

## **2012 Phase I ESA/Phase II Report Review and Regulatory Update – Former Route 20 Septage Site, Wayland, MA**

**TO:** Sarkis Sarkisian, Planning Department, Town of Wayland  
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Tighe & Bond has prepared this memorandum to summarize our review of the *Phase I ESA and Limited Phase II Site Investigation Report* (Phase I/II) completed by Tighe and Bond dated October 2012 of the former Septage Site on Route 20 in Wayland, Massachusetts. At the request of the Town of Wayland Economic Development Committee, Tighe & Bond reviewed the Phase I/Phase II to update, confirm and/or modify the 2012 findings with respect to recent regulatory changes under the Massachusetts Contingency Plan (MCP) effective June, 2014 and to various updated and pending regulatory guidance policies issued by the MassDEP Bureau of Waste Site Cleanup (BWSC). This review was prompted in response to the regulatory changes since 2012 and the future plan to redevelop the Site for residential use as part of the forthcoming River's Edge Development Project.

### **Site Description**

The Site consists of three contiguous parcels of land (Tax Map 22 Lots 3, 6 and 7) located at 484-490 Boston Post Road (Route 20) in Wayland, Massachusetts having a combined total area of 13.13± acres. The areas evaluated as part of the Phase I/II included only an approximately 7± acre developable portion of the Site adjacent to Boston Post Road. The Site has been owned and used by the town since circa 1946. Past and/or current Site uses include: a former sewer treatment plant and wastewater infiltration beds (now closed), a town police firing range and school bus parking area (current use) on Lot 3 and a soil staging/stockpiling area used by the Town Department of Public Works on Lots 6 and 7.

The Site is located on the edge of a former gravel pit and is surrounded by landfills – the Sudbury Sand Hill landfill to the west, the Wayland Sand Hill landfill to the northwest and an unnamed/uncapped landfill to the south across Route 20. Along Boston Post Road, the Sudbury Transfer Station (on the Sudbury Landfill Parcel) directly abuts the former Wayland Septage Plant (Lot 3). Structures on the Site include the former Septage Plant building (now vacant) and associated structures and three abandoned infiltration beds. Utilities including municipal water, electric and natural gas are available proximate to the Site on Route 20 however service capacities were not evaluated for this memorandum.

The surrounding area to the north of the Site and to the east (of Lot 7) is undeveloped. The Site is located in an area of mild to moderate relief and is underlain by highly conductive soils designated as high-and medium-yield aquifers. This designation categorizes site groundwater as GW-1 under the MCP for protection as a future drinking water source. Based upon regional topography and surface waters to the south and east, groundwater is inferred to flow to the south and east towards Wash Brook and the Sudbury River.

### **2014 MCP Regulatory Changes**

In 2014, the state site cleanup regulations and standards codified in 310 CMR 40.0000 (the MCP) were amended and became effective on June 24, 2014. In general, the 2014 MCP

Amendments included general process improvements and enhanced protection of risk to human health, public welfare, safety and the environment. Process improvements included a simplification of the tier classification process (elimination of Tier I permits) and a streamlining of Activity and Use Limitations (AULs). Enhanced protection changes included: updates to the Method 1 cleanup standards (based upon current toxicology information), triggers to expedite vapor intrusion (VI) assessment and clearer performance standards to address source of oil and hazardous materials (OHM).

The 2014 MCP Amendments provide more options for achieving closure, especially for sites with VI issues, petroleum sites with light-non-aqueous phase liquid (LNAPL) and included new "clearer" terminology for closure via a Temporary or Permanent Solution with or without Conditions (i.e. AUL). For building sites with VI issues seeking closure, the new 2014 MCP amendments require installation and monitoring via the use of a remote telemetry system if an active exposure pathway mitigation measure (AEPMM) is in-place. AEPMMs are engineered active or passive controls and include sub-slab depressurization systems to control vapors from intruding into indoor structures. Other concurrent changes included modifications to MCP timelines and fees and updates to the BWSC transmittal forms.

Concurrent with the 2014 MCP Amendments and primary changes, MassDEP published and released several new and/or updated guidance documents pertaining to VI, LNAPL, AULs and Greener Cleanups. These new and/or revised policies and/or guidance documents were issued as draft or an interim final version and are still open to public review and comment. In 2013, MassDEP published WSC#-13-500 the *Similar Soils Provision (SSP) Guidance* which was revised in April, 2014. The SSP guidance was issued to assist with the management of soil from Sites (MCP versus non-MCP sites) as well as clarifying the process for determination of soil as remediation and the proper use of "similar soils" per the anti-degradation provisions in the MCP. The review of prior ESA findings that follows is intended to focus specifically on these regulatory updates and modify prior findings as appropriate.

### **2012 Phase I/Limited Phase II Findings**

The results of the 2012 Phase I ESA identified five Recognized Environmental Conditions (RECs) at the Site. These RECs were further investigated as part of a limited Phase II Site Investigation. The result of the Limited Phase II ESA are below:

REC#1 (USTs) - In circa 1993, a 4,000-gallon #2 heating oil and two (2) ferric chloride USTs were removed from within the paved parking area on Lot 3. The Phase II included subsurface drilling and soil sampling for petroleum and VOC to assess this REC. An existing on-site groundwater monitoring well located near the Hazardous Waste Storage Shed (labelled "DG-1" in Phase I/II report but also known as MW-3) was sampled for volatile/extractable petroleum hydrocarbons (VPH/EPH) and target polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs). None of these constituents were detected in groundwater. **The Phase II concluded that there were no identified impacts to soil and groundwater and thus REC#1 was eliminated and confirmed not to exist.**

REC#2 (Lead in Soil in Firing Range Area) - The historic use of lead-containing bullets at the police firing range was identified as a REC. The Phase II included extensive field screening for lead using an x-ray fluorescence (XRF) analyzer. XRF lead readings measured greater than 200 ppm in surface soils and up to 21 ppm at depth up to 2 feet below grade on the berm and west berm slope. XRF lead readings measured up to 300 ppm in surface soils along the northern and southern banks and within the shot fall zone. **The Phase II concluded that lead in soil (REC#2) was potentially an**

**MCP reportable conditions but that soil sampling and analysis by standard laboratory methods was required to confirm a reportable release condition. Laboratory soil sampling was not performed at the request of the Town.**

REC#3 (Methane Gas Migration from Off-Site) – Methane gas was identified above the 25% of the LEL (and MassDEP reporting threshold) in two perimeter soil gas monitoring wells on the adjacent Sudbury Landfill/Transfer Station property west of the Site. The potential for methane emanating from landfill gas to migrate through the subsurface and onto the Site signified a potential VI condition and was identified as a potential REC. As part of the Phase II, three soil gas points were advanced at the Site – SG-1 in the northern section of Site in the fire range area and SG-2 and SG-3 further south closer to the Septage Building. Methane was measured at 29% of the LEL in SG-1 but was not detected in shallow soil gas points from SG-2 or SG-3. **The Phase II concluded that methane in soil gas (as measured at SG-1) had migrated onto the Site but was not present in areas adjacent to the on-site Septage Building. However, additional investigations were recommended to further evaluate the extent of methane impacts.**

REC#4 (Metals in Groundwater Off-Site) – File review of the abutting property identified the presence of arsenic above the MCP Method 1 GW-1 standard in a groundwater monitoring well on the adjacent Sudbury Landfill/Transfer Station property west of the Site. Tighe & Bond sampled existing groundwater well located near the Hazardous Waste Storage Shed (labelled “DG-1” in Phase I/II report but also known as MW-3). No VPH/EPH and/or target PAHs and VOCs were detected in groundwater. Metals were not sampled/analyzed for in on-site groundwater at the request of the Town. **This REC was not further evaluated as part of the Phase II and therefore was retained as a potential REC. If arsenic is present on-site, it would likely be attributed to the Sudbury Landfill and therefore would be managed under the solid waste regulations.**

REC#5 (Stockpiles) – The presence of numerous large stockpiles of soil, soil/asphalt mix and recycled asphalt were identified as a REC. These stockpiles and our recommendations for these piles as reported in the October 2012 Phase I/II report are described below:

- *Stockpile No. 1* – This pile consists of sand, gravel, cobbles, organic material (vegetative debris and wood), and urban fill materials. Varying amounts of asphalt, concrete, brick, metal, railroad ties, asphaltic conduit/piping, glass, and coal were also observed throughout the pile. Three small sections of asbestos transite pipe were also observed within the pile. Several test pits were excavated around the base and into the top of this pile to a depth of approximately 5 feet. This pile requires mechanical processing to reduce asphalt, brick and concrete debris to less than six inches in size to comply with MassDEP policy on the reuse of uncoated asphalt, brick and concrete. This will require notification to the local Board of Health and MassDEP. Prior to processing, visible materials that cannot be used with the backfill should be removed, including rail ties, asphaltic piping and steel/metals. The presence of the asbestos piping appears to be intermittent and not ubiquitous to the pile. However, careful monitoring of the pile will need to occur during segregation and if additional visible quantities of asbestos piping are identified, notification to MassDEP may be necessary to further permit the removal and disposal of the asbestos under MassDEP approved work plans.
- *Stockpile No. 2* - This pile consists of material generated from Stockpile No. 1 that was previously processed with an on-site crusher and stockpiled to be reused as

needed during construction activities throughout the town. This pile appears to be homogenous and of a gradation and size that makes it suitable for general fill or subgrade to paved areas.

- *Stockpile No. 3* – This pile is comprised of soils that contain asphalt and small amounts of urban fill materials. This pile was also considered to be fairly homogenous and highly usable “as is” but further processing of the pile may be necessary.

### **Environmental Site Development Considerations (per 2014 Regulatory Changes)**

Based upon our review of the 2012 Phase I/II findings and the 2014 MCP amendments and guidance policies, Tighe & Bond’s recommendations and considerations for future development at the Site as they pertain to REC#2, #3, #4 and #5 are as follows:

Soil Contamination in Firing Range Area - A comprehensive assessment of lead-impacted soils within the firing range area (REC#2) of the Site (Lot 3) should be conducted. Characterization of soils within the range should include an assessment of lead as well as other metals (i.e. copper, zinc, tungsten, arsenic, antimony and nickel) commonly attributed to the use of lead shot. Soil samples should be manually screened and collected to assess contaminant concentrations. Future contaminated soil removal will be necessary within the firing range area.

Under the 2014 MCP amendments, the S-1 Method 1 soil standard for lead was lowered to 200 mg/kg and would be required for unrestricted future residential use. Based upon preliminary XRF lead field screening data, lead concentration and possibly other metals will exceed the MCP S-1 soil standards. Future removal of impacted soils from the firing range area will need to follow federal and state laws for appropriate soil testing, transportation, and disposal.

Gas Migration/Potential Vapor Intrusion - As a precaution to minimize the possibility of any future potential vapor (methane) intrusion concerns identified with REC#3, installation of a vapor barrier or passive gas ventilation system should be considered as part of any new building construction at the Site. This recommendation is consistent with the *October 2014 MassDEP Public Review Draft Vapor Intrusion Guidance Policy WSC#-14-435*. Installation of a vapor intrusion mitigation system would be a “voluntary pro-active” protective measure that would help address future building occupant concerns and the associated perceived risks from landfills in close proximity to occupied buildings.

This recommendation is based upon multiple lines of evidence which include: 1) the detection of methane gas (> 25% LEL) in an off-site perimeter monitoring well at the Sudbury Landfill west of the Site and on-site soil gas point SG-1 in the Firing Range Area on Lot 3, 2) the proximity of the Site to three landfills - the Sudbury landfill to the west, the Wayland Landfill to the northwest and an older inactive unlined/unnamed landfill to the south across Boston Post Road, and 3) general site/area hydrogeology which consist of a low water table coupled with highly conductive sands and gravels within the unsaturated zone. Additional soil gas sampling may also be warranted prior to future development to further assess potential extent of soil gas in proximity to future building locations.

Groundwater Quality and Usage – Based upon REC#4 (Arsenic above the Massachusetts Maximum Contaminant Levels (MMCL) of 10 ppb in a well at adjacent Sudbury Landfill), groundwater quality at the Site may also exceed the MMCL for drinking water and is equivalent to the MCP GW-1 groundwater standard. However, actual arsenic concentrations in on-site groundwater have not been assessed.

Further review of area groundwater flow directions (between the Site and the landfill), review of landfill groundwater and well data coupled with sampling of on-site groundwater wells is needed to ascertain whether arsenic is present on-site and if present to ascertain the potential source (i.e. landfill leachate migration or if naturally occurring).

There are 6 groundwater monitoring wells on or near the Site identified as D-3 and MW-1 through MW-5. A review of the Wayland Septage plant monthly groundwater monitoring well and effluent data for 2008 and 2009, indicated that chloride and manganese in groundwater in several of the on-site wells exceeded their respective *Massachusetts Secondary MCLs* of 250 mg/l and 50 ug/l, which are standards that would not trigger reporting under the MCP. The secondary MCLs only become an issue if a drinking water source is established on the site. The March 2008 data for mercury which reported levels between 180 and 7,610 ug/l (which would be reportable under the MCP). This result however is believed to be erroneous and not representative of actual groundwater conditions. We believe this observation is erroneous due to prior and subsequent mercury sampling from this well being non-detect and the reported concentrations for mercury be very similar to the historic manganese data. Additional groundwater sampling may be warranted. The 2008 and 2009 plant data also shows that no significant levels of volatile organic compounds (VOCs) have been detected or are present in on-site groundwater.

The Site is located within a potentially productive aquifer (PPA) and therefore by definition under the MCP is categorized as a Potential Drinking Water Source Area (DWSA) and therefore groundwater category GW-1 is applicable. However, the Site is will be required to connect to a public drinking water supply source and on-site groundwater is not planned for use as a drinking water source. Therefore any potential risk through the drinking water pathway from an on-site well does not currently exist.

Management of Stockpiled Soils – As indicated in the October 2012 Phase I/II report, any future on-site reuse of the soil stockpiles should be conducted carefully such that the environmental (contaminant concentrations) and geotechnical characteristics of the soil are known prior to reuse and/or off-site disposal. Specifically, if:

- 1) *Reused On-Site*, soils should be used at depth in areas beneath asphalt and/or new buildings. The stockpiled soils should not be reused in near surface soils (less than 3 feet) as these areas could represent a greater exposure potential to users of the property. Re-use of these soils presumes removal of the construction-related debris and suspect ACM in the stockpiles.
- 2) *Reused Off-Site*, the soil should be pre-characterized before used elsewhere in Town or offered to a third-party for use to confirm that the managed soils a) is not a hazardous waste, b) is less than the MCP reportable concentration or exempt from the MCP), c) does not create a notifiable condition at the receiving location, and, d) is not significantly more contaminated than the soil at the receiving location.
- 3) *Disposed Off-site*, soils should be adequately characterized in order to make a waste determination as necessary for transport and disposal off-site to a licensed facility. The number of samples and analyses is based on specific facility requirements.

Tighe & Bonds recommends that a soil management plan for the three soil stockpiles be prepared in the future under the direction of a Massachusetts Licensed Site Professional (LSP). This plan can be prepared once redevelopment plans are more formalized and the net surplus/deficit of soils being reused versus disposed off-site is better understood. The

Town may want to require through the bidding process that any future developer of the site submit a soil management plan to the Town for review prior to site development.

### **Other Future Redevelopment Recommendations/Requirements**

Building Demolition - If the former Septage Plant and auxiliary buildings and structures will be demolished in the future, a pre-demolition survey and assessment for the presence of hazardous building materials (HBM) should be conducted. Based upon the age of the on-site building, HBMs potentially present include: asbestos and asbestos-containing materials, lead-based paint (LBP), mold, and building materials containing polychlorinated biphenyls (PCBs).

Permitting - As indicated in the October 2012 Phase I/II Report, a portion of the Site (Tax Map 22, Lot 3 which contains the former Septage Plant and Firing Range Area) is designated as having a valid "Site Assignment" for the disposal of solid waste into or on land in accordance with 310 CMR 19.0000, the Solid Waste Regulations. Thus any future development of the Site (Lot 3, 6 and 7) will be required to be coordinated and permitted with the local Board of Health and potentially with the MassDEP.

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