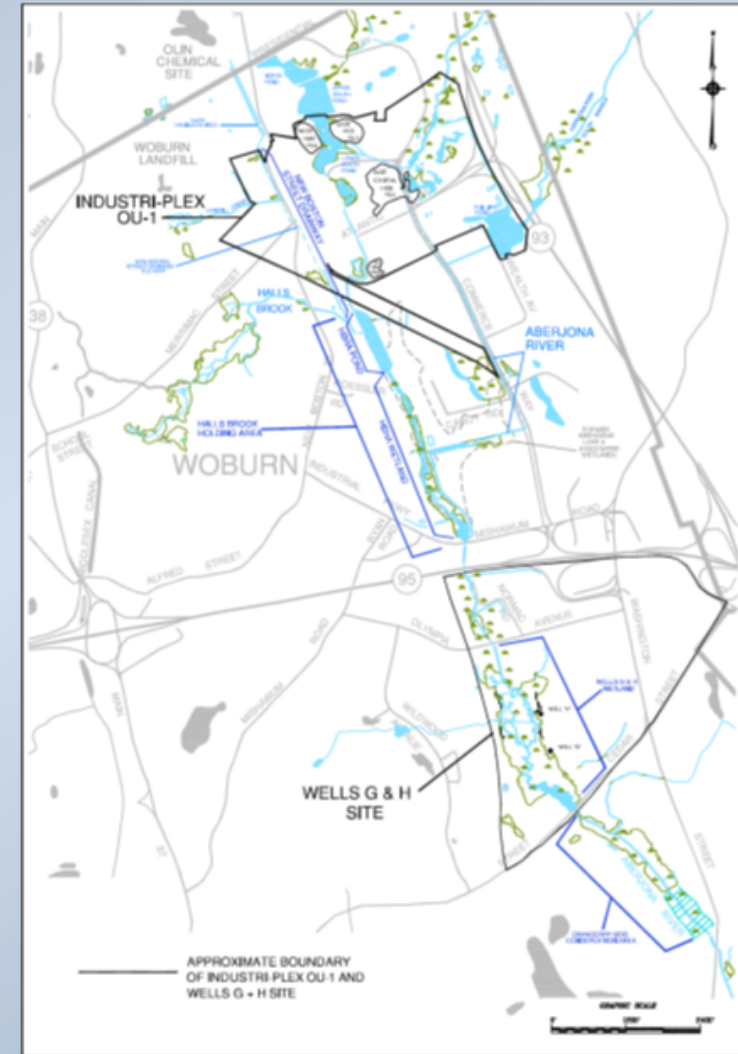
1988 – East Hide Pile



1988 – Waste Ore Pile

Industri-Plex Superfund Site – SRI Case Study

- Soil/Sediment Contaminants: Metals such as Arsenic, Lead and Chromium
- Groundwater Contaminants: Arsenic, Ammonia, Benzene, Toluene and other VOCs
- Four Animal Hide Piles
- Aberjona River flows through the site
- Wells G&H Superfund site approximately 1 mile downstream. The 2 sites are hydraulically connected by the Aberjona River.
- Engaged community and municipality



Remedy – 1986 Record of Decision (ROD)

<https://semspub.epa.gov/src/document/01/14846.pdf>

- Soil/Sediment Remedy: Permeable cap/cover over 100 acres to prevent contact with contaminated soils and sediments
 - Engineered Cover (e.g. typically 16” fill with geotextile and grass, rip rap, pavement, etc.)
 - Equivalent Cover (e.g. existing concrete floors/foundations, existing paved roads, existing paved parking lots)
- Air Remedy: Impermeable cap & gas collection treatment system to prevent release of odors to the atmosphere
- Institutional Controls



Unique Aspects to Remedy/Consent Decree

- Developer (MPT) donated land to satisfy liability
- 1989 Consent Decree (CD) settlement included former chemical and glue manufacturing companies, property owners and municipality; CD incorporated sale of donated land
- Consent Decree created two Trusts:
 - “Remedial Trust” to fund the cleanup
 - “Custodial Trust” (e.g. Real Estate Trust):
 - Hold, manage and sell MPT land
 - Record/comply with institutional controls
 - Provide access and where appropriate subdivide MPT properties
 - Locate purchasers, negotiate, sell and convey property
 - Distribute sale proceeds to beneficiaries (net any reasonable Custodial Trust costs)
 - Unsellable land into long-term trust
- 1989 CD:
<https://semspub.epa.gov/src/document/01/44323.pdf>



1992 100% RD Figure 18-1: Site Potential Development Plan

Unique Aspects to Remediation/Consent Decree

- Consent Decree forged partnerships among key stakeholders including Custodial Trust, Remedial Trust/Settlers, municipality, and EPA/State through MPT property sales distributions (table below)
- Custodial Trust maintained steadfast reuse vision (e.g. improving infrastructure and access to enhance attraction/value), and attracted and led negotiations with state transportation agencies and high end users:
 - Public infrastructure improvements: i. multi-modal transportation center; ii. I-93 interchange; and iii. Commerce Way Extension (City of Woburn)
 - Private investments: i. Dayton Hudson (Target Stores); and ii. National Development (Raytheon, Residence Inn - Marriott, Boston Sports Club, etc.)
 - Aid with securing public grants for infrastructure improvements (e.g. Commerce Way Extension)
- Custodial Trust coordinated with Remedial Trust and EPA/State regarding challenging issues (e.g. loan approval from Remedial Trust for funding preliminary interchange design, sales price, etc.). State Transportation gained legislative approval for \$20 Million bond to build transportation center
- Custodial Trust distribution of sale proceeds in accordance with Consent Decree:

< \$8 Million*	\$8 - \$10 Million*	> 10 Million
11% EPA	50% EPA	70% EPA
Remainder to Settlers	50% Settlers	30% Settlers

Industri-Plex Superfund Site – SRI Case Study

- EPA:
 - Safely incorporate cleanup and reuse
 - Superfund liability concerns with prospective purchasers/developers. EPA resolved with Prospective Purchaser Agreements (PPAs) between 1995-2000 including State transportation agencies, Dayton Hudson and MetroNorth
 - Assist with resolving disputes (e.g. property owner impacting remedy action);
 - Flexibility with remedy design (e.g. incorporated “Alternative Cap” design into the remedy for transportation center) and adjusted schedules to accommodate property sales/reuse.
 - 1996 PPA State Agencies: <https://sems.epa.gov/src/document/1494519346219/01-246409.pdf>
 - 1997 PPA Dayton Hudson – Parcel A: <https://sems.epa.gov/src/document/1494519346219/01-246410.pdf>
 - 1999 PPA MetroNorth – Parcel B: <https://sems.epa.gov/src/document/1494519346219/01-246405.pdf>
- January 11, 2002 Brownfield Bill Revitalization Act:
 - Exempts qualified bona fide prospective purchasers (BFPP) from owner/operator liability so long as the person does not impede the performance of a response action or natural resource restoration
 - No longer need to negotiate a PPA with EPA and the federal government. In lieu of PPA, the purchaser can meet requirements to become a BFPP.
 - Brownfield Bill Amendment: <https://www.epa.gov/brownfields/brownfields-laws-and-regulations>
 - EPA Superfund Redevelopment Initiative Tools: <https://www.epa.gov/superfund-redevelopment-initiative/superfund-redevelopment-policy-guidance-and-resources>

Industri-Plex Superfund Site – SRI Case Study

- Municipality:
 - Supports reuse vision and improved future tax roles
 - Facilitated any zoning changes
 - Extended road through Site to improve infrastructure/access
- Remedial Trust:
 - Supports reuse vision, increasing land value and offsetting cleanup costs
 - Approved loans to the Custodial Trust and were reimbursed with property sales distribution

Projected Economic Impacts

- An average of over 700 short-term jobs per year during the two years of redevelopment with an estimated total annual income of \$23.6 million.
- Over 4,300 permanent jobs with a total annual income of approximately \$147.4 million.
- Approximately \$118 million in personal spending each year by permanent employees, resulting in over \$4.7 million in annual sales tax revenues.
- Over \$8.7 million in annual State income taxes for permanent employees.
- An estimated \$1.5 million in retail sales tax from Target and a hotel complex.

Redevelopment of Parcel B

- Proposed mix use
- 750,000 square feet of office and hotel space projected

Redevelopment of Parcel A

- Future Target Discount Retailer
- 200,000 square feet of commercial space

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Infrastructure Improvements

- Construction of I-93 Woburn Interchange
- Improvements and extension to Commerce Way

Environmental Benefits

- Reduced exposure to contamination
- Wetlands mitigation/preservation program

Construction of Regional Transportation Center

- 36-acre transportation facility
- Commuter rail/express bus service to Logan Airport
- 2,400 parking spaces
- Commercial dry cleaner, day care, bicycle facilities

Surrounding Development Projects

- Projected 2 million square feet of office, retail, and light manufacturing space
- Associated income, expenditures, and tax revenue increases

Property Values

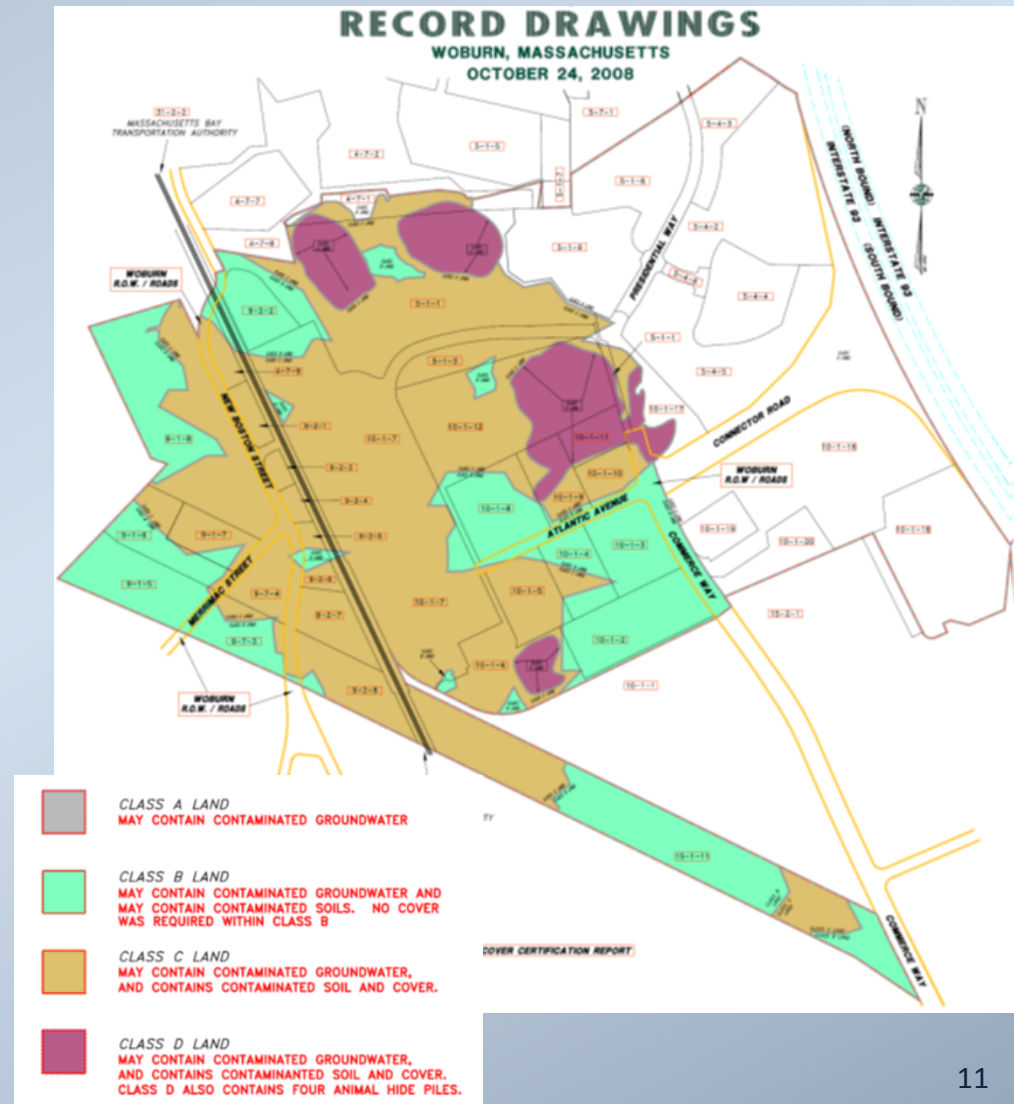
Up to \$4.6 million total increase in property values for households within two miles of site.

Unique Aspects to Remedial/Consent Decree

- Settlement includes existing landowners who can not disturb their properties unless in accordance with the institutional controls or approved by EPA and State
- Institutional controls (ICs)
 - "To preserve the continued effectiveness of the remedial actions in order to protect human health and the environment."
 - "To permit the greatest possible use and enjoyment of the Site."
 - In 1995-96, EPA & State led development of IC outline with Remedial Trust, Custodial Trust, and landowners
 - EPA & State allow interim institutional controls to be placed on properties transferred for redevelopment
 - In 2005, EPA & State release IC design;
 - In 2017, Remedial Trust finalize model National Activity & Use Limitation (NAUL) for remaining properties.
- 2005 IC Design: <https://semspub.epa.gov/src/document/01/236969.pdf>
 - Recorded IC for 112 Commerce Way: <https://semspub.epa.gov/src/document/01/457950.pdf>
 - Recorded IC for 30 Atlantic Avenue: <https://semspub.epa.gov/src/document/01/485966.pdf>
 - Recorded IC for 211 New Boston Street: <http://semspub.epa.gov/src/document/01/596262>

INNOVATIVE - Institutional Controls

- Identifies restricted and permitted uses/activities by class of land [A to D Land (least to most restrictive)];
- Regulates “**How to**” disturb/modify cap (Appendix IV/Exhibit I “**Work Protocols**”):
 - LO (or contractor/developer with LO permission) hires “independent professional” (IP) to ensure intrusive work is consistent with IC
 - IP prepares **work plans**, **health & safety plans**, and **completion reports** depending on the class of land
 - Gov’t approves plans and completion reports for Class C and D intrusive work contacting contaminated media
 - If reuse modifies the existing cap, then IP prepares as-built plans
 - Where appropriate, the IC may be modified with gov’t approval.
- If no recorded IC, then gov’t required LO to follow above IC approach (since 1996) in accordance with CD
- Municipality incorporates IC land restriction boundaries on GIS



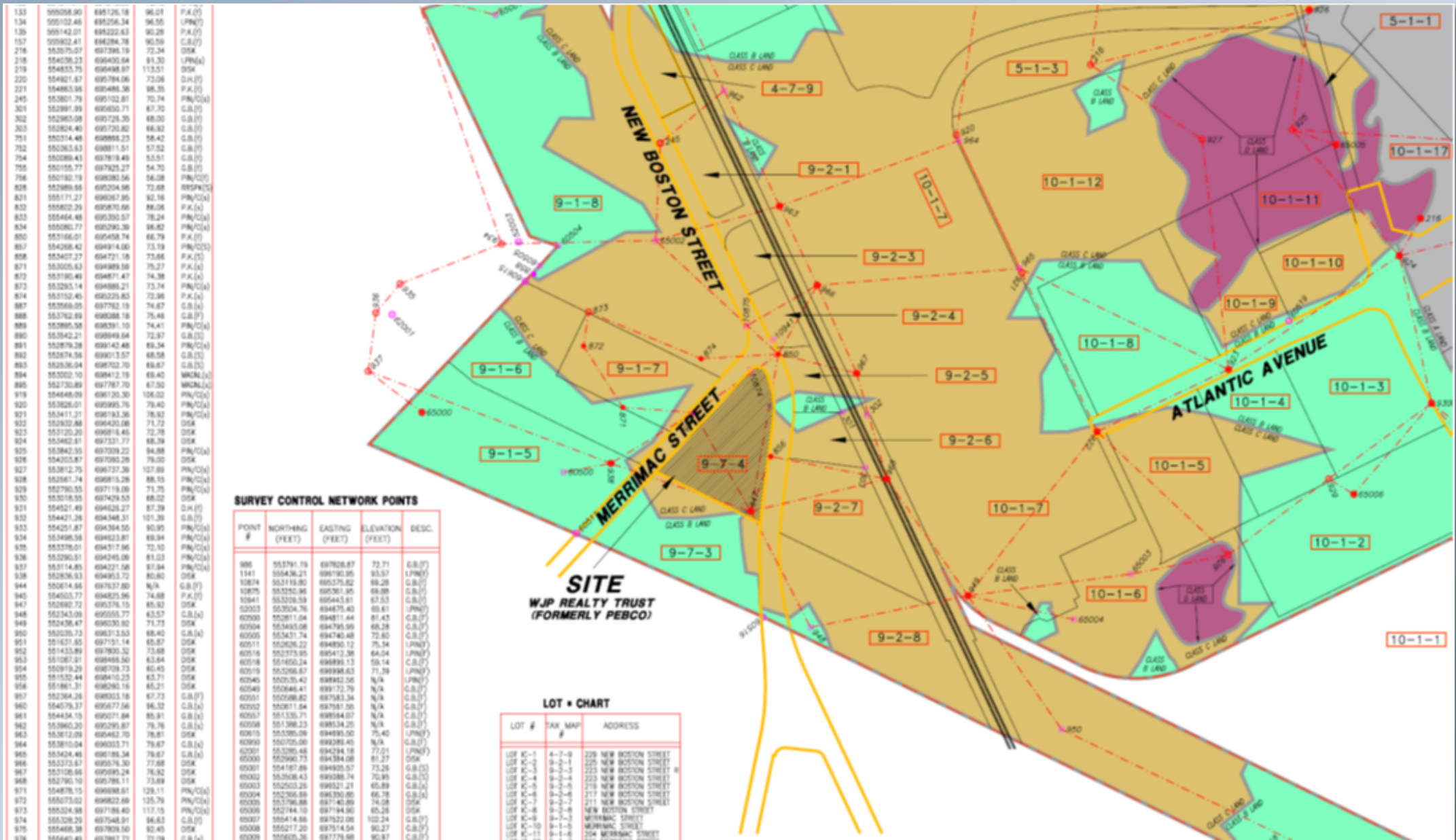
INNOVATIVE - Institutional Controls

Landowner Obligations:

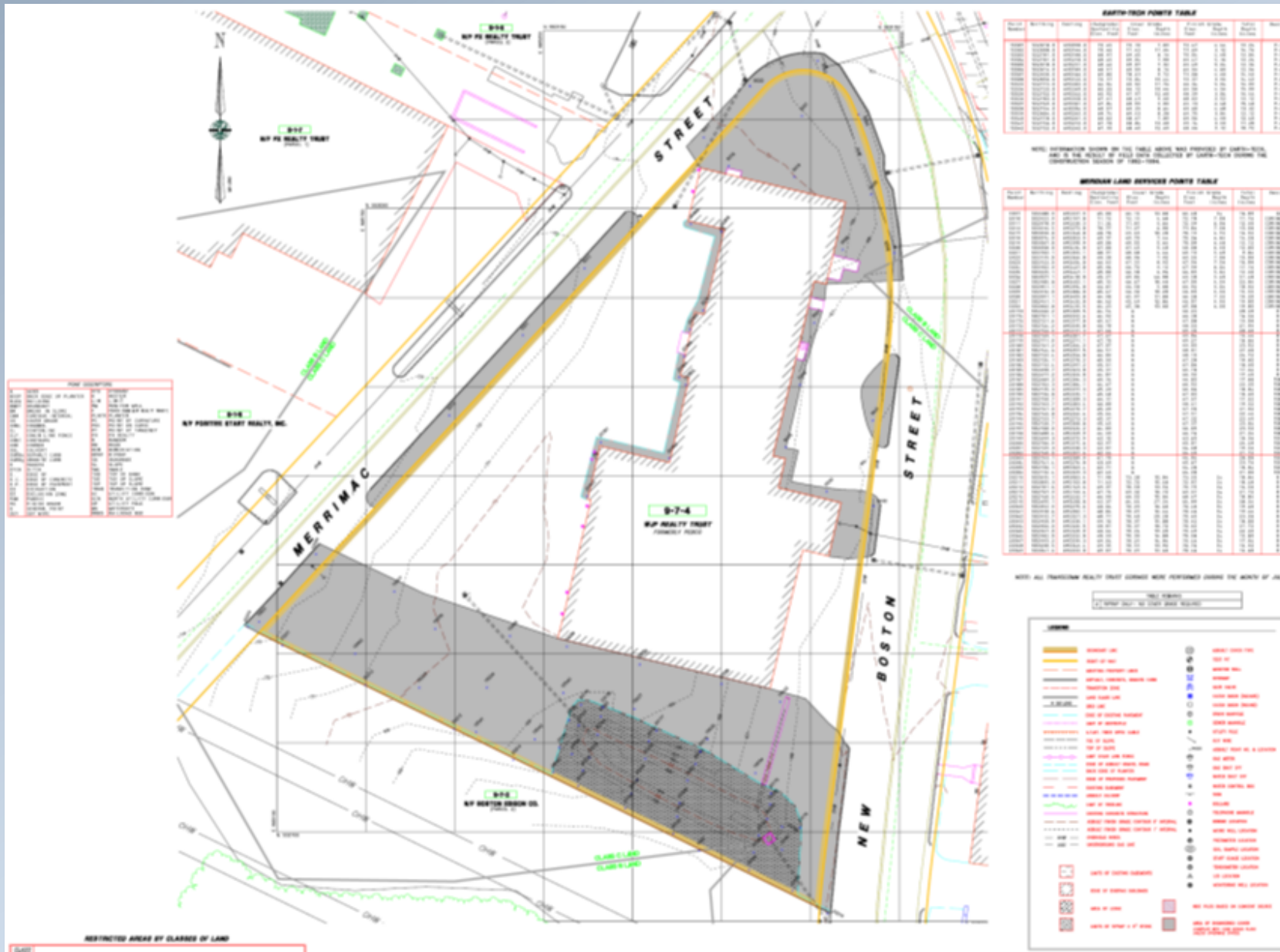
- Annual inspections and inspection reports
- Normal maintenance of cap/cover
- Notification of remedy failure (within 24 hours; submit work plan to repair within 21 days)
- Notification of other violations
- Permit and approval related notifications:
 - When requesting permit, provide the local, state or federal authority a copy of the IC/restrictions
 - Provide EPA and State a copy of any building permit application

Emergency Excavations (e.g. responding to emergency utility repair, fire, flood):

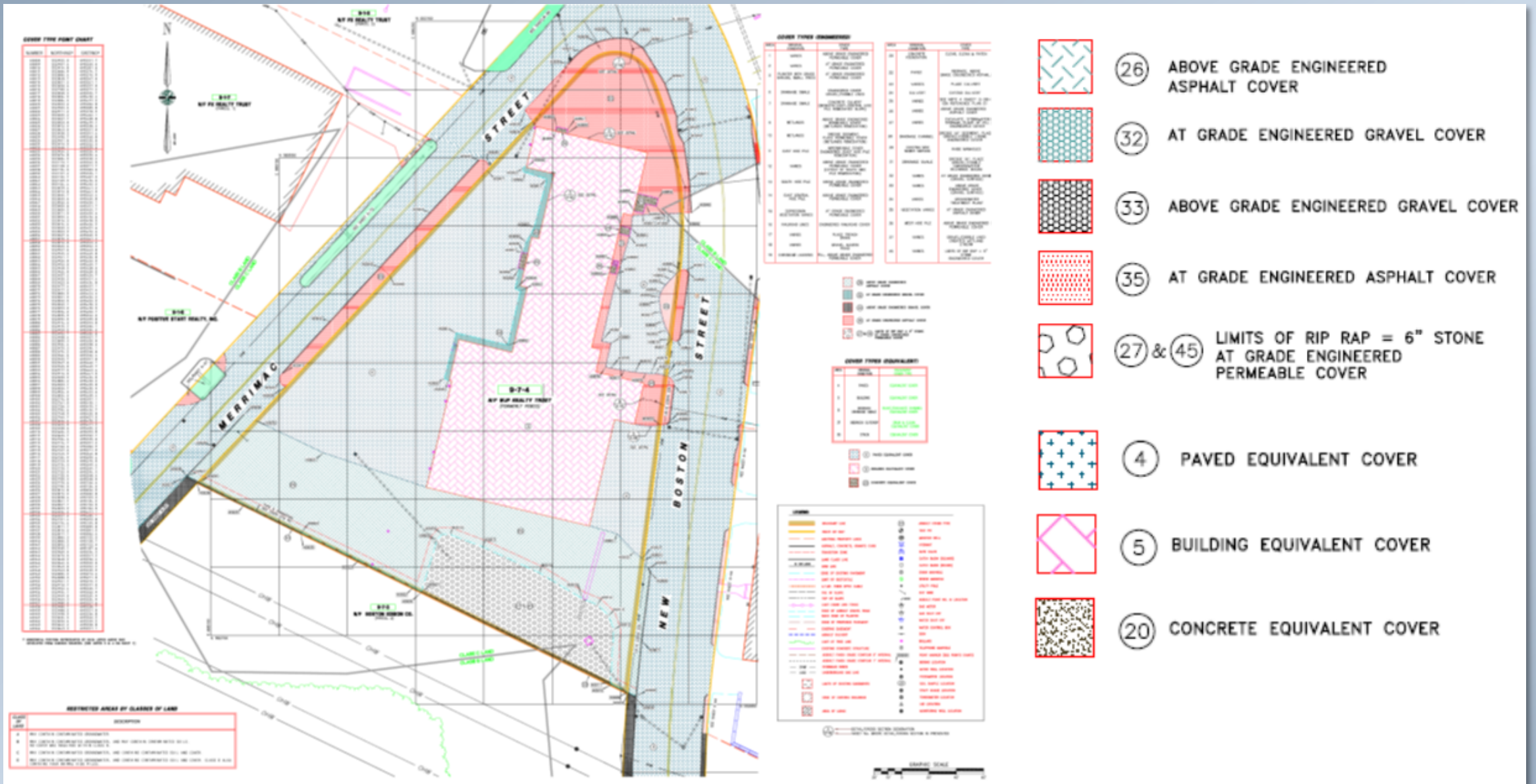
- Temporarily suspend IC restrictions:
 - Verbal notification < 2 hours, and written notification within 5 days
 - Limits disturbance and risk to public and environment
 - Manages/disposes excavated/extracted soils, sediments and water
 - Reinstates the cap
 - Submits emergency excavation report within 30 days



Link to cover certification reports: <https://sempub.epa.gov/src/document/01/295879.pdf>



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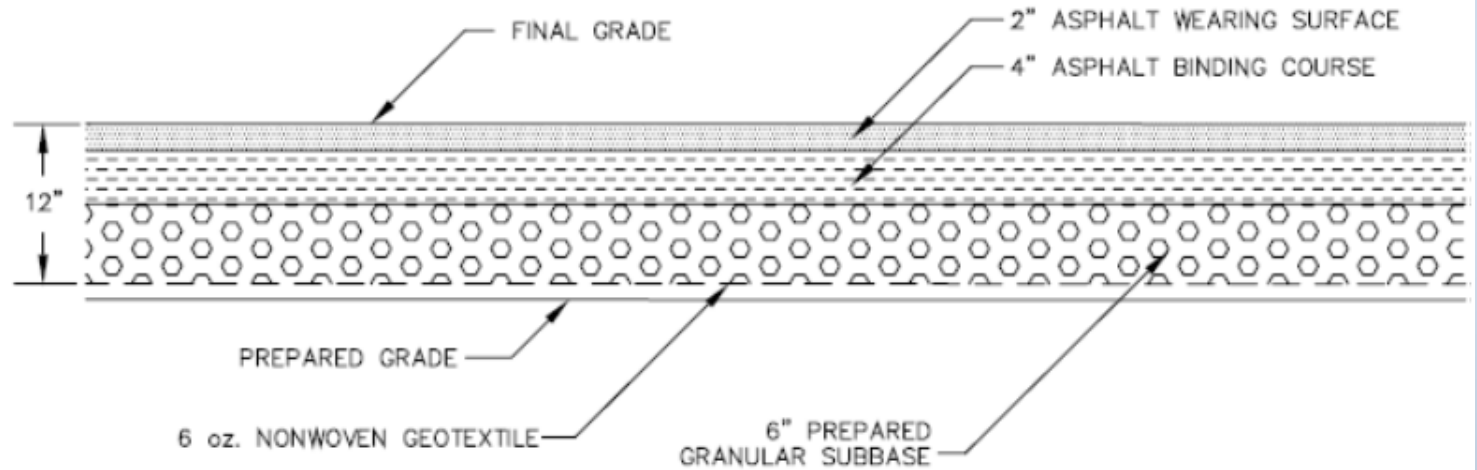


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26

ABOVE GRADE ENGINEERED ASPHALT COVER

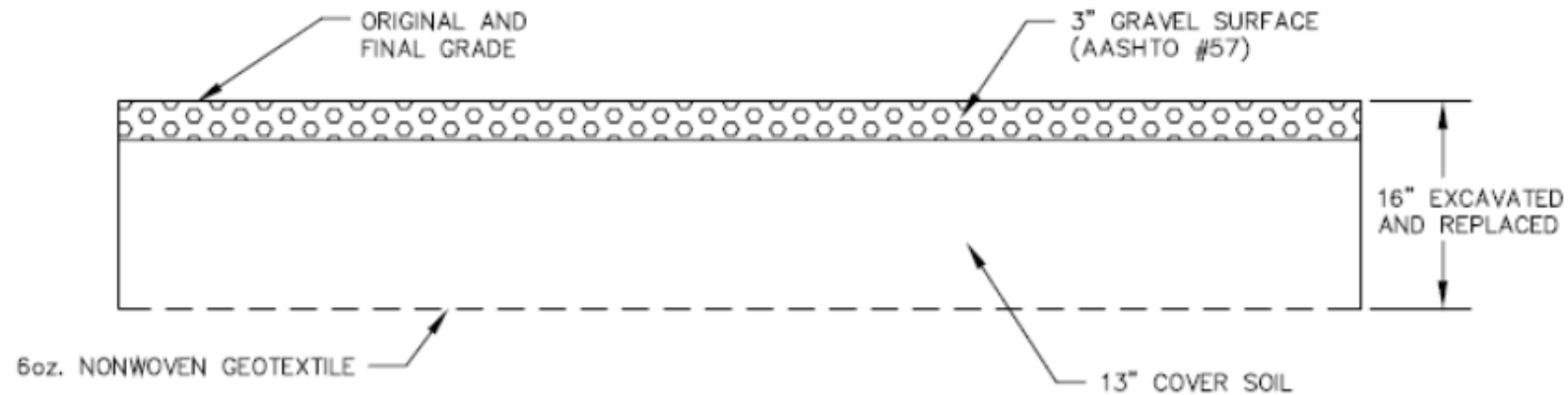
NOT TO SCALE



32

AT GRADE ENGINEERED GRAVEL SURFACE COVER

NOT TO SCALE

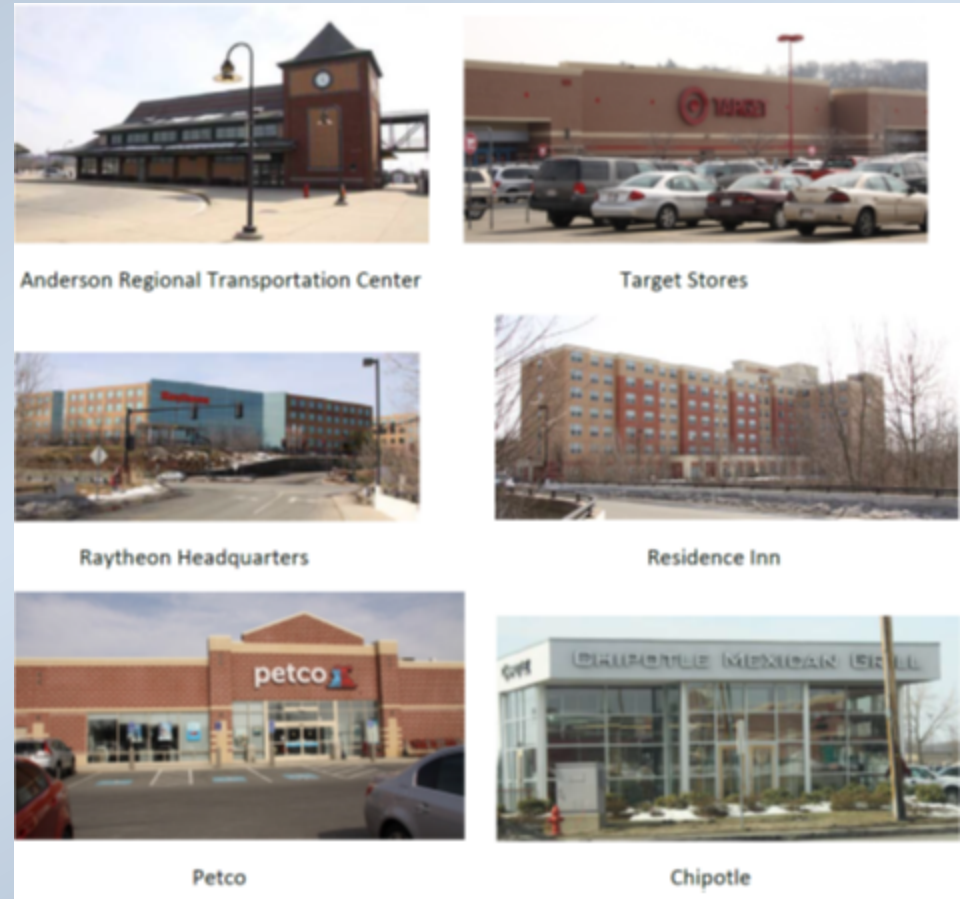


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Industri-Plex *TRANSFORMATION* Woburn is a Thriving Economic Success Story



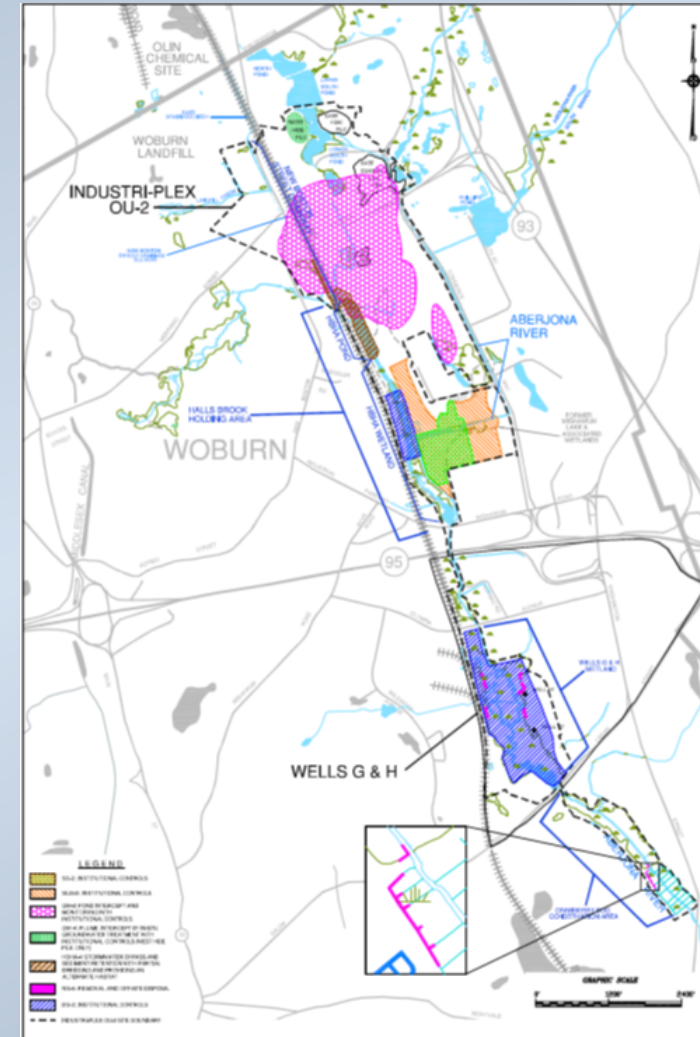
Industri-Plex *Before*



After

Industri-Plex Superfund Site OU2

- Final groundwater solution addressing arsenic, ammonia, benzene, etc.
- OU2 remedy also addresses residual arsenic that historically migrated downstream via dredging, restoration and IC
- IC will apply similar OU1 approach including the preparation of **work plans, health & safety plans, and completion reports** depending on land use restrictions.
- Through wetland/floodplain mitigation, incorporated passive recreational reuse into the remedy



Mitigation: Rifle Range Road, Woburn, MA

1-acre Floodplain Enhancement & Creation of Aberjona Nature Trail



Before: Debris filled floodplain

Mitigation: Rifle Range Road, Woburn, MA

1-acre Floodplain Enhancement & Creation of Aberjona Nature Trail



After

Mitigation: Rifle Range Road, Woburn, MA

1-acre Floodplain Enhancement & Creation of Aberjona Nature Trail



1 of 5 educational wetland stations along the trail

ABERJONA NATURE TRAIL

Station 3 – Wetlands

Wetland areas are dominated by plants that are adapted to survive in saturated soils and/or surface water inundation. Wetlands provide numerous valuable functions, such as wildlife habitat, water quality improvement, and flood storage. Invasive species are a threat to habitat diversity in many wetland areas, including those along the Aberjona River. Invasive species present in this wetland area may include:

- Cattail (*Typha latifolia*) – a native species
- Common reed (*Phragmites australis*) – a non-native, invasive species
- Purple Loosestrife (*Lythrum salicaria*) – a non-native, invasive species
- Glossy buckthorn (*Frangula alnus*) – a non-native, invasive species



EPA Region 1 – Superfund Works for Communities:

<https://semsub.epa.gov/src/document/HQ/10000071.pdf>

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