

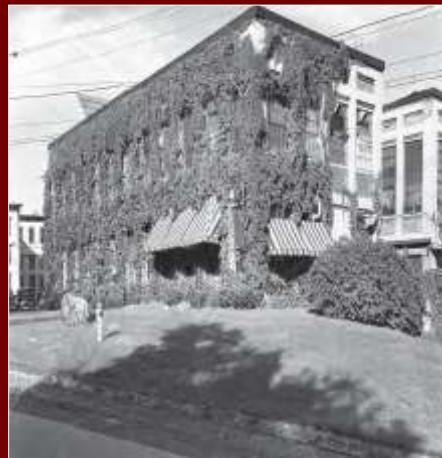
# BROWN COMPANY RESEARCH & DEVELOPMENT BUILDINGS SITE:

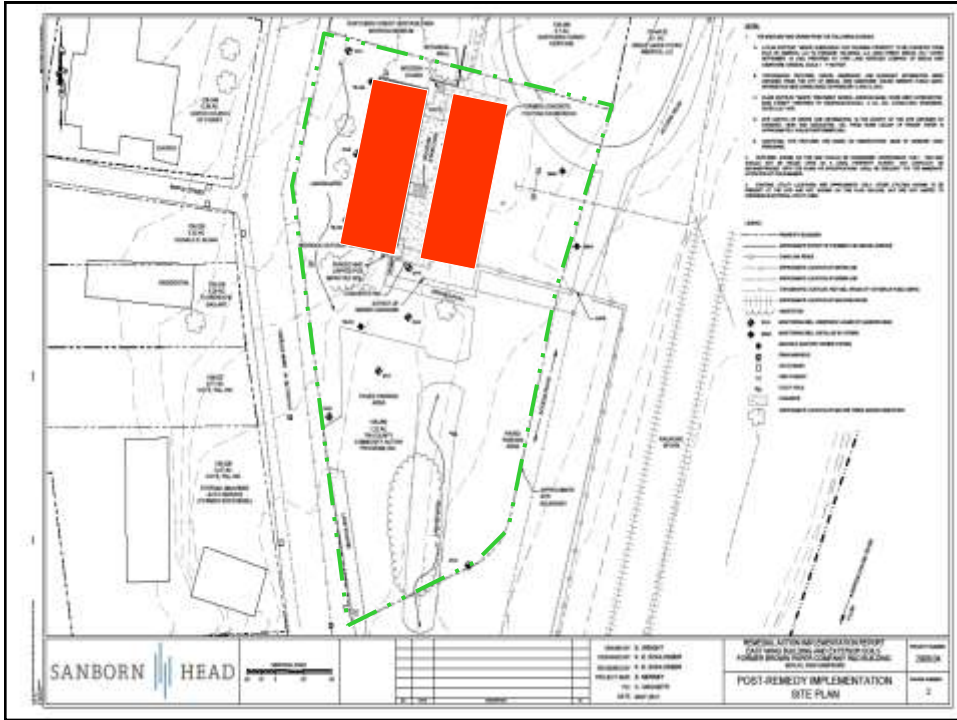
## A NHDES BROWNFIELDS PCB CASE STUDY

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NHDES Waste Management Division



### Brown Company Research & Development Buildings Site, Berlin





## R&D Building Layout





- 1.2 acre site
- Paper industry research and development facility until  $\approx$ 1985
- Generally vacant since 1985 with some use for office and meeting space until early 1990s



## Then



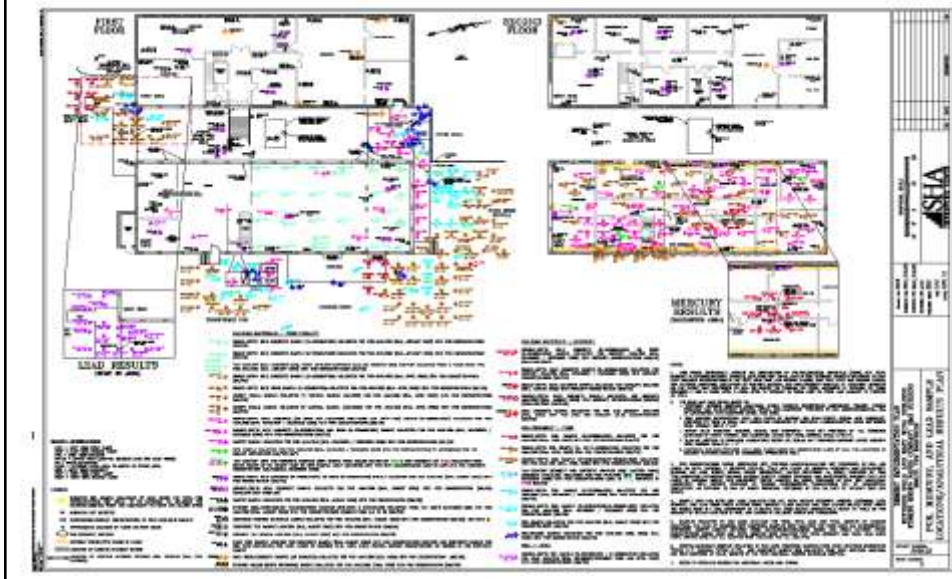
## Now



## Environmental Characterization Completed to Date

- Multiple phases of site investigation between 2000 and 2011.
- Initial assessment was based on wholesale demolition then refocused on renovation and reuse of east and west wings.
- 550 Samples analyzed for PCBs and metals (includes various building materials and soil)

## Lots of Characterization Sampling



## Pre- and Post-remediation Soil Sampling

- Multi-depth soil sampling was completed on a 5 ft. grid prior to and following soil removal.
- Pre-excavation site characterization was complete once a "two grid node" boundary was established with PCB concentrations  $\leq 1$  mg/kg.

## Environmental Concerns Identified



- ACMs
- Universal wastes
- Copious amounts of LBP containing PCBs < 1 mg/kg to 13 mg/kg



- Mercury contaminated building materials
- Two interior areas of PCB liquid release
- PCB tracking from release points
- Three areas of exterior PCB liquid release to surface soils
- Liquid PCB release to subsurface soils



- PCBs in concrete up to 34,000 mg/kg
- Limited to upper 0.5 to 2.0 inches

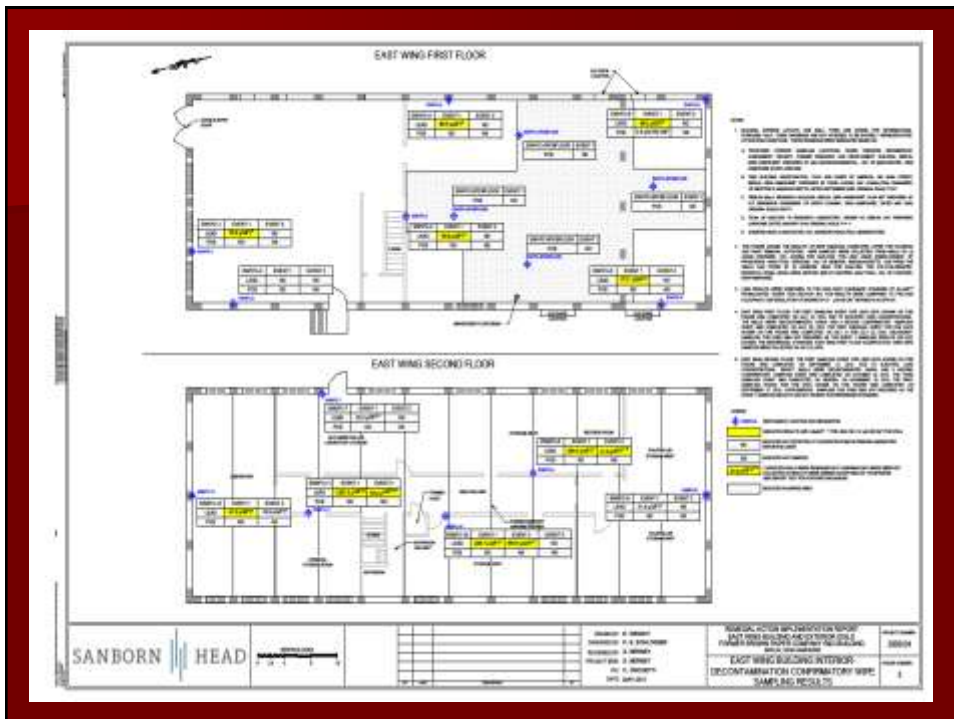
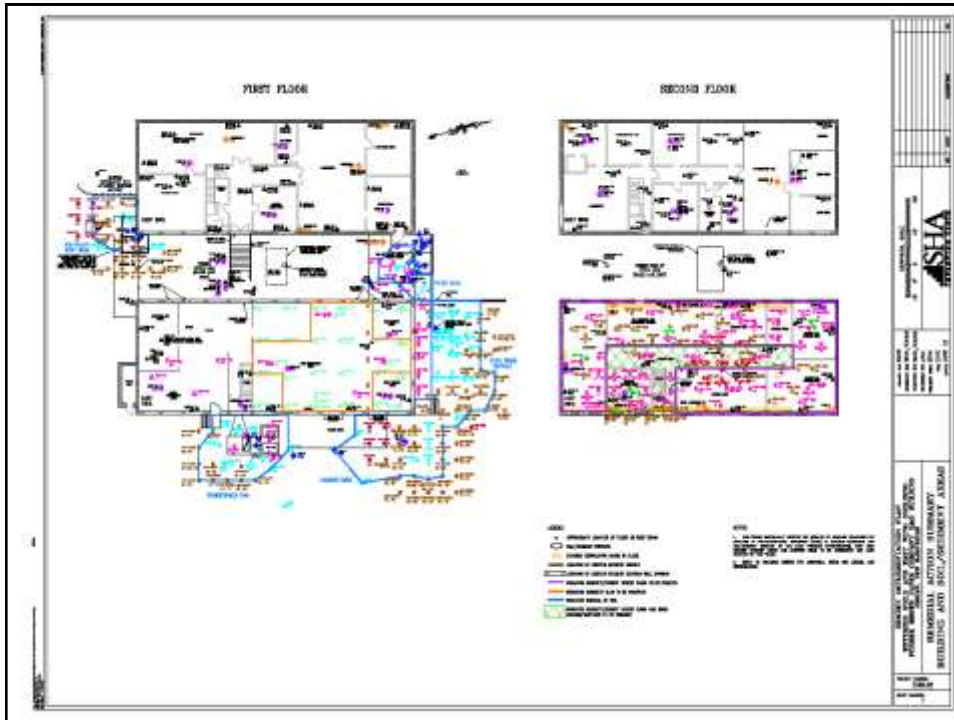


## Remediation Goals East Wing and Surface Soils

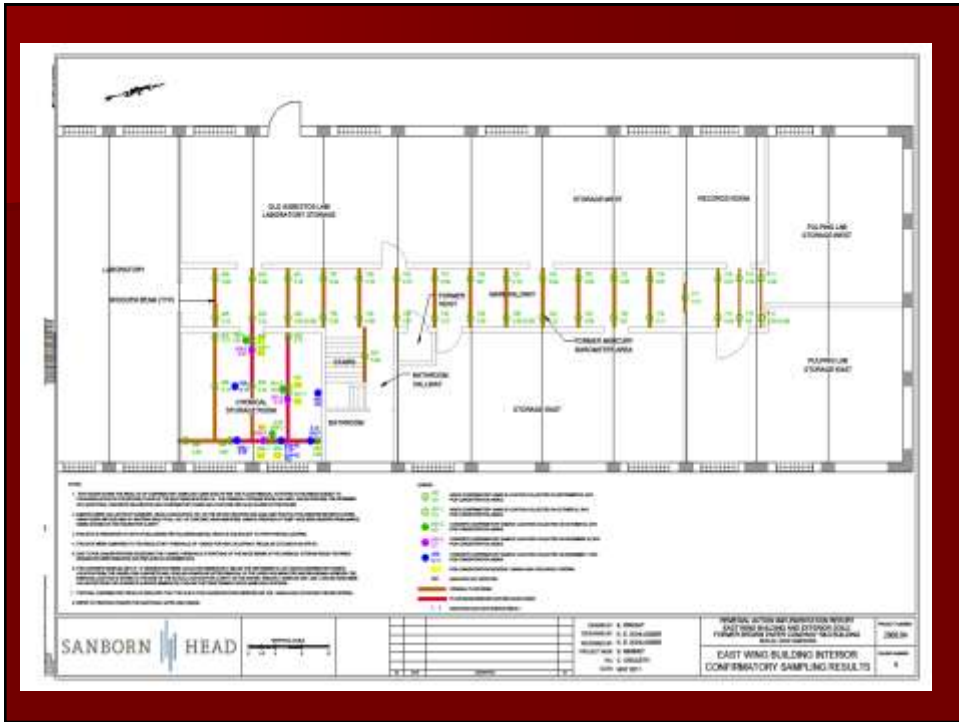
- High Occupancy use of East Wing Building with no Notice of Activity and Use Restriction
- Achieve post cleanup PCB concentration < 1 mg/kg
- Achieve surface/shallow soil PCB concentration < 1 mg/kg
- Complete removal of LBP/PCB Paint, Universal Wastes, Hg impacted materials, and ACM



2010

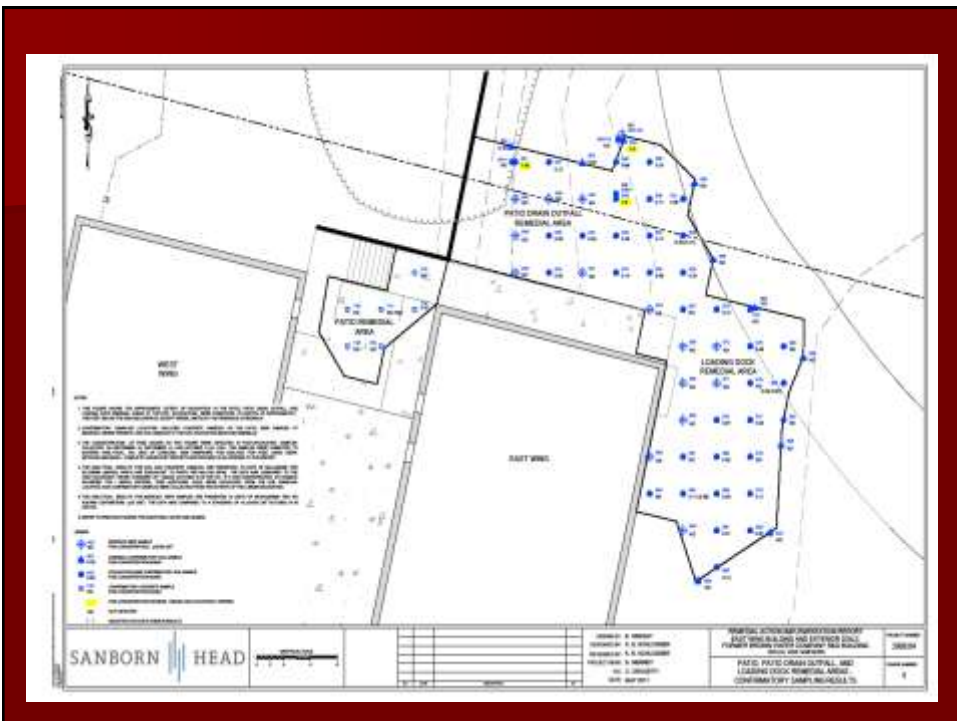


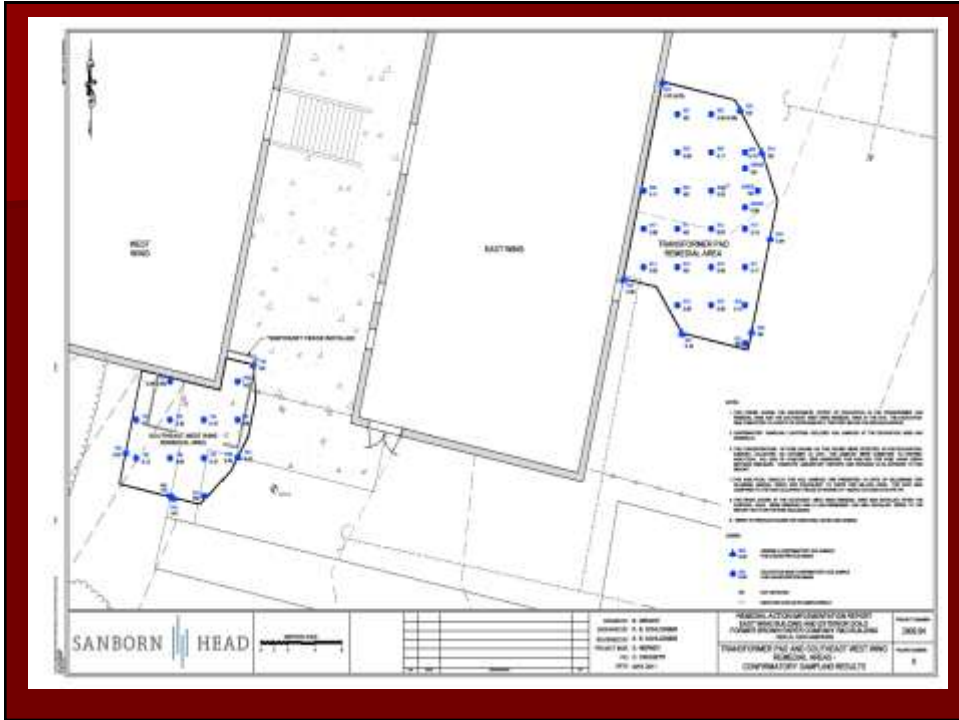




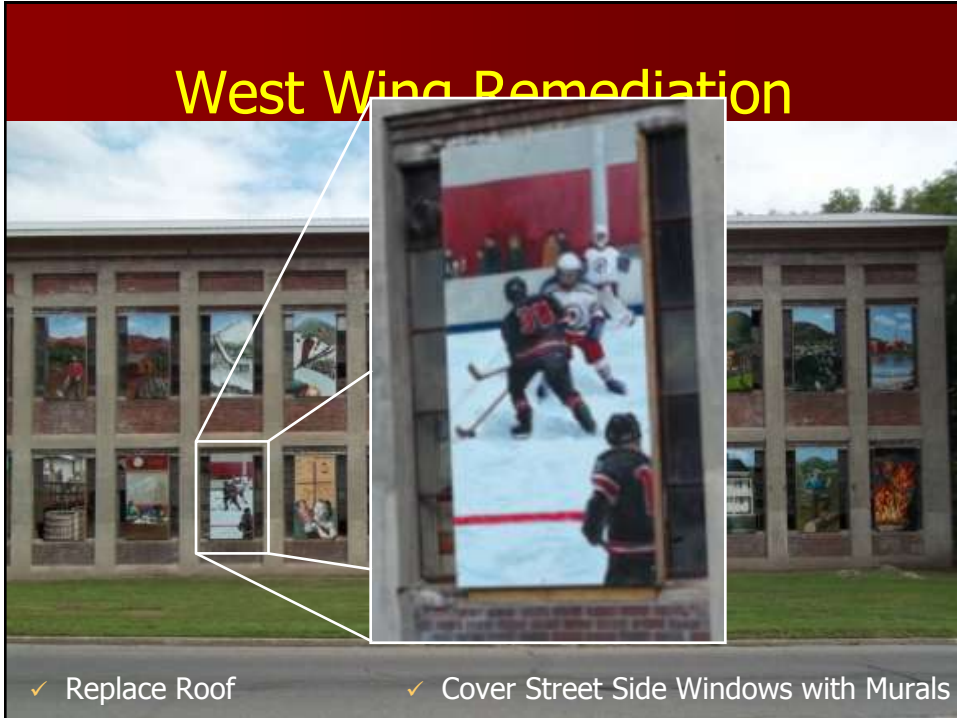
## Remedial Actions Completed







## West Wing Remediation



✓ Replace Roof      ✓ Cover Street Side Windows with Murals

## East Wing Remediation

- Painted surfaces cleaned: >23,000 SF
- PCB-impacted flooring: 6,400 SF
- PCB- and metal-impacted soils: 320 tons
- TSCA/RCRA hazardous flooring: 30 tons
- Non-hazardous flooring: >22 tons





May 2010



September 2010

## Costs

■ NHDES Assessment/Cleanup Planning	\$400,103
■ NH Cleanup Assistance	\$458,494
■ BFCRLF Sub-Grant	\$200,000
■ EPA Cleanup Grant	\$200,000
■ Total funding leveraged	<b><u>\$1,258,597</u></b>

## Lessons Learned

- If you sample for it you will likely find it.
- Characterization is more expensive than one would think.
- Remediation could be complex.
- Don't underestimate the importance of a good consultant with significant PCB experience.
- Investing in thorough cleanup/bid specifications and well prepared contract is a wise decision.
- Do not skimp on characterization

## Special Thanks To

- Sanborn, Head & Associates, Inc.
- Axiom Partners, Inc.
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- TMC Services, Inc.
- Aulson Speciality Contractors, Inc.
- GZA GeoEnvironmental, Inc.
- EPA Region 1
- Kim Tisa, EPA Region 1

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