EPA Presentation on
Industri-plex Superfund Site
Operable Unit 2 (OU2) Remedy

January 7, 2010

by: Joseph LeMay, P.E.
Remedial Project Manager

OU2 Remedy Milestones

- Selected Remedy outlined in EPA's January 31, 2006 Record of Decision.

- Consent Decree settlement between EPA and the Settling Defendants (Bayer CropScience & Pharmacia Corporation) entered on November 24, 2008.

OU1 (1989 CD)

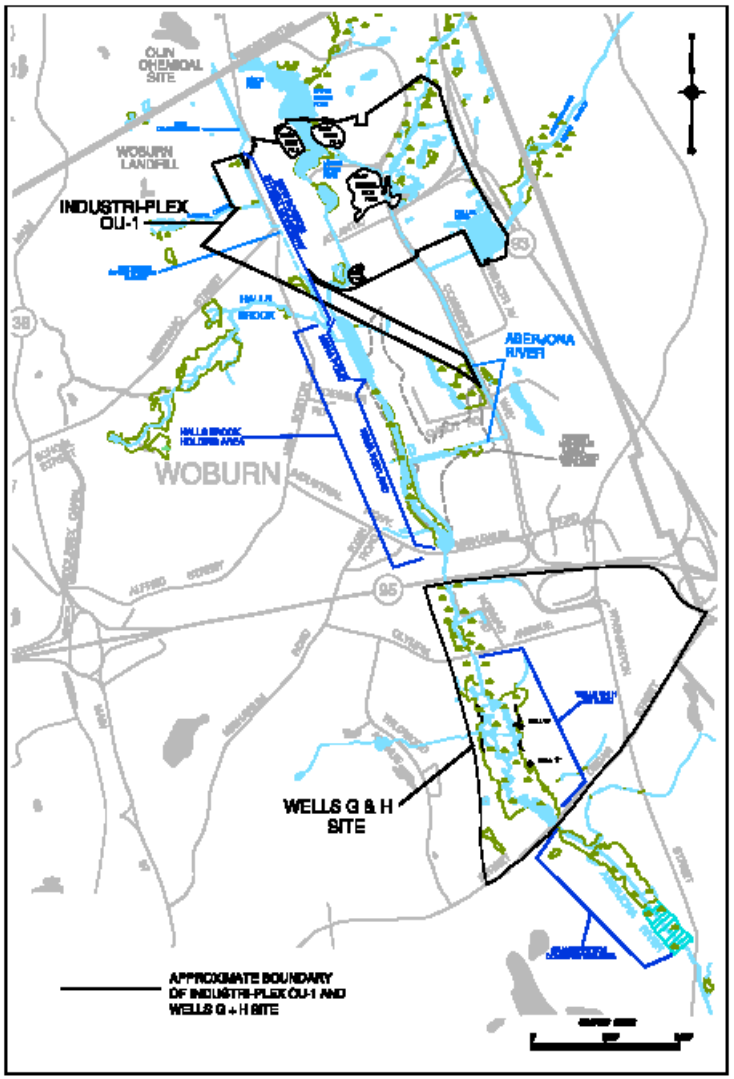


FIGURE A-2

OU2 (2008 CD)

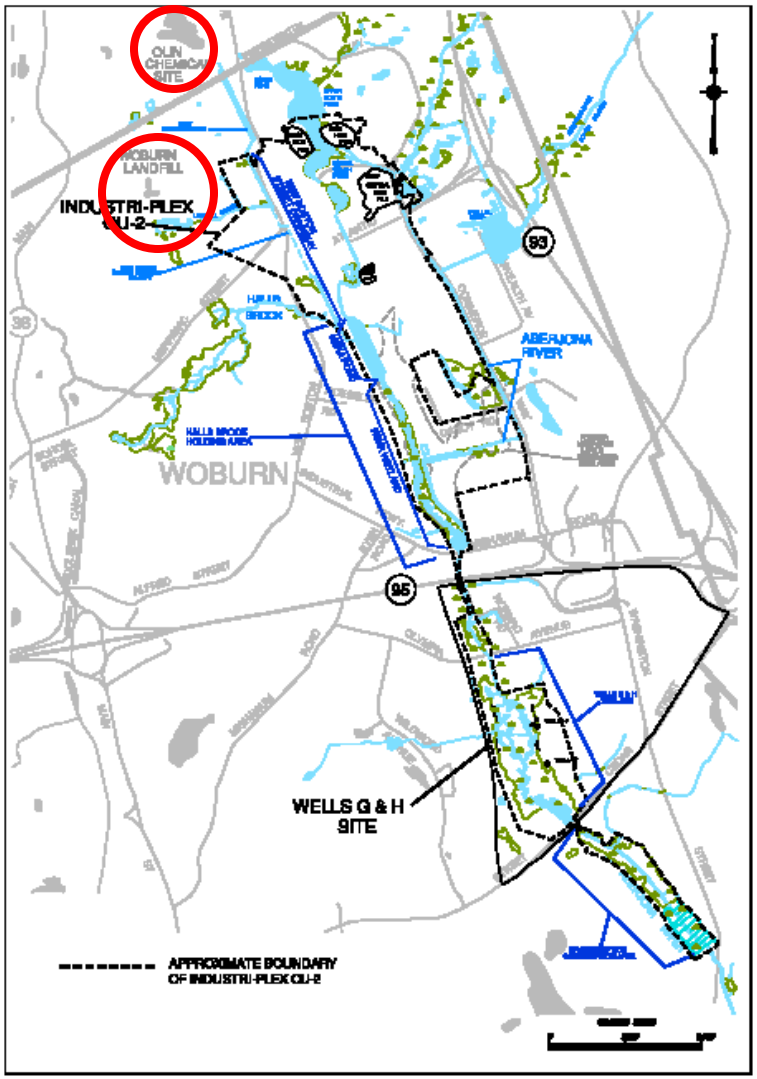
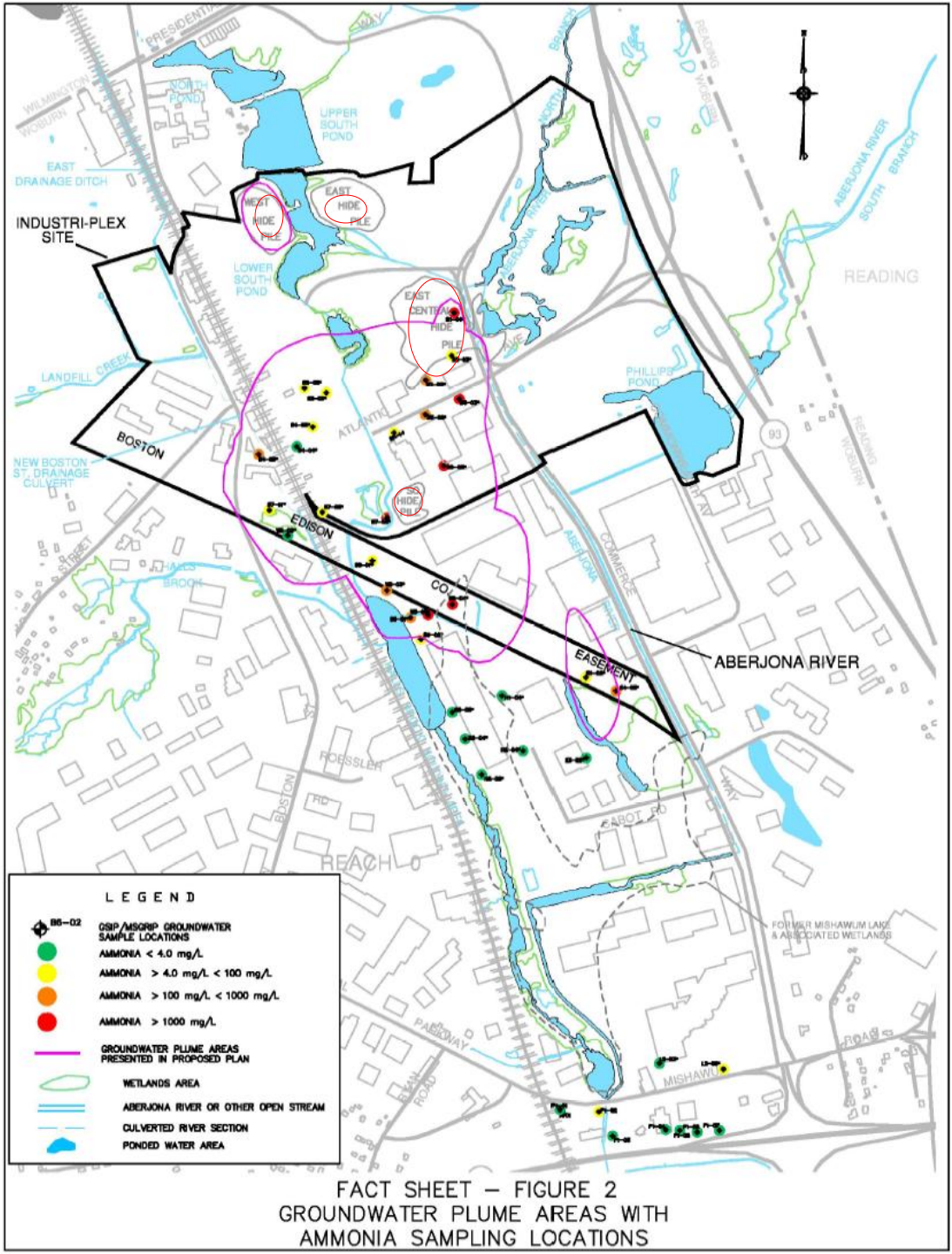


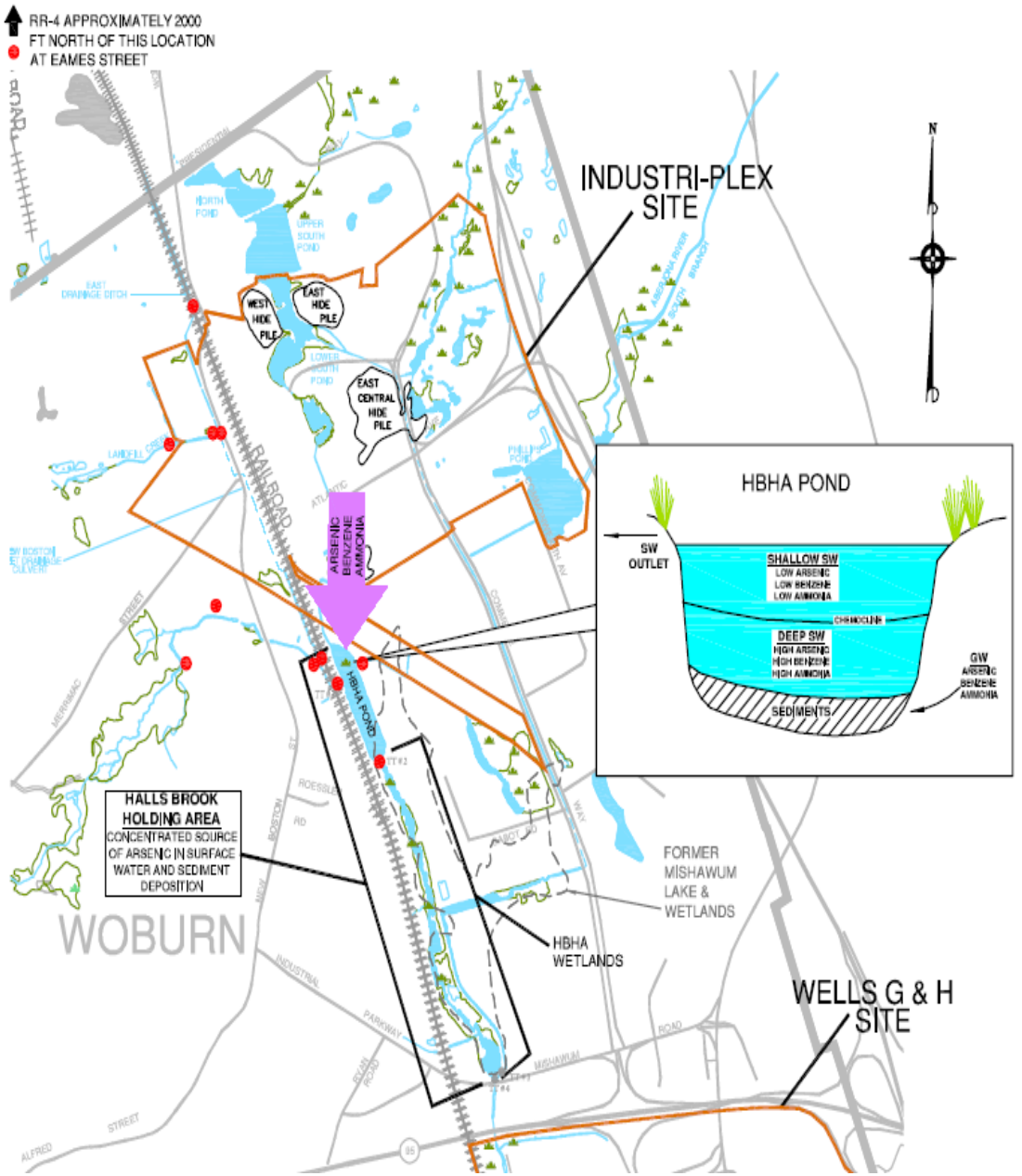
FIGURE A-3

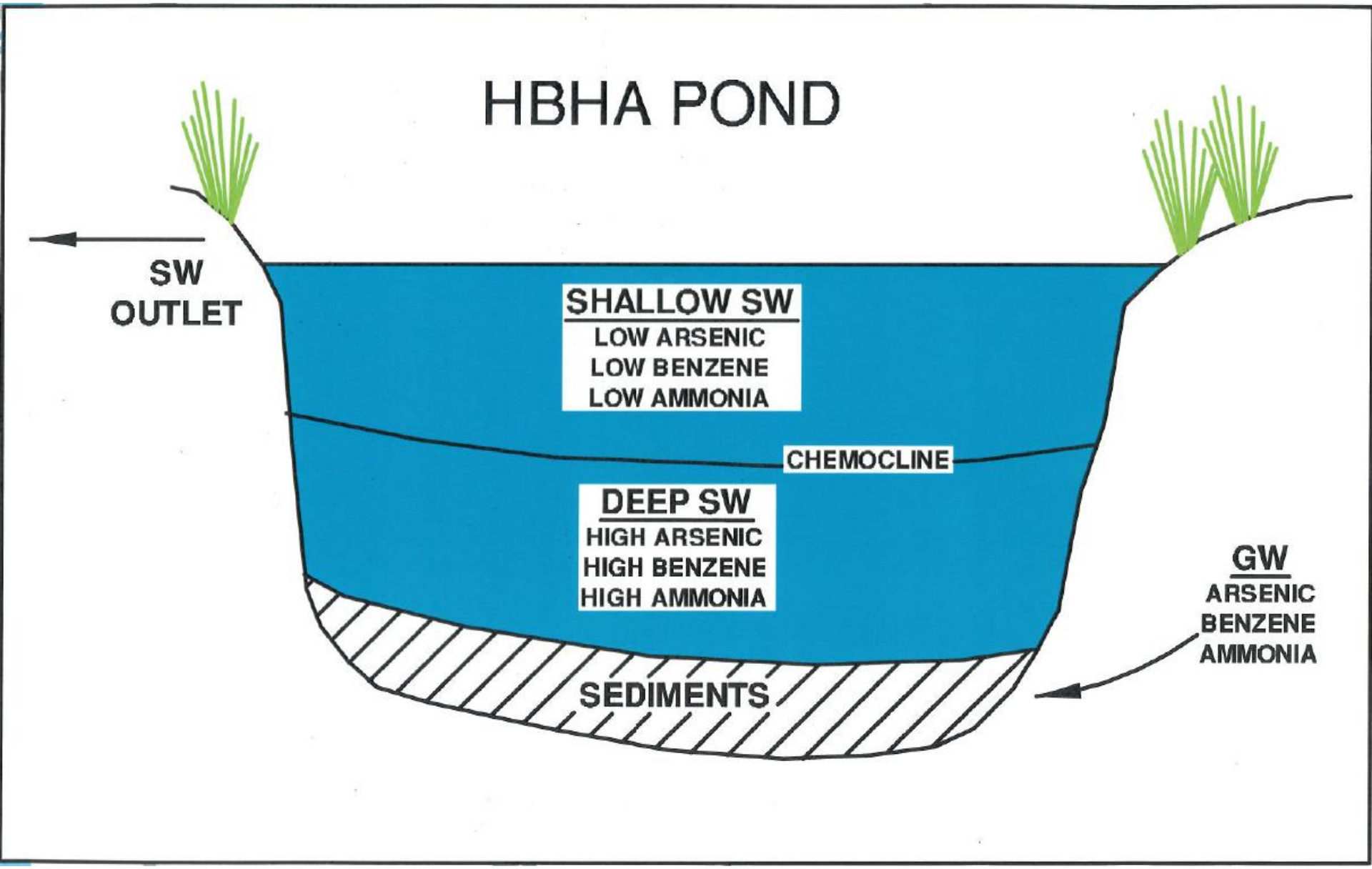
- IP OU1 Groundwater Plumes containing Ammonia, Arsenic, Benzene, other VOCs, low DO and high conductivity migrate downstream and discharge into HBHA Pond.
- Highest Ammonia concentrations were found near buried animal hide waste at Industri-plex.



FACT SHEET – FIGURE 2
GROUNDWATER PLUME AREAS WITH AMMONIA SAMPLING LOCATIONS

- Groundwater Plumes migrate and discharge into the HBHA Pond.
- Deep surface water in the HBHA Pond contains high concentrations of Arsenic, Ammonia, and Benzene.
- Concentrations are less in the shallow surface water of HBHA Pond.

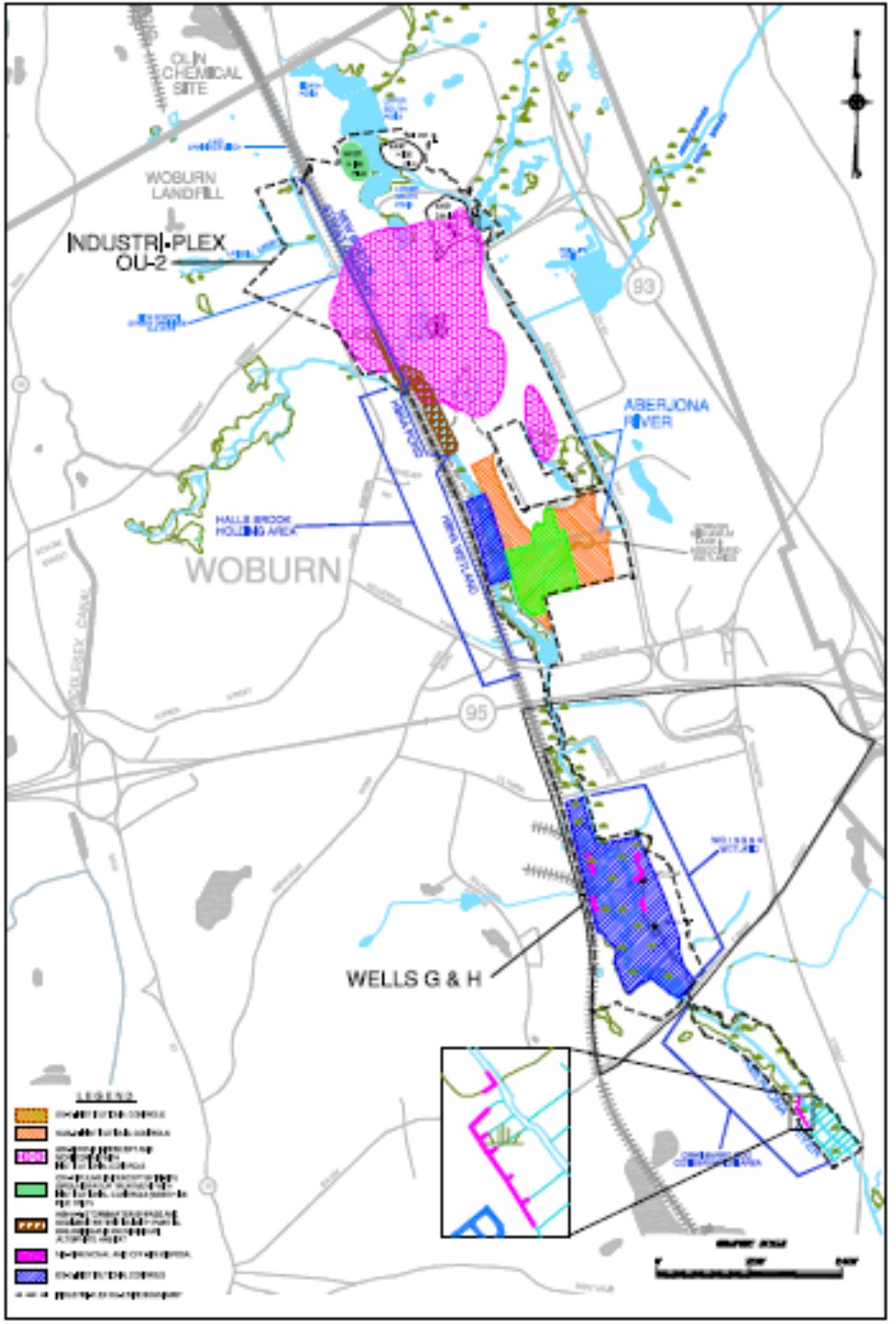



HBHA POND
SW
OUTLET
SHALLOW SW
LOW ARSENIC
LOW BENZENE
LOW AMMONIA
CHEMOCLINE
DEEP SW
HIGH ARSENIC
HIGH BENZENE
HIGH AMMONIA
GW
ARSENIC
BENZENE
AMMONIA
SEDIMENTS

Industri-plex OU-2 (including Wells G&H OU-3)

Cleanup Decision,

Figure L-1 ROD



GW-4 for West Hide Pile:

-Enhanced Bioremediation to address benzene at West Hide Pile, as determined necessary by EPA

-Requires further groundwater, surface water and sediment investigations relative to evaluate potential additional human health & ecological risks by WHP, EHP and adjacent wetlands.

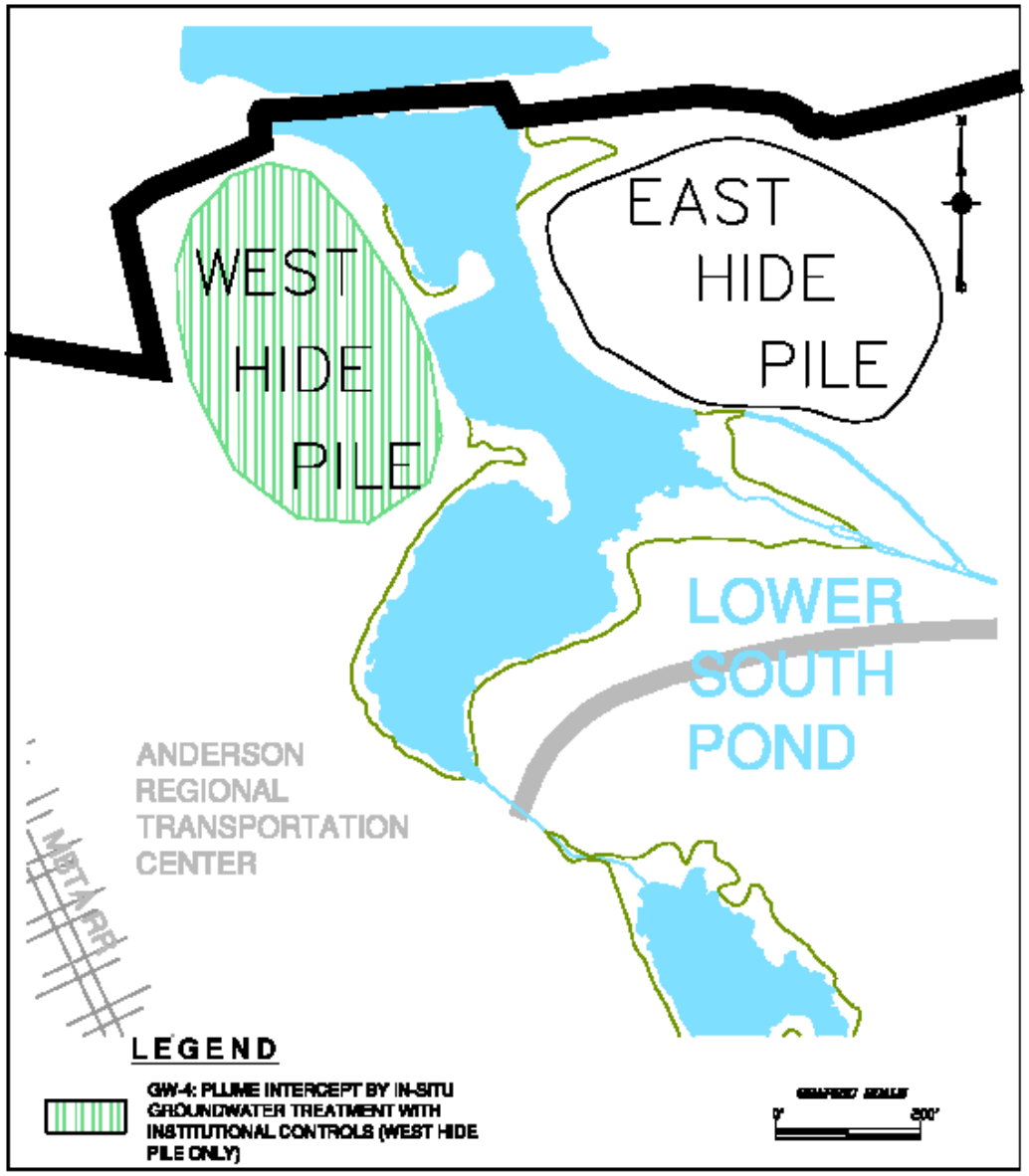


FIGURE J-4

GW-2 (Pond Intercept with Monitoring and Institutional Controls):

- Institutional controls to prevent exposures to contaminated groundwater and restrict drinking water, industrial process water, or other purposes;

- in conjunction with HBHA-4 remedy component, intercepts and controls downstream migration of the contaminated groundwater;

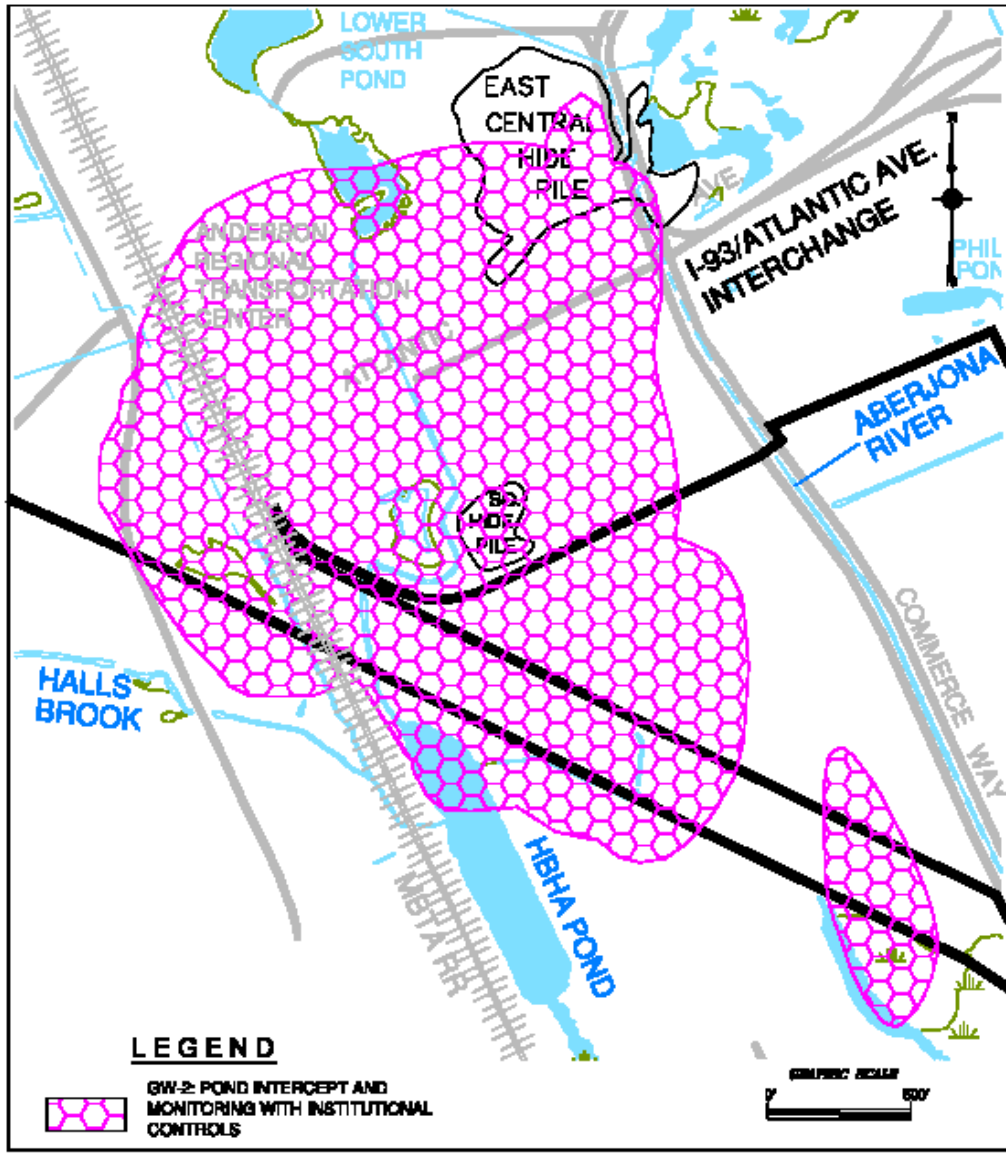
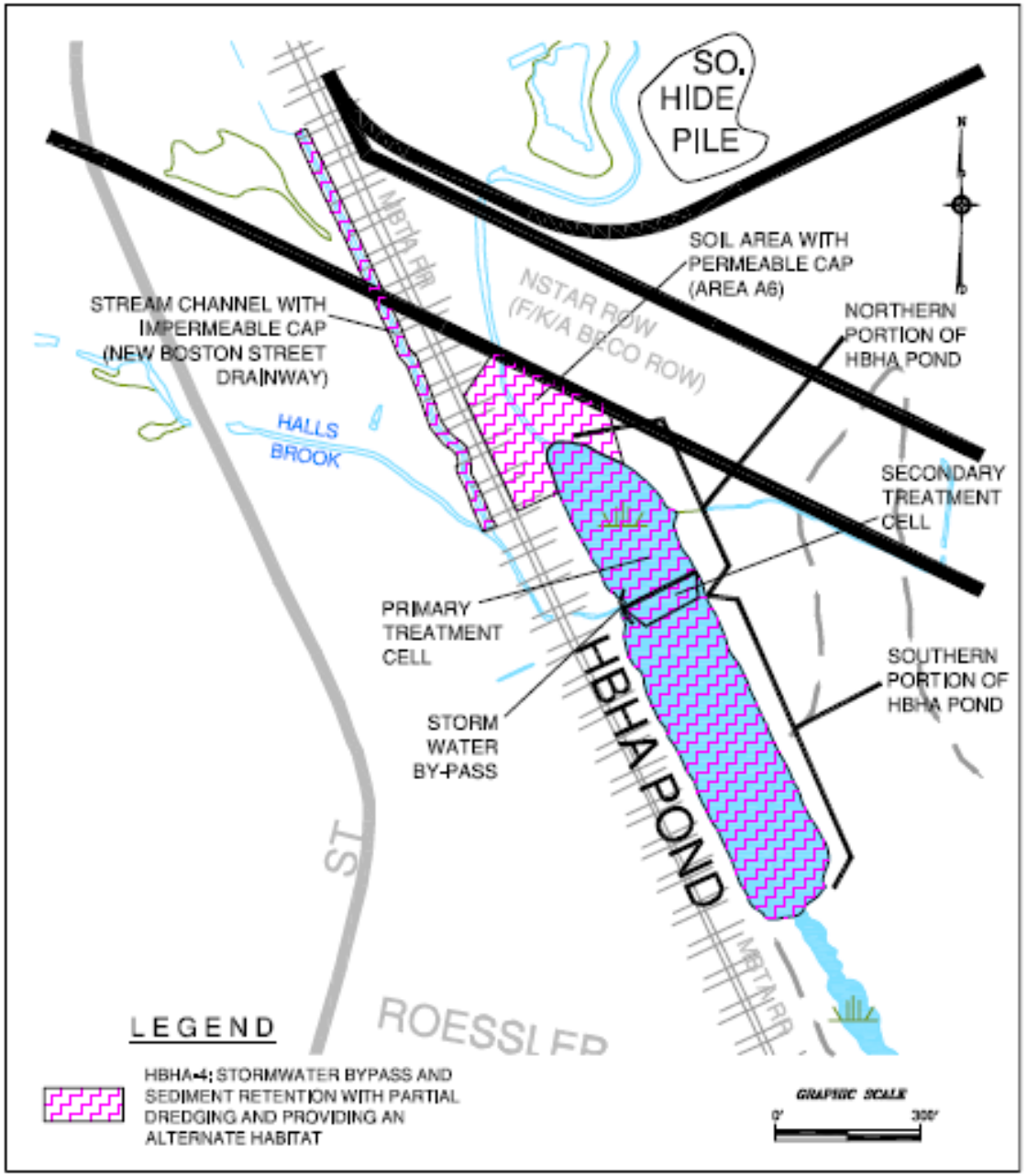
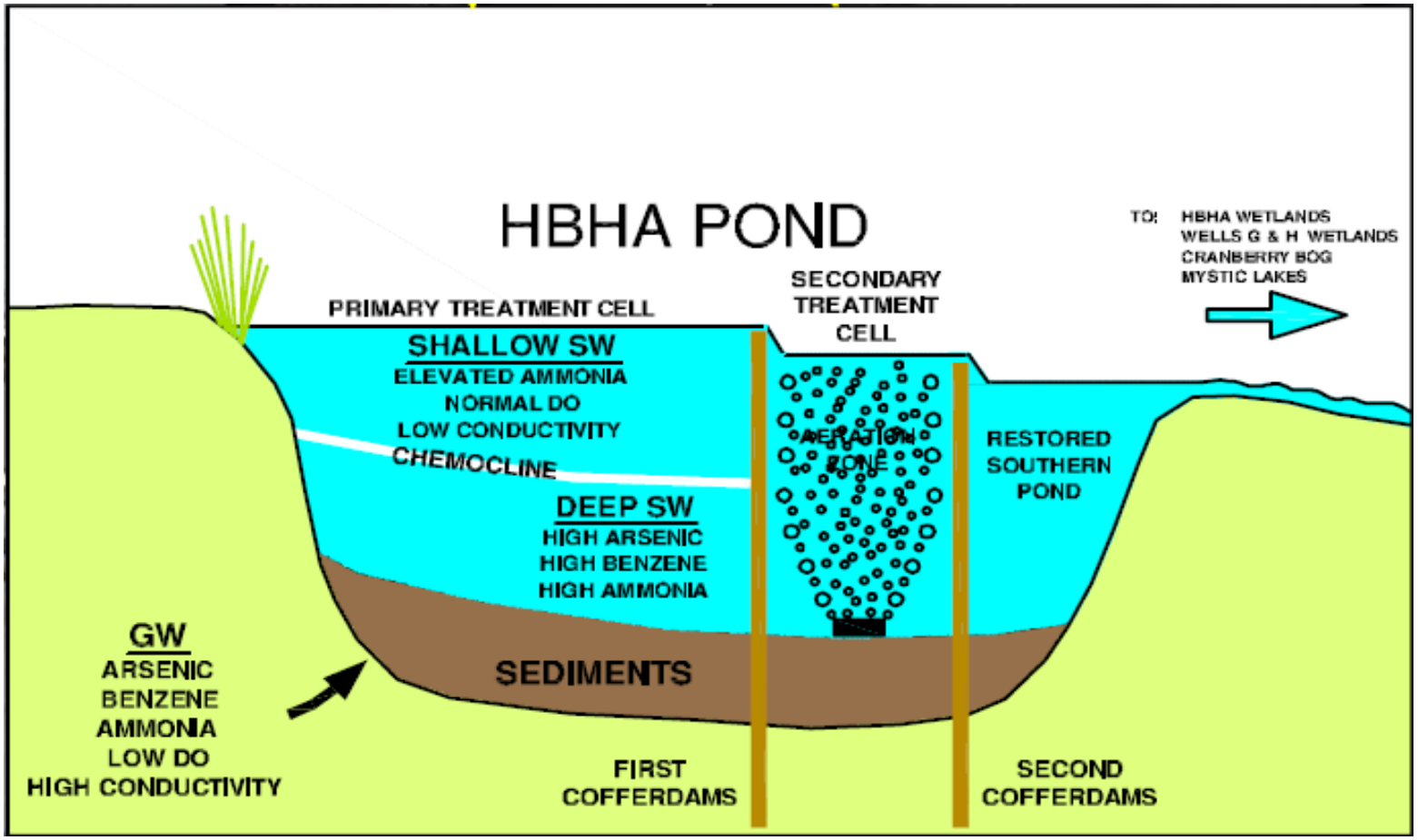


FIGURE J-3

HBHA-4

- Primary and Secondary Treatment Cells in Northern Portion with periodic dredging
- Divert portion of Halls Brook storm water to Southern Portion
- Dredge and Restore Southern Portion
- Permeable Cap for Contaminated Soils
- Impermeable Cap to prevent contaminated groundwater discharge in stream channels
- Wetland Compensation for any function and value losses




HBHA POND
TO: HBHA WETLANDS
WELLS G & H WETLANDS
CRANBERRY BOG
MYSTIC LAKES
PRIMARY TREATMENT CELL
SECONDARY TREATMENT CELL
SHALLOW SW
ELEVATED AMMONIA
NORMAL DO
LOW CONDUCTIVITY
CHEMOCLINE
AERATION ZONE
RESTORED SOUTHERN POND
DEEP SW
HIGH ARSENIC
HIGH BENZENE
HIGH AMMONIA
GW
ARSENIC
BENZENE
AMMONIA
LOW DO
HIGH CONDUCTIVITY
SEDIMENTS
FIRST COFFERDAMS
SECOND COFFERDAMS

Institutional Controls for Former Mishawum Lakebed Soils

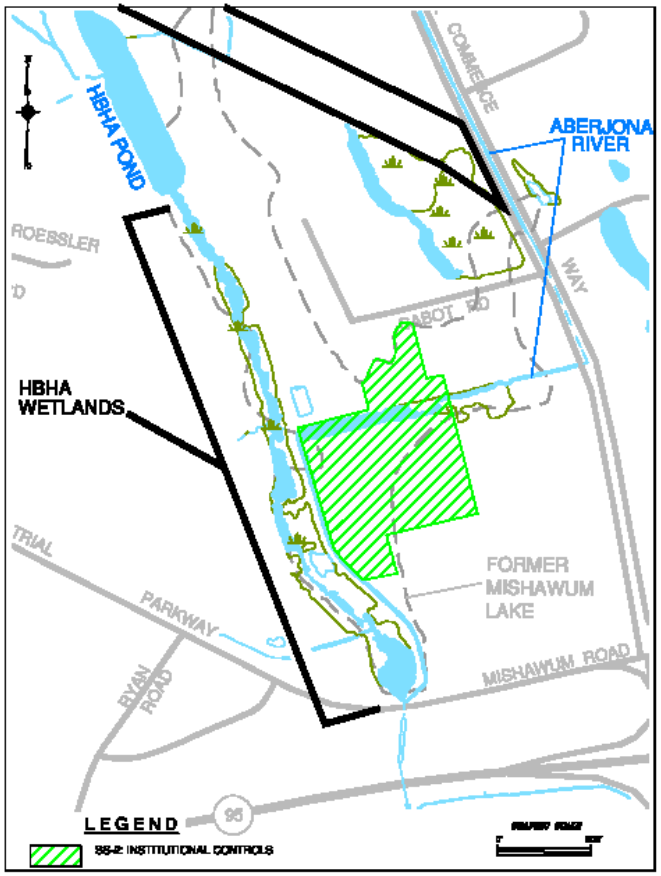


FIGURE J-1

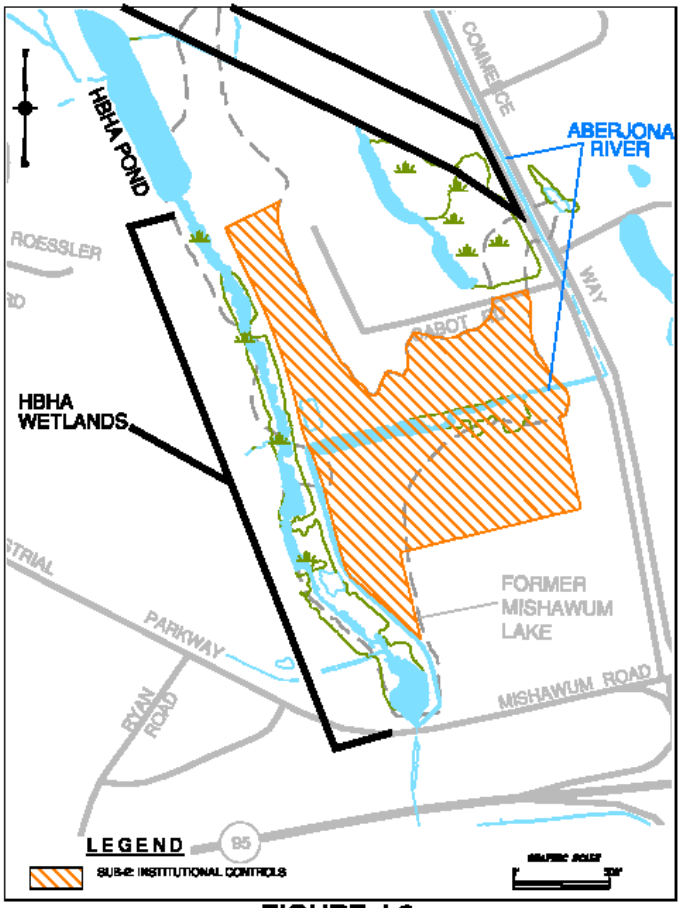


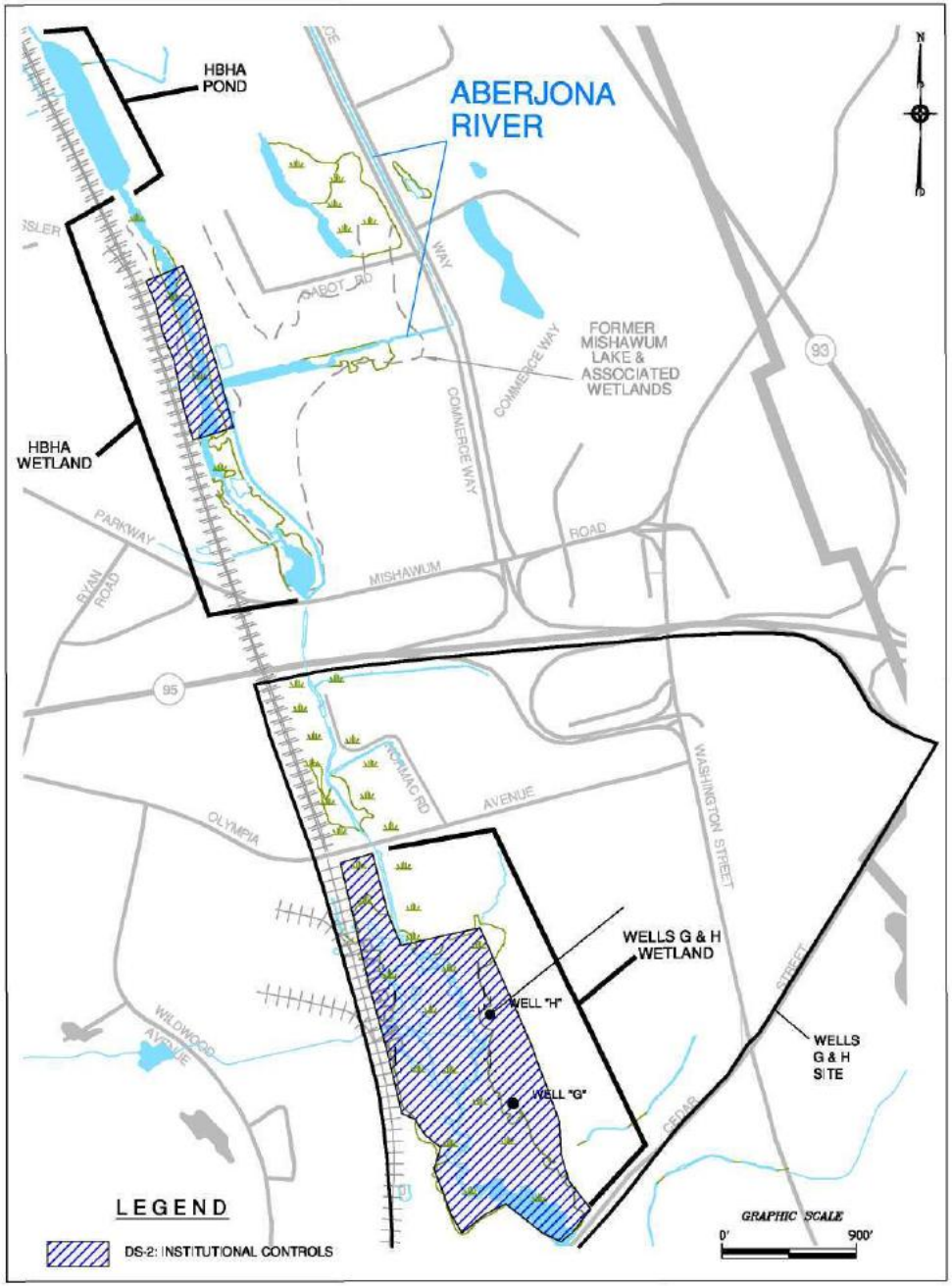
FIGURE J-2

Institutional Controls for Former Mishawum Lakebed Soils

- Institutional controls to restrict excavations without adequate worker health and safety precautions to minimize or prevent direct contact with contaminated soil;
- Restrict potential on-site and off-site spread of contamination; and
- Restrict land use so that child care facilities are not constructed in surface soil areas.

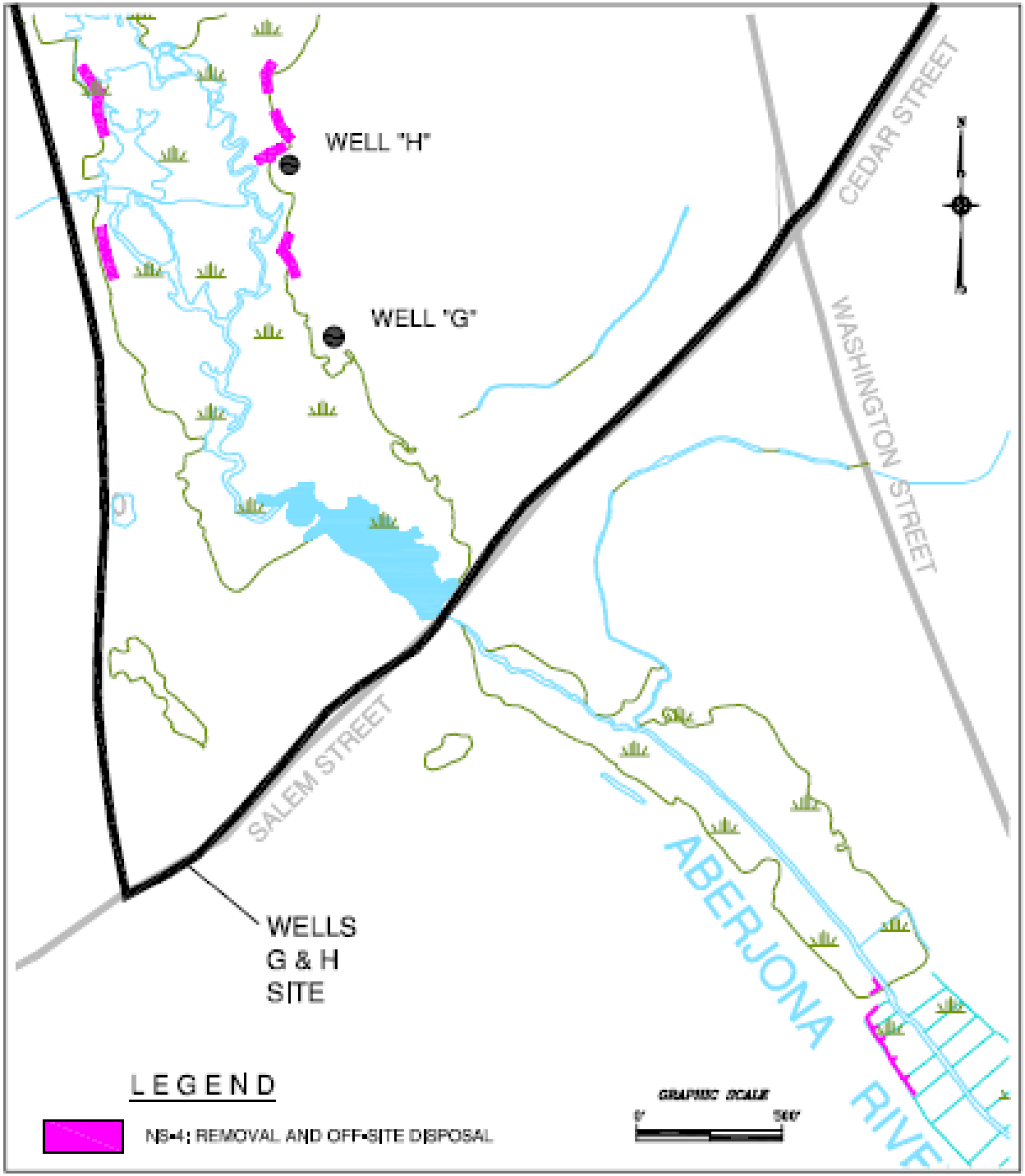
Institutional Controls for Deeper Interior Wetland Sediments

- Institutional controls would prohibit dredging unless regulatory oversight and adequate precautions (e.g. engineering controls, PPE, etc.) are taken to minimize or prevent direct contact with contaminated sediment during dredging activities.



Near Shore Sediment Removal

- Wells G&H Wetland
- Cranberry Bog Conservation Area

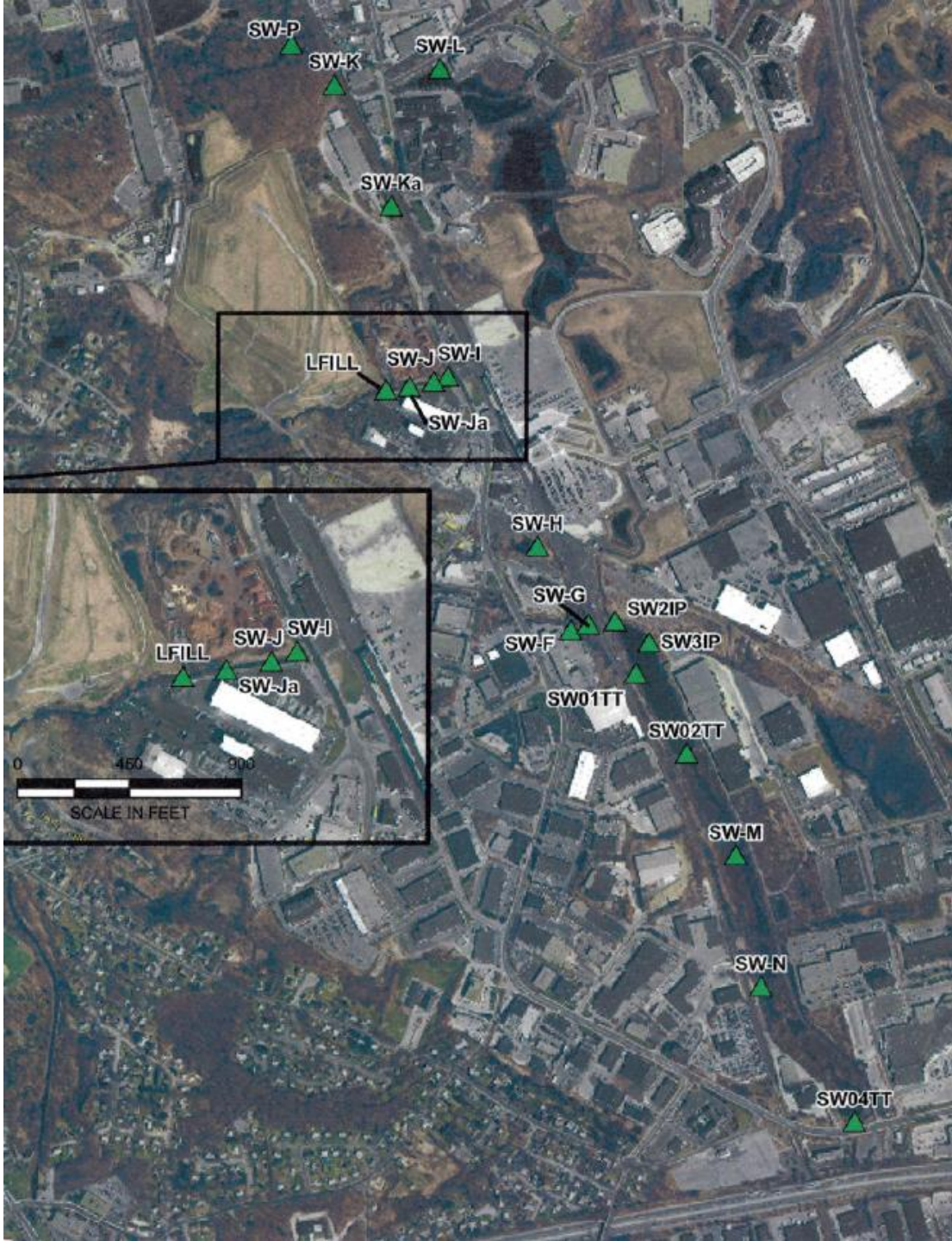


IP OU2 Schedule

- Surface Water Monitoring Plan approved in 2009.
- Remedial Design Work Plan approval est. 2010.
- 100% Remedial Design completion est. 2012.
- Remedial Action construction completion est. 2014.
- Continuous EPA coordination with community and City of Woburn.

Sample (2005)	Ammonia (mg/L)
RRO4	0.3
RR03	10.8
LF02 (trib)	11.0
LF01 (trib)	12.7
RR02	11.3
RR01	10.0
Halls20 (trib)	ND
Halls22 (trib)	ND
Halls01 (trib)	ND
Comb	2.1
Outlet	3.8

Sample (3-18-09)	Ammonia (mg/L)
SW-P	20.2
SW-K	13.6
SW-Ka	14.7
SW-I	15.2
LFILL (trib)	90.9
SW-Ja (trib)	5.1
SW-H	11.4
SW-G	9.6
SW-F (trib)	0.1
SW01T	2.8
SW2IP (trib)	0.3
SW3IP (trib)	22.6
SW02	4.6
SW04	4.1



Contact Information

Joseph F. LeMay, P.E.
US EPA Region 1 – New England
Five Post Office Square, Suite 100
Mail Code: OSRR 07-4
Boston, MA 02109-3912
Telephone: 617.918.1323
Email: lemay.joe@epa.gov