



Brown School

42 Milk Street
Phase I ESA



Brown School - Scope of Work

- ▶ Assess the long history of storage of petroleum in USTs and the threat of release associated with the in-place tank
- ▶ Assess the presence of suspect asbestos-containing materials (ACM) in/on the Site building
- ▶ Assess the suspected presence of lead paint in/on the Site building
- ▶ Assess the suspected presence of polychlorinated biphenyl (PCB)-containing building materials in/on the Site building
- ▶ Assess the potential presence of mold

Work Performed

- ▶ Installation of 4 soil borings & 3 monitoring wells
- ▶ Collection & analysis of the following media samples:
 - ▶ 4 soil samples & 3 groundwater samples
 - ▶ 53 suspect ACM samples
 - ▶ 14 suspect PCB-containing materials
 - ▶ 21 air samples for mold
 - ▶ 6 tape lift samples for mold from areas of visible mold growth
- ▶ Perform a lead paint survey

Results

- ▶ **Soil:** No petroleum related VPH & EPH compounds were detected in the Site soil samples collected.
- ▶ **Groundwater:** No petroleum related VPH & EPH compounds were not detected in Site groundwater.





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FIGURE 2
DETAILED SITE PLAN

BROWN SCHOOL
 42 MILK STREET
 NEWBURYPORT, MASSACHUSETTS

-  BOILER ROOM
-  1961 ADDITION
-  1978 ADDITION
-  SITE BOUNDARY
-  ORIGINAL 1923 SITE BUILDING
-  BOILER
-  NOVEMBER 2001 EXCAVATION AREA
-  UNKNOWN SIZE #2 FUEL OIL UST
-  2021 SOIL BORINGS
-  2021 SOIL BORING MONITORING WELL
-  PARCEL BOUNDARY

NOTES:
 EXISTING CONDITIONS AND FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE BASED ON INFORMATION OBTAINED FROM THE CITY OF NEWBURYPORT ONLINE GIS DATA, MASSACHUSETTS GIS PARCEL LAYER, 2019 ORTHO PHOTOS, AND FIELD WORK PERFORMED IN AUGUST, 2021.

Asbestos Sample Results

- ▶ **Asbestos:** 12 materials were identified as ACM
 - ▶ Tan caulk
 - ▶ Brown stair tread mastic
 - ▶ Tan 9" floor tile
 - ▶ Gray glazing - 1923 original windows
 - ▶ White caulk - 1923 original windows
 - ▶ Black mastic
 - ▶ Pink sink coat
 - ▶ Light gray caulk - 1923 original windows
 - ▶ Light gray caulk - 1923 original windows
 - ▶ White caulk - gymnasium addition doors
 - ▶ White caulk - gymnasium addition windows
 - ▶ Light gray glazing compound, gymnasium addition
 - ▶ Orange linoleum
 - ▶ Layered paper insulation [ACWM (<1%)]

PCB Sample Results

- ▶ One material was identified with PCBs detected above 50 mg/kg and is thus considered to be TSCA Bulk Product Waste
 - ▶ Paint, light yellow (Maintenance Office walls)
- ▶ Six materials were identified with PCBs detected above 1 mg/kg but below 50 mg/kg
 - ▶ Paint, gray over light blue (boiler room)
 - ▶ Paint, gray (boiler room)
 - ▶ Caulk, white (1923 original windows)
 - ▶ Caulk, light gray (1923 original windows)
 - ▶ Caulk, gray (1978 addition original building seam)
 - ▶ Paint, green (boiler room)



PCB Sample Results Cont...

- ▶ Three materials were identified to contain PCBs below 1 mg/kg
 - ▶ Caulk, dark gray (1978 addition windows)
 - ▶ Caulk, red/brown (1978 addition windows)
 - ▶ Caulk, white (1923 original foundation)

Mold Sample Results

- ▶ Aspergillus/penicillium exceeded the calculated reference standard in the following five samples
 - ▶ Boiler room
 - ▶ Gymnasium/cafeteria
 - ▶ Kitchen
 - ▶ Boys Locker room
 - ▶ Girls Locker room
- ▶ Tape lift results were negative for all mold spores

Lead Survey Results

- ▶ Results indicate that painted surfaces in/on the building consists of either lead containing paint (LCP) or Lead-based paint (LBP)

Conclusions

- ▶ The UST has not released petroleum to the soil and groundwater in proximity to the tank
- ▶ ACM exists in numerous building materials; however, most is intact
- ▶ LBP and LCP were identified throughout the building
- ▶ PCBs are present in 6 of the 14 materials sampled greater than 1 mg/kg but <50 mg/kg
- ▶ PCBs are present in 1 sample >50 mg/kg and is thus considered to be TSCA PCB Bulk Product Waste
- ▶ Aspergillus/penicillium mold spores are present at five interior building locations >Site-specific calculated reference standards indicating presence of water damage

Conditions Specific to the Gym

- ▶ Asbestos is present in several materials including window glazing, caulk, pipe insulation, and other hidden materials
- ▶ Painted surfaces contain lead
- ▶ Mold is present in the Main Gym/cafeteria, Girls locker room, boys locker room indicating water intrusion issues

Recommendations & Budgetary Estimates

- ▶ **Abatement of ACM & ACWM that will be impacted during future renovation or demolition**
 - ▶ \$125,000 to \$150,000 for abatement of all identified ACM /ACWM
- ▶ **Repair identified damaged ACM (primarily in the boiler room)**
 - ▶ \$5,500 for repair of damaged ACM
- ▶ **Scrap & stabilize with an encapsulant the identified deteriorated LBP observed at the building**
 - ▶ \$38,600 to \$45,000 for stabilization
- ▶ **Manage painted surfaces that contain lead during future renovations**
 - ▶ \$136,000 to \$150,000 for future encapsulation not including above referenced stabilization work

Recommendations & Budgetary Estimates

- ▶ **PCB-containing light yellow paint >50 mg/kg in the Maintenance Office is required to be removed and disposed. In addition:**
 - ▶ Additional testing of the brick substrate is also required
 - ▶ The maintenance office should be relocated and access to the room should be restricted
 - ▶ \$15,000-\$20,000 for remediation of the Maintenance Office paint
 - ▶ \$3,500 for additional assessment of the brick substrate
 - ▶ \$6,000 for development of necessary TSCA documents prior to remediation
- ▶ **Comingled PCBs <50 mg/kg and LCP/LBP can be managed with LCP/LBP (see cost to address LCP/LBP)**

Recommendations & Budgetary Estimates

- ▶ **Water intrusion causing mold issues should be eliminated**
 - ▶ \$8,000 to \$12,000 for anticipated water leaks within walls or floors. If roof repair or replacement is necessary this number will increase
- ▶ **Retain a mold remediation company to remediate mold growth in the boiler room, gymnasium/cafeteria, kitchen, and boys & girls locker rooms**
 - ▶ \$30,000 to \$40,000 for remediation of the identified mold issues (assuming limited hidden mold)



Armory Garage

57 Low Street
Phase II ESA



Armory Garage - Scope of Work

- ▶ Assess residual petroleum impacted soil from a former leaking underground storage tank (UST) that does not meet unrestricted use standards
- ▶ Assess the suspected presence of PCB-containing building materials in the Site building
- ▶ Assess the potential presence of mold

Work Performed

- ▶ Installation of 8 soil borings & 4 monitoring wells
- ▶ Collection & analysis of the following media samples:
 - ▶ 8 soil samples & 4 groundwater samples
 - ▶ 4 suspect PCB-containing building materials identified during December 2020 work
 - ▶ 11 air samples for mold
 - ▶ 3 tape lift samples for mold



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FIGURE 2
DETAILED SITE PLAN
ARMORY GARAGE
57 LOW STREET
NEWBURYPORT, MASSACHUSETTS

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> FORMER PUMP ISLAND FORMER 5000-GALLON DIESEL UST 1998 MONITORING WELLS 1998 MONITORING WELLS GENERATOR AST | <ul style="list-style-type: none"> 2021 SOIL BORINGS 2021 SOIL BORING/MONITORING WELL PARCEL BOUNDARY SITE BOUNDARY SITE BUILDING | <ul style="list-style-type: none"> CHAINLINK FENCE MANMADE EARTHEN MOUNDS 1995 UST EXCAVATION 1998 EXCAVATION FORMER CONTAMINATED STONE PILES |
|---|---|---|

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 ARE APPROXIMATE AND ARE BASED ON INFORMATION
 OBTAINED FROM THE CITY OF NEWBURYPORT ONLINE GIS
 DATA, MASSACHUSETTS GIS PARCEL LAYER, 2019 ORTHO
 PHOTOS, AND FIELD WORK PERFORMED IN AUGUST AND
 SEPTEMBER, 2021.

Limited Phase II ESA Results

- ▶ **Soil**: Two Samples (CA-SB-4 & CA-SB-8) contained low concentrations of both VPH and EPH compounds below the Massachusetts applicable standards
- ▶ **Groundwater**: Methyl-tert-butyl ether (MTBE) is present in one well (CA-MW-2) but below applicable Massachusetts applicable standards. No EPH compounds were detected above laboratory reporting limits

Limited Phase II ESA Results

- ▶ **PCBs**: Two materials were identified containing PCBs >1 mg/kg and <50 mg/kg
 - ▶ CA-PCB-2: expansion gasket, black (foundation)
 - ▶ CA-PCB-4: mastic, black (below boiler in boiler room)
- ▶ **Mold**: None of the detected mold spore counts in the air samples exceeded any of the Calculated Reference Standards
- ▶ **Mold**: Pithomyces were identified at a “high” level in the tape lift samples from the Men’s Bathroom



Findings - December 2020 HBMS

- ▶ **Lead-containing paint** present throughout the building
- ▶ **Lead-based paint** outside on flag point and adjacent to garage doors
- ▶ **Asbestos** is present in/on the building



Findings - October 2021 Limited Phase II ESA

- ▶ **Residual petroleum impacted soil** onsite associated with the former leaking UST (previously cleaned up & regulatorily closed), but it is below applicable Massachusetts soil & groundwater standards
- ▶ **PCB's** are present in 2 of the 4 materials sampled greater than 1 mg/kg but less than 50 mg/kg
- ▶ **Mold** is not present in the building airspace at concentrations exceeding Site-specific calculated reference standards; however, sensitivities vary greatly by individual
- ▶ **Mold** tape lift sample results indicate that mold growth is occurring on the Men's Bathroom wall

Recommendations & Budgetary Estimates

- ▶ **Abatement of Asbestos that will be impacted during future renovation or demolition**
 - ▶ \$33,000 to \$57,000 for the roof abatement
 - ▶ \$600 to \$1,000 for expansion gasket abatement (only if demolished)
- ▶ **Manage painted surfaces that contain lead appropriately during future renovations**
 - ▶ \$10,000 to \$15,000 encapsulation of LBP/LCP
- ▶ **PCB-containing materials below 50 mg/kg once removed during renovations must be disposed at a facility licensed to accept this waste material**
 - ▶ \$2,000 to \$5,000 PCB remediation (only if renovation)
- ▶ **Visible mold identified in the Men's Bathroom should be remediated**
 - ▶ <\$5,000 (assuming no hidden mold)

2021 Phase I ESA - Armory Garage

- ▶ Historical Recognized Environmental Condition (HREC) #1 - Impacts to soil associated with the former storage of contaminated ballast material onsite
- ▶ HREC #2 - Residual petroleum impacted soil from a former leaking UST (Tank 1)
- ▶ Environmental Finding (EF) #1 - Confirmed presence of ACM in/on the Site building
- ▶ EF #2 - Confirmed presence of lead paint in/on the Site building
- ▶ EF #3 - Confirmed presence of PCB-containing building materials in/on the Site building