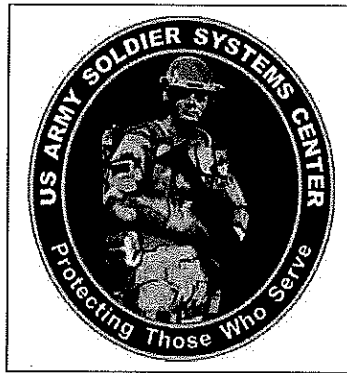


**INTEGRATED NATURAL RESOURCES
MANAGEMENT PLAN**

**NATICK SOLDIER SYSTEMS CENTER
NATICK, MASSACHUSETTS
2006 - 2010**



FEBRUARY 2007

**INTEGRATED NATURAL RESOURCES
MANAGEMENT PLAN**

**U.S. ARMY SOLDIER SYSTEMS CENTER
NATICK, MASSACHUSETTS**

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6.7.1.3 Groundwater Two major aquifers have been identified at the site, an unconfined sand aquifer, occurring near the water table, and a semi-confined deep overburden sand-and-gravel aquifer, which occurs directly above the bedrock (Chiu et al., 1993; Harding ESE, 2003). The unconfined sand aquifer contains gravelly sand and fine- to medium-grained sand, occurs at a depth of approximately 3 to 15 feet bgs, and extends across the entire Natick property. This aquifer has a water table slightly higher than the lake level. The deeper, sand-and-gravel aquifer contains a 27-foot-thick layer of sand, gravel, and fractured bedrock immediately above the unweathered bedrock (Chiu et al., 1993; Hydro Group, 1992). Flow within the shallower aquifer tends to follow topography, while water within the deeper overburden aquifer generally flows west-northwest (Harding ESE, 2003).

As described in Section 4.3, TCE and PCE have been detected in groundwater beneath the SSC facility property due to historic releases at the site. Since the installation of a groundwater treatment system at the property in 1997, groundwater quality has improved substantially and continues to improve.

The Town of Natick's Springvale and Evergreen municipal drinking water wellfields are located north-northwest (approximately 2,200 and 6,200 feet, respectively) and downgradient of SSC's property boundary (Friesz and Church, 2001; USAMRMC, 1998). In the late 1980's and early 1990's, low levels of TCE and PCE were detected in the Evergreen and Springvale wellfields. However, during this period, average annual concentrations of contaminants in municipal water supplied to households never exceeded the standards for public drinking water supplies (ATSDR, 1998). Water from the Springvale and Evergreen wells is currently treated at the Springvale water treatment facility prior to use (Town of Natick, 2004).

6.7.2 Natick Housing Areas

Water resources occurring at the Natick Housing area properties include Little Roundy Pond and associated BVW, and BVW located along the shore of Lake Cochituate, southwest of the Kansas Street housing area (Aneptek, 1991).

6.7.2.1 Little Roundy Pond Little Roundy Pond is approximately 325 feet wide by 300 feet long and has a maximum depth of 10 feet (Aneptek, 1991) (Figure 6). A fence and an area of dense vegetation surround the pond (Harding ESE, 2001).

Emergent herbaceous vegetation is present along the periphery of the pond and in areas of shallow water. Beyond this band of vegetation are submergent and floating aquatic plants and filamentous algal mats, which occur in water depths of approximately 5 to 7 feet. The center of the pond is unvegetated and remains as open water throughout the summer. Open and forested wetland areas surround Little Roundy Pond (Aneptek, 1991).

Historically, Little Roundy Pond was constructed and used as a sedimentation basin for storm water runoff from streets in the Town of Natick, prior to discharge to the South Pond of Lake Cochituate. A majority of storm water from the Town of Natick has since been rerouted, but Little Roundy Pond still receives storm water from a small residential neighborhood located northeast of the pond (Harding ESE, 2001). Overflow from Little Roundy Pond discharges to Lake Cochituate via a culvert, which extends beneath Kansas Street (Aneptek, 1991; Harding ESE, 2001). Four additional culverts are located along the edges of Little Roundy Pond. An intermittent stream is located east of the Heritage Lane housing units, which discharges to the pond (Aneptek, 1991). The channel of the intermittent stream is approximately 2 to 4 feet wide and has banks that vary from 0 to approximately 2 feet in height (Aneptek, 1991).

Contaminants detected in sediment samples collected from Little Roundy Pond include PAHs, pesticides, metals/inorganics, and total petroleum hydrocarbons. Pesticides and metals have been detected in surface water samples collected from the pond. Results of risk assessments conducted for the site indicate contaminant levels in Little Roundy Pond do not pose a significant risk of harm to human health or ecological receptors (Harding ESE, 2001).

6.7.2.2 Kansas Street Housing Area Wetland The wetland on the Kansas Street housing area property includes areas of forested wetland with dense shrub thickets, and a wet meadow with scattered shrub thickets and trees (Aneptek, 1991).

6.7.3 Hudson Housing Area

No streams or permanent water bodies are located on the Hudson property (Figure 7). The following three wetland types have been identified on the property: forested wetland, bog, and potential vernal pools (Aneptek, 1991). These wetland areas are described below.

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6.7.3.1 Forested Wetland Two forested wetland areas are located in the interior of the property, south of the housing area (Figure 7). These wetland areas are seasonally flooded, dominated by a canopy of red maple, and contain pronounced hummocks. The interior of this wetland area, near the eastern border of the site, contains a sparse tree canopy and a relatively thick mat of sphagnum moss. A nearly complete canopy of red maple exists in other areas of this wetland (Aneptek, 1991). Other plant species occurring in this wetland area are described in Section 6.8.5.

6.7.3.2 Bog A small kettlehole bog is located along the southeastern edge of the site, at the intersection of two woods roads (Figure 7). The bog is covered by a thick mat of Sphagnum moss and is surrounded by steep, thickly vegetated banks. When this area was surveyed by Aneptek personnel during the summer of 1991, the bog was observed to contain saturated soils but no standing water. The bog is vegetated primarily with Sphagnum moss and shrub species (Aneptek, 1991).

6.7.3.3 Potential Vernal Pools In 1991, Aneptek personnel identified two potential vernal pools on the property. Vernal pools typically hold water for only a few months out of the year and provide important habitat for certain invertebrate and amphibian species. Both potential vernal pools identified by Aneptek are located within isolated depressions containing wetland plant communities.

The first pool is located in the southwestern corner of the site, at the intersection of Bruen Road, White Pond Road, and the abandoned railroad right-of-way (Figure 7). This pool was estimated to be 150 feet long by 75 feet wide. It was observed to contain greater than 8 inches of water in July 1991 and to be completely dry by late August of that year.

The second potential vernal pool was described by Aneptek (1991) as being significantly smaller than the first pool. This isolated depression is located within a mesic transitional zone between the oak forest and the red maple swamp in the east central portion of the site (Figure 7). The bottom of the depression was observed to contain a mat of sphagnum moss (Aneptek, 1991). The pool was dry at the time of observation (summer 1991).

Aneptek personnel also identified a third potential vernal pool, located immediately off-property. This pool is located north of the housing area and woods road (Aneptek, 1991). Although this pool is located off-property, amphibians potentially using this vernal pool would likely reside in forested uplands along the northern boundary of the housing area property.

To date, no known surveys have been completed of these pools to determine whether they support obligate or facultative vernal pool species.

6.7.3.4 Needham Housing Area No surface water bodies or wetlands are present on the Needham Housing area property (Aneptek, 1991) (Figure 8).

6.7.3.5 Wayland Housing Area No surface water bodies or wetlands are present on the Wayland Housing area property (Aneptek, 1991) (Figure 9).

6.8 FLORA

Most plant species data available for the installation properties are from surveys conducted by Aneptek (1991). Lists of plant species identified by Aneptek (1991) for each of the installation properties are provided in Appendix B. A list of trees identified and surveyed by engineering-environmental Management, Inc. (e2M) on the main installation property as part of SSC's Urban Forestry Management Plan is provided in Table C-1 of Appendix A. Plant species descriptions for the installation properties are provided in the following subsections.

6.8.1 SSC, Main Installation

Developed portions of the property contain lawn and landscaped trees and shrubs. Forest stands (i.e., consisting of three or more trees with a continuous canopy) are located along the southern, western, and northeastern margins of the property, near the shoreline of Lake Cochituate. According to results of an urban tree survey conducted by e2M in 2002, the property contains 355 individual urban trees and 22 forest stands (e2M, 2003, Appendix A).

Common tree species occurring on developed areas of the property include oak (*Quercus rubra/velutina*), white pine (*Pinus strobus*), flowering crabapple (*Malus sp.*), Norway maple (*Acer platanoides*), and flowering cherry (*Prunus sp.*) (e2M, 2003). Planted shrubs include lilac (*Syringa vulgaris*), yew (*Taxus canadensis*), privet (*Ligustrum sp.*), rhododendron (*Rhododendron sp.*), azalea (*Azalea sp.*), trailing juniper (*Juniperus horizontalis*), and winged euonymus (*Euonymus alata*) (Aneptek, 1991). Common