ATTACHMENT A

Project Summary

INTRODUCTION

On behalf of the Department of Conservation and Recreation (DCR) Lakes and Ponds Program, Aquatic Control, Inc. (ACT) has prepared this Notice of Intent (NOI) for the use of herbicides to control nuisance aquatic vegetation in the area of the State maintained beach, boat ramp and kayak rental facility (referred to herein as the State Beach) in the Middle Pond of Lake Cochituate in Natick (see Figure 4). After exhausting efforts to use strictly non-chemical management techniques over the last several years, DCR has opted to pursue an integrated management plan utilizing a combination of herbicide applications and physical control methods in an effort to provide safe recreational access to the lake from the State Park and to minimize the potential for spread of non-native species to other nearby waterbodies from exiting watercraft. Control of milfoil in the area will also increase edge habitat increasing foraging habitat for game species and creating beneficial open water habitat for fish and wildlife. A reduction of plant biomass in this area will also increase water circulation and should help to reduce bacterial counts which according to Park officials have been high in the swim area.

The use of Reward (diquat) aquatic herbicide is being requested in a portion of Lake Cochituate's Middle Pond in Natick. Treatment will aim to control nuisance aquatic vegetation, namely Eurasian watermilfoil (*Myriophyllum spicatum*) in a small area in the northwest corner of Middle Pond abutting the State Beach. Maximum treatment area for the proposed project is 5 acres.

This NOI is submitted pursuant to M.G.L. c. 131 s. 40 (Massachusetts Wetlands Protection Act) and its implementing regulations (310 CMR 10.00), and the Town of Natick Wetlands Protection Bylaw. This management plan is proposed as a Limited Project under 310 CMR 10.53(4) for resource area improvements.

SITE DESCRIPTION

Lake Cochituate is a 614-acre lake located in the towns of Framingham, Natick and Wayland (see Figure 2). It is owned by the Commonwealth and managed by DCR. As shown in Figure 1, the lake is divided into three distinct basins – North Pond (western half is located in Framingham; eastern half is located in Wayland with a small portion in Natick), Middle Pond (Wayland and Natick) and South Pond (Natick). Water flows in a northerly direction from South Pond, through Middle Pond, to North Pond where it discharges out a dam on the western shoreline into Cochituate Brook, a tributary to the Sudbury River. Water depths reach a maximum of approximately 69 feet, with an average depth over the entire lake of 22 feet.

The lake is an important freshwater recreational resource for the Metrowest area and is used intensively for boating, swimming, and fishing. Surrounding land use includes Cochituate State Park, municipal open space and recreational lands, and densely-developed commercial and residential areas. In addition, the lake is bisected by several major roadways; the MassPike (I-90) and Cochituate Road (Route 30) separate the North and Middle Ponds, while Worcester Road (Route 9) divides the Middle and South Ponds.

Both non-indigenous invasive milfoil species, Eurasian watermilfoil and Variable watermilfoil (*Myriophyllum heterophyllum*), have become established within the past decade and in many regards have come to compromise the lake's native plant and animal

communities. Unfortunately large-scale projects to control non-native vegetation and help restore native plant communities have been thwarted and milfoil has continued to spread and can now be found throughout the entire lake system.

Although milfoil growth is present throughout the entire lake system, dense growth in the area of the State Beach has come to impede recreational access, posing a significant threat to public safety and increasing potential for spread of milfoil to other nearby waterbodies. The proposed treatment site is heavily used for swimming and boating lessons and the presence of dense milfoil growth has elevated concerns for user safety. Decreased circulation to the dense growth of milfoil in the area has also contributed to increased local bacterial counts, threatening park closure.

VEGETATION MANAGEMENT HISTORY

After documenting an infestation of non-native and invasive milfoil (primarily Eurasian watermilfoil) in South Pond and Middle Pond in 2002, fragment barriers were installed across the channels that connect the basins to capture milfoil fragments and prevent boat transport from the lower basins. Despite these measures, milfoil continued to spread to other parts of the Pond system. In 2003 the DCR filed an NOI with the Natick Conservation Commission for the chemical treatment of 50-60 acres, installation of bottom weed barriers, and use of diver hand pulling within portions of the lake in the town of Natick. An Order of Conditions was issued by the Natick Conservation Commission, but it was appealed due to opposition to the use of herbicides. Due to the lengthy appeal process another NOI was filed for physical control measures and was issued. In March 2004 the DEP issued a Superseding Order of Conditions, allowing the application of herbicides to proceed; this order was also appealed. During the lengthy appeal process of the Superseding Order, a Long Term Vegetation Management Plan was created for Lake Cochituate (ACT, 2004). Another three NOIs (one per lake basin) were filed in 2006 pursuant whole-lake Sonar (fluridone) treatment, but were denied due to concerns of herbicide transport into nearby wellfields. Ultimately, Orders were issued from each town for non-chemical management of milfoil. Since that time the State has spent a considerable amount of time and financial resources pursuing non-chemical alternatives within the Cochituate system including: the installation of benthic barriers and Solar-Bee aerators and the use of SCUBA hand-pullers. Although the State's management efforts have provided some temporary results, hand-pulling and benthic barriers have failed to provide sufficient control of milfoil within State Beach.

Monitoring of aquatic plant distribution in Lake Cochituate has also been ongoing, most recently performed by ENSR/AECOM in 2008 and 2009. A copy of the ENSR/AECOM report on Lake Cochituate can be obtained from the DCR.

An itemized timeline of DCR management efforts at Lake Cochituate can be found in Appendix C.

RARE AND ENDANGERED SPECIES

According to the 2008 edition of the Massachusetts Natural Heritage Atlas the Middle Pond of Lake Cochituate is designated by the Natural Heritage Endangered Species Program (NHESP) as Estimated and Priority Habitat (EH 95/PH 200). As a result, an

independent filing of this NOI has been submitted under the Massachusetts Endangered Species Act (MESA) for NHESP review. A copy of the independent filing is provided in Appendix D.

According to correspondence between the NHESP and ESS, Inc. in 2006 the NHESP was "not aware of any current rare plant or animal records in the vicinity of the site". NHESP further stated that the estimated/priority habitat designation was based upon historical records of both bridle shiner (*Notropis bifrenatus*) and the boreal turret snail (*Balvata sincera*) and that for purposes of NOI filing the NHESP does not "consider rare species observations that have not been observed within the past 25 years to be extant".

PROPOSED AQUATIC MANAGEMENT PROGRAM

A multiple-year approval is requested for the implementation of an Aquatic Management Program at the State Beach on Middle Pond of Lake Cochituate. Because vegetation management will be ongoing, DCR requests that the Commission approve a 5-year Vegetation Management Plan through the issuance of a 5-year Order of Conditions (Order). Pursuant to the regulations at 310 CMR 10.05(6)(d), "the issuing authority may issue an Order for up to 5 years where special circumstances warrant and where those special circumstances are set forth in the Order." Special circumstances are warranted in this instance since controlling invasive species will be performed to maintain safe recreation access from the State's property, enhance the open water habitat in the lake and increase edge habitat.

Nuisance aquatic vegetation and algae management projects are typically filed under the Limited Project status [310 CMR 10.53(4)]. The objective of this project is to control non-native and invasive species at the State Beach through a combination of physical techniques with application of USEPA / MA DAR registered aquatic herbicides. A basis for EPA registration is that these chemicals do not pose an unreasonable adverse risk to human health or the environment when applied by professionals in accordance with the label directions. Based on the chemistry of the particular herbicide being used, along with the chemical dose, timing and method of application, these herbicides can be reasonably selective for the targeted plant species.

Controlling invasive species will typically not adversely affect wildlife habitat and will not negatively impact other interests of the Massachusetts Wetlands Protection Act. No significant alteration to wetland resources areas will occur as a result of the proposed management program; instead the resource areas will be enhanced by controlling the invasive species growth. The proposed management activities are consistent with the guidelines in the following documents:

- Final Generic Environmental Impact Report: Eutrophication and Aquatic Plant Management in Massachusetts (June 2004)

- Guidance for Aquatic Plant Management in Lakes and Ponds: As it Relates to the Wetlands Protection Act (April 2004 – DEP Policy/SOP/Guideline # BRP/DWM/WW/G04-1).

Proposed chemical applications will be performed by Aquatic Control's Licensed Aquatic Applicators after the receipt of an approved DEP- Office of Watershed Management (OWM) License to Apply Chemicals. A copy of the approved DEP License will be provided to the Commission before the chemical application proceeds.

RECOMMENDED MILFOIL TREATMENT PROGRAM

Due to the expansive milfoil infestation in the waters directly abutting the State Beach in Cochituate State Park, a management program utilizing a combination of chemical and non-chemical in-lake management techniques is needed to achieve and maintain control of non-native milfoil in order to provide safe recreational access to the lake. Although the management program will rely on the use of an aquatic herbicide, the DCR is committed to long term management of the area and intends to utilize diver hand-pulling and benthic mats to prolong acceptable milfoil control.

The DCR is requesting approval to selectively control an area of milfoil growth in Middle Pond, totaling approximately 5 acres (see Figure 4 – Site Plan). The primary control method proposed is area specific application of the USEPA/State registered herbicide Reward. Treatment will be performed in early-mid May (tentatively May 4-8, 2009) before the public beach area is opened for the summer (May 24, 2009), but will be contingent on milfoil growth and water temperature, as treatment is most effective during phases of active growth and in water temperatures above 50° Fahrenheit. Early season treatment also allows for superior selectivity as many native plants will not have begun to grow.

Reward®

The USEPA/MA registered herbicide Reward® (Diquat dibromide) will be applied to the treatment areas at or below the permissible label dose. Reward is a widely used herbicide, applied to >500 lakes and ponds annually, throughout the Northeast, to control nuisance submersed aquatic plants. Reward would be applied at an application rate of 1.0-1.5 gal/acre. Temporary water use restrictions for Reward are: 1.) No drinking or cooking for 3 days, 2.) No irrigation of turf for 3 days and on food crops for 5 days, and 3.) No livestock watering for 1 day. There are no restrictions on swimming, boating or fishing, but prudent herbicide/algaecide management suggests that we close Middle Pond on the day of treatment. The shoreline will also be posted with signs warning of the temporary water uses restrictions, prior to treatment.

Reward is translocated to some extent within the plant. Its rapid action tends to disrupt the leaf cuticle of plants and acts by interfering with photosynthesis. Upon contact with the soil, it is adsorbed immediately and thereby biologically inactivated. The concentration of Reward in treated water after application at the maximum label rate of 2 gallon/surface acre is approximately 0.37 ppm ion immediately after application. Residual Levels of Reward in water decline very rapidly after treatment due to the uptake by the weeds and adsorption to suspended soil particles in the water or on the bottom mud. Photochemical degradation accounts for some loss under conditions of high sunlight and clear water. Usually residues decline to 0.01 ppm or below with 3-14 days after treatment. This herbicide specifically affects the target plant species to be controlled and does not pose an unreasonable adverse risk to non-target species and wildlife when applied by professionals in accordance with the label directions.

During application the concentrated liquid herbicide will be diluted with lake water in tanks on-board the sprayboat and then be evenly injected through weighted hoses using a calibrated spray system. Injecting diquat subsurface ensures maximum contact with the targeted milfoil plants and eliminates potential for aerial spread of diquat to non-target areas.

All herbicide applications at Lake Cochituate will be guided with GPS to ensure that herbicides are evenly distributed within the designated treatment area. Data collected pre-treatment will be used to establish the extent of the treatment area which will created using GIS mapping technology. The treatment area will be loaded into a Differential GPS unit (accuracy plus/minus one meter) that will be used on-board the spray craft to provide real-time, sub-meter accuracy for navigation during the treatment to insure even application of the herbicide. Aquatic Control is unique in New England with this precise/accurate approach to pond/lake treatments.

Prior to any application at Lake Cochituate Pre-treatment notifications will be drafted and submitted to the DCR and Natick Conservation Commission for distribution to the local media outlets. Aquatic Control will post the shoreline and any access points to Middle Pond with pre-printed, brightly colored signs that warn of the pending treatment and the associated temporary water use restrictions. Signs will also be posted at each of the connections between the lake basins restricting boat traffic to Middle Pond on the day of treatment. The State boat ramp will also be closed on the day of treatment.

All chemical applications will be performed by Certified Applicators. The USEPA/MA registered aquatic herbicides will be applied at recommended label rates, in accordance with the "Order of Conditions" and DEP "License to Apply Chemicals" permits. A site specific "License to Apply Chemicals" for the proposed treatment will be filed with Massachusetts DEP, Office of Watershed Management.

Comprehensive pre and post-treatment inspections (tentatively late April and mid/late September, respectively) will also be performed to produce a distribution map of the milfoil and secondary species in the treatment area. This will be completed by inspecting the treatment area recording the plant type, coverage and biomass (height through the water column). Plants will be surveyed visually from a boat. A throw-rake will be used to collect submersed species and an Aqua-Vu Underwater camera system will be used to confirm the plant coverage. The field survey data will be used to create Year-End Report to be suited to the Natick Conservation Commission by December 15, 2009.

FOLLOW-UP MILFOIL MANAGEMENT – 2010 and Beyond

The actual longevity of milfoil control with Reward varies but generally only season-long control is anticipated. Although it is not uncommon to see a reduction in plant cover the year following treatment with diquat long-term control is not typically achieved so some form of annual maintenance will be required to maintain desirable milfoil densities at the State Beach.

Although specific thresholds for triggering follow-up milfoil management strategies have not been finalized, we would suggest the following criteria as a general guideline. While

the criteria below are helpful to use as guidance, these criteria are not a substitute for field inspections and professional judgment to make such final recommendations as to which strategy should be used for milfoil management in a given area.

SCUBA Hand-pulling	Between 1 and 5% milfoil cover (<500 -1,000 stems per acre)
Herbicide Treatment (Reward)	> 5% milfoil cover over one contiguous acre or larger area

SCUBA Diver Hand-Pulling – In the years following treatment a SCUBA diver hand-pulling team, to be utilized at the mutual discretion of Aquatic Control and the DCR, will be deployed to remove areas of scattered milfoil re-growth. The diver hand-pulling crew will likely consist of two SCUBA divers, a support boat and a Field Technician to drive the boat, collect plant fragments and handle the disposal of milfoil for the divers. All diver hand-pulling work would be performed in direct consultation with the DCR. ACT has performed considerable diver hand-pulling of milfoil for a number of different clients, including work at Wachusett Reservoir for MWRA and other work for MA DCR.

Treatment – 2010 and Beyond – Based on our experience with both Reward and Eurasian watermilfoil we anticipate the need for additional herbicide applications in the future. The DCR requests the Natick Conservation Commission conditional authorization for annual herbicide applications with Reward in order to maintain desirable milfoil densities at the State Beach.

ALTERNATIVE METHODS OF AQUATIC VEGETATION CONTROL

The following section serves to briefly outline and evaluate other commonly used lake management techniques and their applicability for the situation at Lake Cochituate.

Mechanical: Not Recommended

While mechanical harvesting and hydro-raking can be effective at temporary control of milfoil these methods are generally not considered preferred options because milfoils principal means of reproduction is vegetative fragmentation. A single reproductive milfoil fragment is capable of multiplying into many new plants in one year; therefore, the cutting and breaking of the plants, which is often a result of mechanical techniques, would likely increase the plants potential for spreading elsewhere in the Lake. Although harvesting could likely provide temporary control of milfoil in Lake Cochituate, it is estimated that acceptable control of milfoil in the targeted management area could only be achieved with multiple cuttings (3-4) per year. A management program this intensive is very labor intensive and costly (up to five times the cost of herbicide treatment). Further, although harvesting is perceived by the public as a more "environmentally friendly" control measure, repeated harvesting may result in the removal of aquatic invertebrates, small fish and potentially other pond inhabitants.

Physical: Not Recommended

Physical controls, such as benthic (bottom) weed barriers, are effective for small dense patches of nuisance vegetation in swim and dock areas, but are not cost effective for larger areas. Costs for materials and installation are very costly at approximately $45,000/acre or more. Although bottom barriers may be considered and used at Lake Cochituate for small areas of dense milfoil re-growth, over-reliance on bottom barriers may prove costly, as they often require annual or bi-annual maintenance to remain effective. Typically maintenance involves removing, cleaning, and reinstalling each individual barrier. Further, bottom barriers inhibit the growth of all aquatic plant species, including more desirable native plant growth which in the long-run can serve to block-out and compete with other undesirable species such as milfoil.

Biological: Not recommended

Although the use of milfoil weevils (*Euhrychiopsis lecontei*) to gain control of milfoil has been studied and employed extensively, results have been mixed and most often did not significantly reduce milfoil densities. Further, the use of milfoil weevils has not proved effective in providing area specific control as is proposed in this management program.

Triploid grass carp are sometimes used to control submersed weeds, however the carp are indiscriminate feeders and will often decimate the entire plant community as well as exacerbate nuisance algae blooms. For these reasons, grass carp are currently not permitted for use in Massachusetts ponds and lakes.

No Management Program: Not Recommended

If the milfoil growth is not managed in the area of the State Beach, dense milfoil growth will pose a threat to swimmer entanglement and increase the potential for spread of non-native milfoil to other nearby waterbodies through transport from exiting watercraft. Dense milfoil growth in the area will further limit suitable edge habitat for foraging game fish and open water habitat for other fish and wildlife.

MASSACHUSETTS WETLANDS ACT

Below is a discussion of the proposed Aquatic Management Program (mechanical and hand harvesting) with regard to the specific interests of the Massachusetts Wetlands Protection Act.

Public and Private Water Supply

Lake Cochituate is not used directly as a drinking water supply although the eastern shoreline is designated as a Zone II wellhead protection area. Based on the specific properties of the proposed diquat herbicide and its minimal potential for migration through soils the proposed herbicide treatment of this 5 acre area in Middle Pond poses a negligible risk to the public water supply served by the Evergreen wellfield. The proposed treatment area is approximately 300 ft from the Zone II boundary and over 900 ft from the Evergreen wellhead (see Figure 5). Further, all homes around the shoreline are served by town water and no shoreline abutters have permits to draw water directly from the lake.

Protection of Groundwater Supply

According to available studies, there is no reason to believe that the groundwater supply will be adversely impacted by the application of the chemicals at the proposed rates to Lake Cochituate. MA DEP will only issue a License to Apply Chemicals for products that are approved for use in Zone II Wellhead Protection Areas. Contamination of groundwater by aquatic herbicides is limited by the low rate of application and their rapid rate of degradation and uptake by target plants. Aquatic Control's State licensed applicators take all necessary precautions when mixing and disposing of all chemical containers.

Flood Control and Storm Damage Prevention

No construction, dredging or alterations of the existing floodplain and storm damage prevention characteristics of the lake are proposed.

Prevention of Pollution

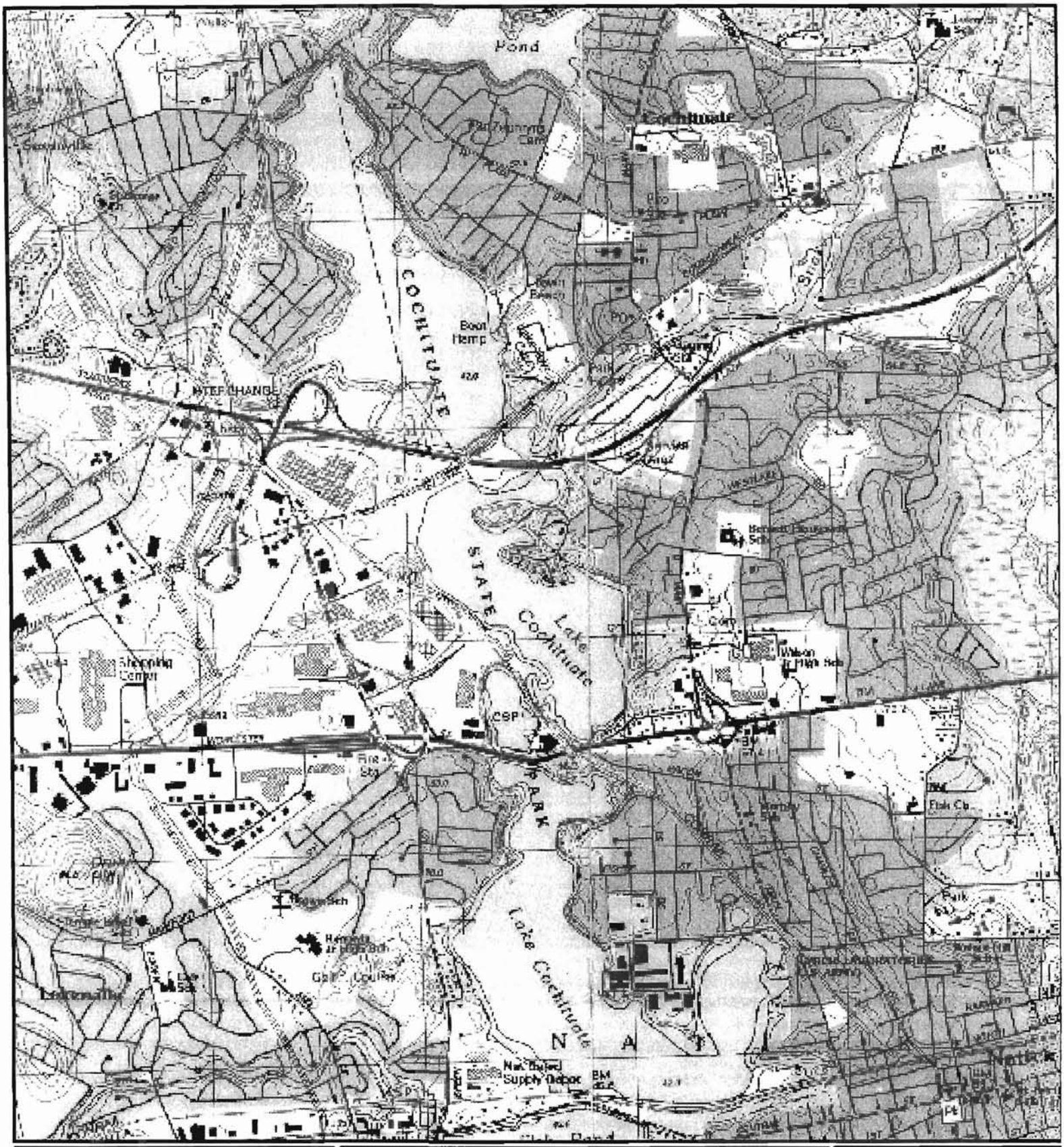
No degradation of water quality or increased pollution is expected by the application of the proposed herbicides. Although decaying plants do release nutrients into the water column, the area affected by treatment is too small to cause any significant increase in available nutrients at a lake-wide scale.

Protection of Fisheries and Shellfisheries

The contiguous, dense bed of milfoil provides poor habitat for most species of fish and restrict access for fishermen. The proposed treatment, albeit limited in size, will help to create edge habitat beneficial to foraging game fish and will provide important open-water habitat for other fish and wildlife in the area.

Protection of Wildlife and Wildlife Habitat

In general, excessive and abundant plant growth provides poor wildlife habitat for fish and wildlife. The proposed management plan is expected to help prevent further degradation of the waterbody through excessive weed growth and improve the wildlife habitat value of the managed area of the pond in the long-term, as native plants become established, once again.



Lake Cochituate

Framingham, Natick & Wayland

USGS Site Locus

FIGURE:	SURVEY DATE:	MAP DATE:
1	--	9/10/09

Legend:

N

0 500 1,000 2,000 3,000 4,000 5,000 Feet

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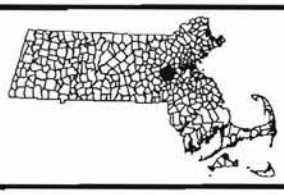

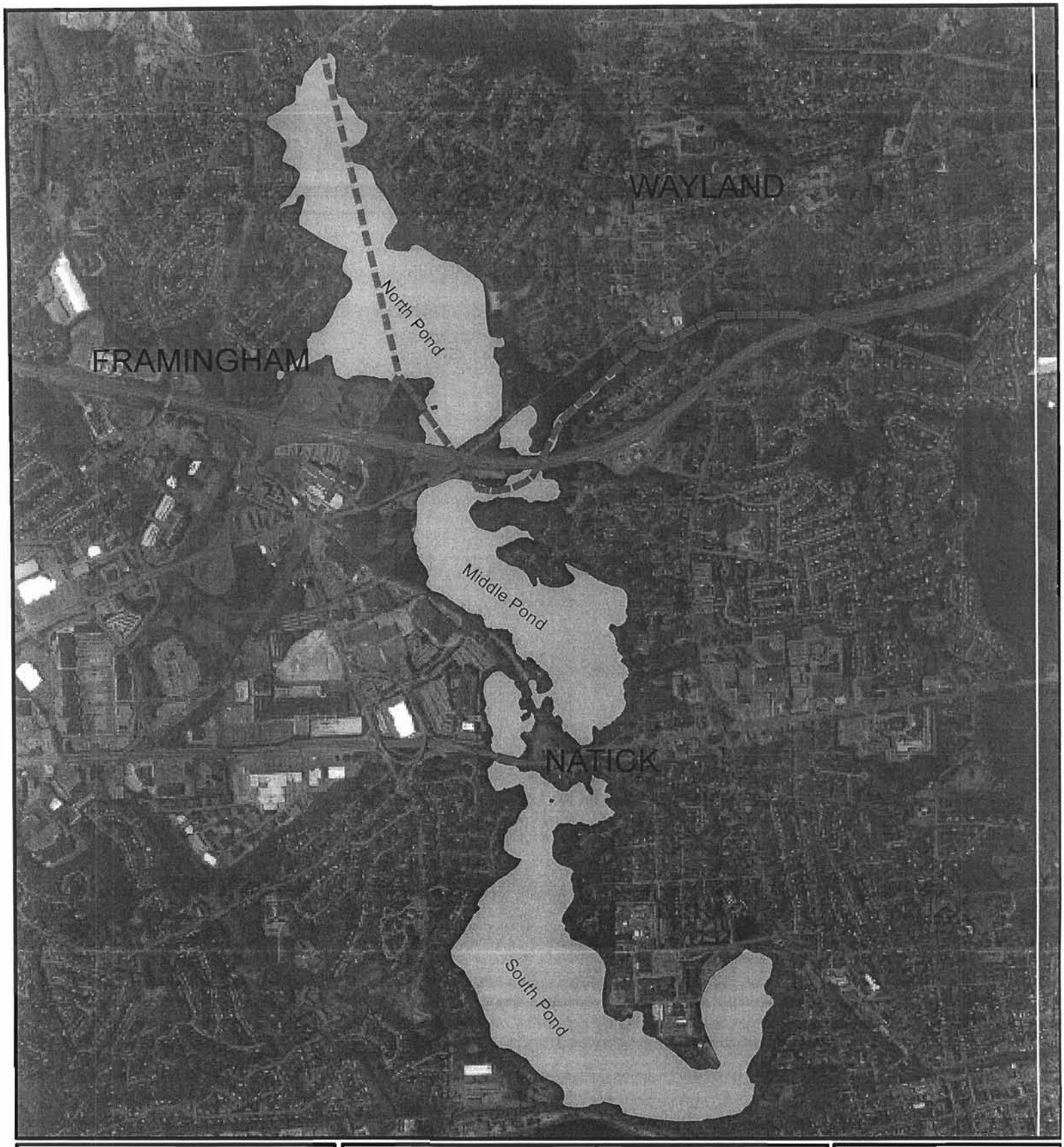

Lake Cochituate

Framingham, Natick & Wayland

Site Map

FIGURE:	SURVEY DATE:	MAP DATE:
2	--	9/10/09

Legend:

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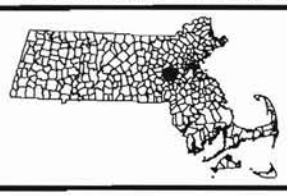

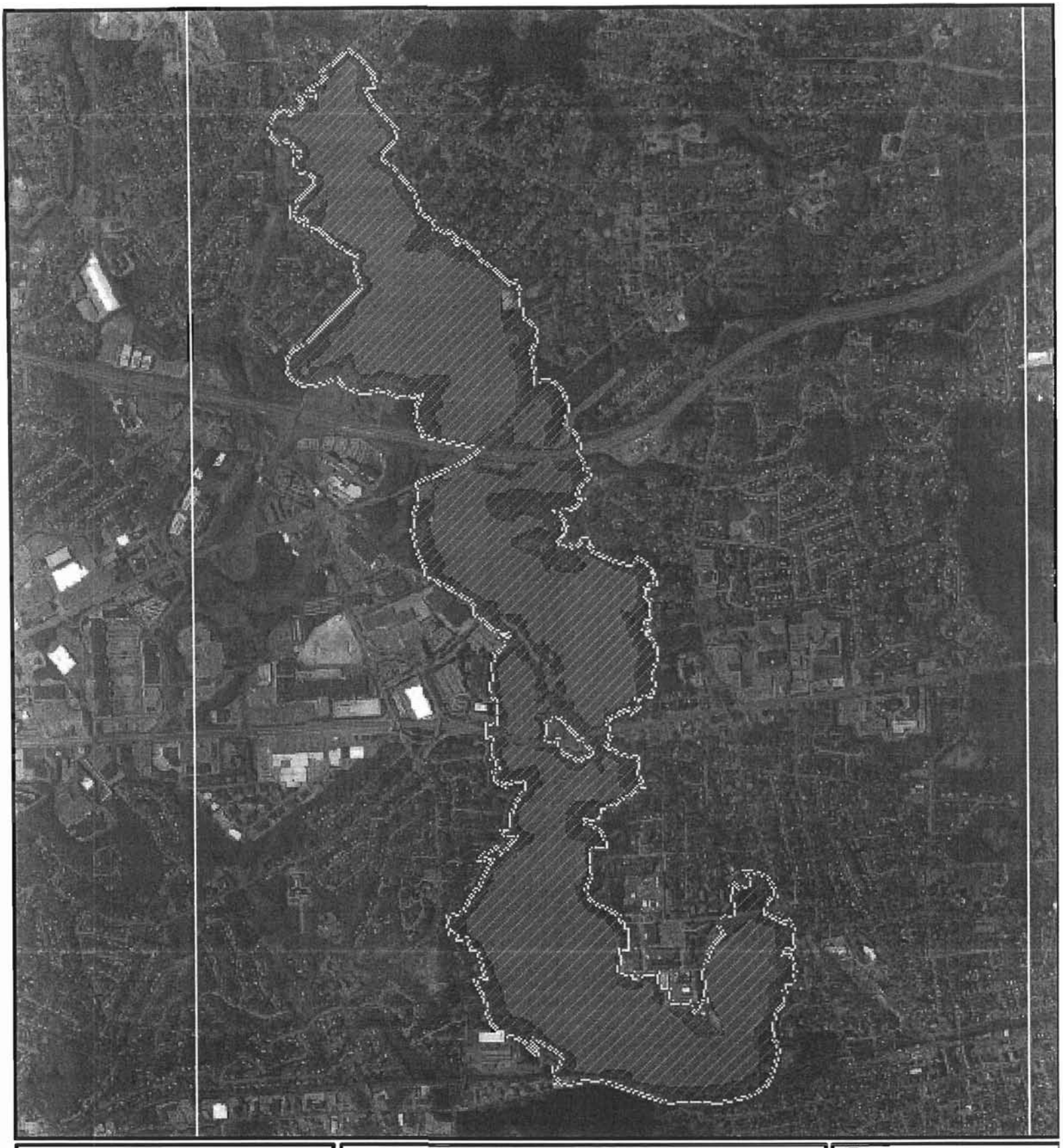

Lake Cochituate

Framingham, Natick & Wayland

NHESP Estimated and Priority Habitat

FIGURE:	SURVEY DATE:	MAP DATE:
3	--	2/10/09

Legend:

NHESP 2008 Priority Habitats of Rare Species and also Estimated Habitats of Rare Wildlife

NHESP 2008 MA Priority Habitats of Rare Species

N

0 500 1,000 2,000 3,000 4,000 5,000 Feet

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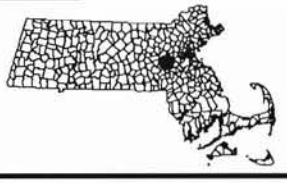

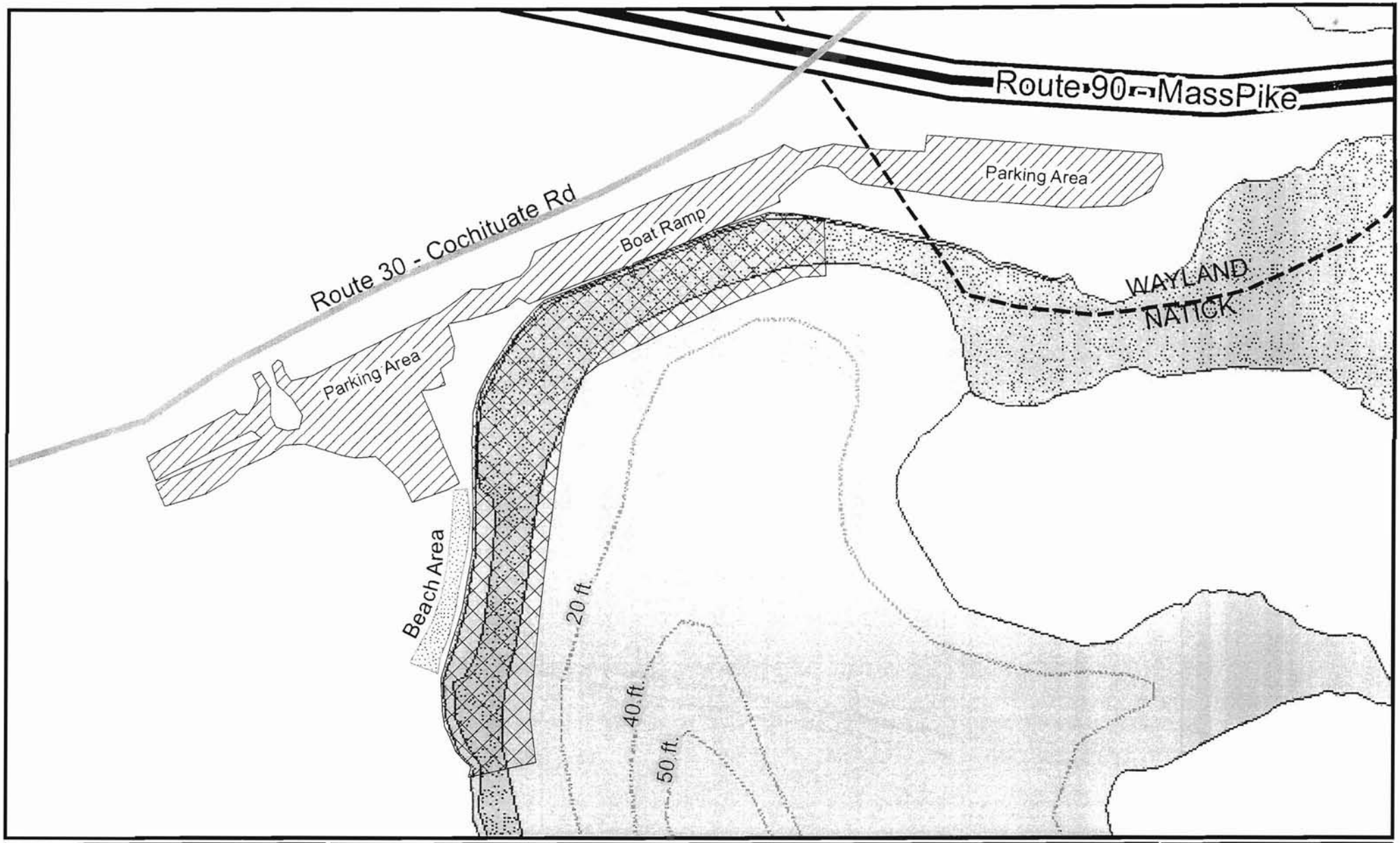

Lake Cochituate
Middle Pond
Natick, MA

Site Plan

FIGURE:	SURVEY DATE:	MAP DATE:
4	--	2/10/09

Legend:

Estimated extent of managment area

Extent of milfoil growth

N

0 150 300 600 900 1,200 Feet

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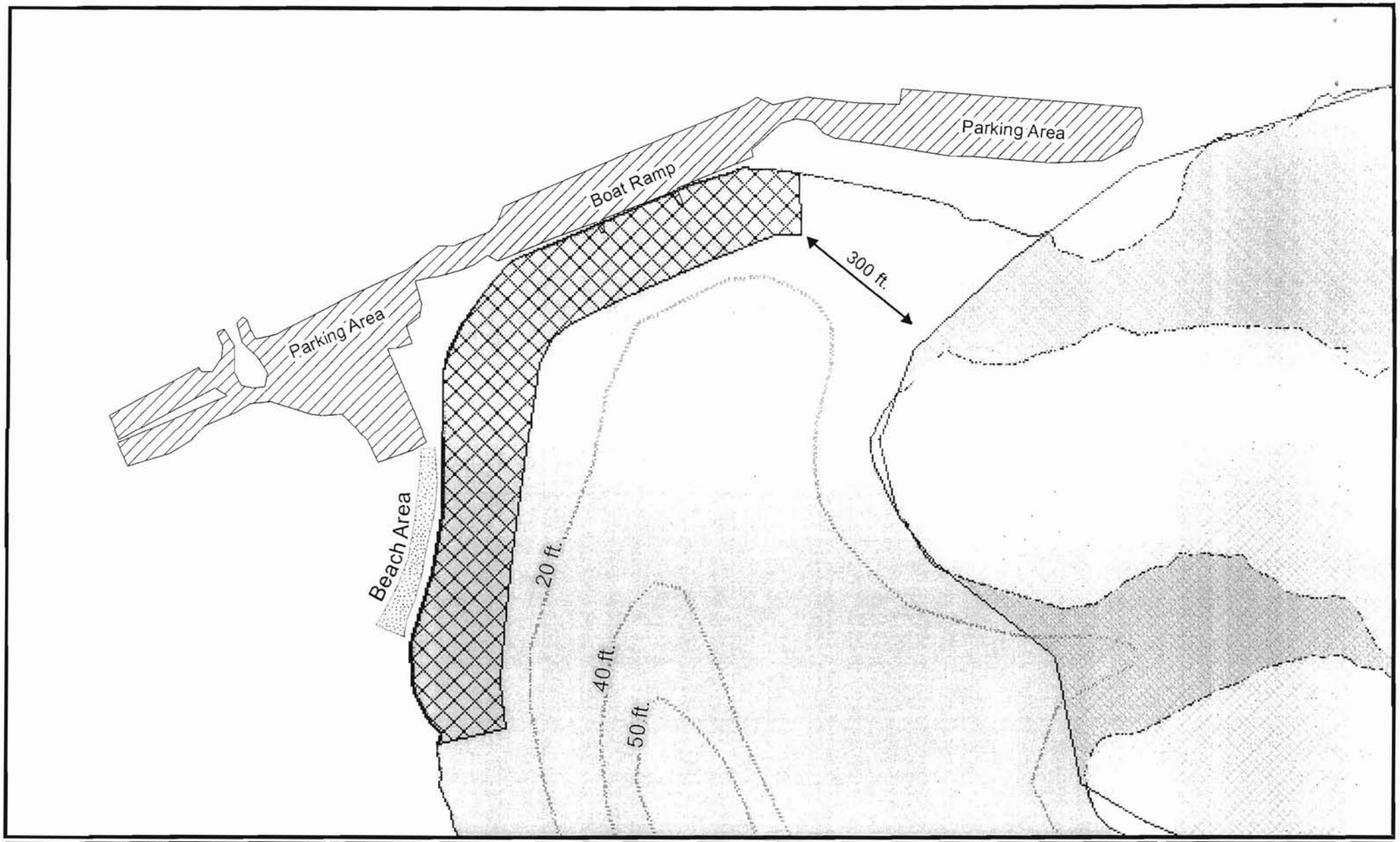

Lake Cochituate
Middle Pond
Natick, MA
Zone II Map

FIGURE:	SURVEY DATE:	MAP DATE:
5	--	2/10/09

Legend:

Estimated extent of managment area

Extent of Zone II Wellhead Protection Area

N

0 125 250 500 750 1,000 Feet

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