

MEMORANDUM

To: Michael McGovern, City of Lowell
From: Stephen Vetere, PE, LSP, Nobis Engineering
Subject: Summary of Geoenvironmental Findings, Existing Lowell HS and Cawley Site
Date: May 11, 2017

The following is a brief summary of the findings of subsurface environmental investigations conducted during the MSBA Feasibility Study for the Lowell High School.

Existing Lowell High School

- The focus of Phase II site assessment activities was on the portion of the campus located to the west of the canal, since this is where the vast majority of demolition and construction (and therefore direct contact with soil) would occur under the proposed Addition/Renovation Options included in the February 2017 Preliminary Design Program.
- The portion of the existing high school west of the canal is built on the former location of the Merrimack Manufacturing Company. Most of the area was formerly occupied by tenement homes for mill workers, but the extreme northwest corner of the campus was formerly part of the mill complex.
- The existing high school is underlain by 5 to 8 feet of historical fill material consisting of sand and gravel with traces of brick, concrete, coal, and ash. In one soil boring, the remnants of what is believed to be an old concrete foundation were encountered.
- The presence of historical fill does not, in and of itself, represent a hazard to site users. Fill materials are currently inaccessible to site occupants because they are either beneath the building foundations or covered by vegetated topsoil material.
- However, historical fill materials do tend to contain anthropogenic contaminants such as polycyclic aromatic hydrocarbons (PAHs) and heavy metals. These contaminants are ubiquitous in urban areas as a consequence of the combustion of wood or coal (i.e. wood ash or coal ash), as a component of asphalt pavement, or from the burning of fossil fuels.
- Ten soil samples were collected from the existing high school site to evaluate soil conditions in areas where potential future construction activities would result in exposure to soils by construction workers and generation of excess soils requiring off-site reuse or disposal.
- Review of soil sampling results suggests that historical fill materials present throughout the existing high school site contain levels of PAHs and lead that would not permit reuse of excess soils on site, therefore excess soils generated during construction activities would need to be transported to an off-site landfill for disposal.



- Review of soil sampling results indicates that arsenic concentrations in shallow soils located adjacent to the railroad tracks are above levels that are suitable for a school campus, and therefore require removal and off-site disposal. MassDEP has been notified of this condition, and plans are underway to have these soils removed from the site.
- Budgeting for a school addition/renovation project on the existing high school site should include provisions for the handling and management of contaminated soils, since it is likely that fill materials in the upper 5 to 8 feet contain PAHs and metals typical of urban fill. Provisions should include health and safety planning to protect workers during construction activities, soil characterization to identify off-site reuse/disposal locations, and transportation and off-site disposal of excess soils generated during construction activities.

Cawley Site

- The Cawley Site has been used for recreational purposes since at least 1938.
- Nobis has completed a Phase I site assessment for the Cawley Site, but no Phase II activities have been conducted. A Phase I assessment does not include any sample collection or analysis.
- Based on the review of historical records, as well as subsurface investigation records from explorations completed by other consultants during the Feasibility Study, the primary environmental concern for this site is the presence of historical fill material in the northern portion of the site, beyond the outfield fence of the Martin Softball Field.
- Soil borings and test pits excavated in this area identified fill materials including soil with traces of metal, brick, glass, and concrete. Although no soil samples have been collected for laboratory analysis, similar to above, it is likely that anthropogenic contaminants typical of urban fill material are present in this soil.
- Budgeting for a school construction project on this portion of the Cawley Site should include provisions for the handling and management of contaminated soils, since it is possible that fill materials in the upper 5 to 15 feet contain PAHs and metals typical of urban fill. Provisions should include health and safety planning to protect workers during construction activities, soil characterization to identify off-site reuse/disposal locations, and transportation and off-site disposal of excess soils generated during construction activities.
- A second minor environmental concern was identified through the review of environmental records for the Cawley Site. A former gasoline filling station located at 780 Rogers Street remains open from a MassDEP regulatory perspective. This former retail gasoline facility contains both soil and groundwater contamination associated with a historical release from a gasoline underground storage tank. The inferred groundwater flow direction is from this site toward the extreme southern portion of the Cawley Site, toward the parking area south of the Alumni Baseball Field. The extent of groundwater contamination does not currently extend beneath the Cawley Site, however if extensive withdrawal of groundwater were to occur during construction of a new school, it is possible that contamination could be drawn toward the site. Considering the proposed school plan for the Cawley Site, this scenario is considered unlikely and therefore does not warrant consideration for additional project cost.