FOUR MILE POND MANAGEMENT PLAN

NOVEMBER 1, 2015

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I. POND DESCRIPTION AND BACKGROUND INFORMATION

Four Mile Pond in Boxford Massachusetts is a 54 acre fresh-water partially spring-fed pond. Four Mile Pond is a Massachusetts Great Pond, which is defined as any pond or lake that contained more than 10 acres in its natural state. Recreational activities include wintertime ice skating, hockey, and cross-country skiing. Spring, summer, and fall allows for kayaking and canoeing and fishing for bass, sunfish, pickerel and perch. The depth of Four Mile Pond in its center is approximately 25 feet. The pond is roughly 800 feet wide and 1900 feet at its longest and is easily seen from the road near Herrick Street and High Ridge Road.

Upstream water flows from Spofford Pond (27 acres), under Ipswich Road (culvert) into the Wildcat Conservation area (319 acres), under Herrick Road (culvert), into Mill Brook located along the Alpers Woods (20 acres) boundary, then runs downhill into the north-west end of the pond. The Alpers Woodlot, a BTA/BOLT property, offers public access along Herrick Road.

Water flows out of Four Mile Pond at its east end into Pye Brook. The Pye Brook area between the formal end of Four Mile Pond and Georgetown Road is an interesting natural area of marshes frequented by many species of birds including great blue herons, ducks and redwing blackbirds. This section of Pye Brook can be navigated in a canoe or kayak however it does get shallow making paddling somewhat challenging during lower water periods. Pye Brook continues to an approximately 15 foot concrete dam located immediately west of Georgetown Road, then travels under Georgetown Road (culvert) downstream into Lowe Pond (30 acres). Slotted boards and a release drain at the dam afford a means of regulating water levels in Four Mile Pond.

Four Mile Pond has ___ direct abutters including the Alpers Woods conservation land (14 acres) and Four Mile Village. The Pye Brook marsh area is bounded by High Ridge Road and Batchelder Road with nine (11) abutters and is a great habitat for bird watching.
(See the Abutters/Interested Persons List attached.)

II. POND GROUP MEMBERSHIP INFORMATION

1. Abutters List and Contact Information. Persons interested in or otherwise affected by conditions at Four Mile Pond include direct Pond abutters as well as property owners along the Pond's outlet. This includes residents along Herrick Road, High Ridge Road, Appleton Lane, Fieldstone Way and Batchelder Road. (See attached Four Mile Pond Map). It is noted that while no Batchelder Road residents own Pond-front property, high water flows from the Pond can result in flooding and damage to their properties. Moreover, a fire pond at Batchelder Road can be adversely affected by low Pond water levels. A current list of interested/affected parties and contact information is attached to this Plan.

2. Pond Group Membership. Acknowledging that this Plan will be ineffective without a group of interested citizens to support and administer it, all interested persons identified in the attached list are invited to become active members of the Four Mile Pond Group. The overall purpose of this Group will be to monitor Pond conditions and, when necessary, take appropriate action to serve the best interests of the Pond and Pond Group based on a clear consensus of the Group, as further described in this Plan. This Group may assume a more formal legal structure, e.g. a Not-For-Profit Corporation registered under IRC §501(c)(3) or other form, based on the consensus of its members.

3. Meetings. At an initial, organizational meeting of interested parties, the Pond Group will determine the frequency of it meetings and the notification method for calling regular and emergency meetings. The organization meeting will also address the designation of a Pond Group Representative who will assume the responsibility of: maintaining the Pond Group membership list and contact information; issuing meeting notices; coordinating the actions and activities of the members; and serve as the point of contact with members of the Pond Group, with the Boxford ConsCom and, when necessary, the Dam owner.

III. POND LEVEL MANAGEMENT

A variety of natural, seasonal and human factors can influence the volume of water in Four Mile Pond. These factors include:

- Precipitation
- Evaporation
- Snow melt and spring runoff
- Contributing springs and intersecting groundwater
- Upstream passage impediments (culvert or stream blockage)
- Beaver activity (upstream and downstream)
- Abutters' water withdrawals (to the extent private wells affect the watertable)
- Dam adjustments (removal or restoration of boards)

Optimal water levels are preferred during periods of highest recreational use, which normally occurs from May through October. In any given year those optimal levels may prove to be elusive due to one or more of the referenced factors. Obviously not all of these factors can be humanly adjusted but to the extent they can, it is important that Pond abutters reach a consensus as to level adjustments and the means of doing so. In addition, simple vigilance and pro-active

responses to conditions such as beaver activity or upstream blockages may facilitate the objective of maintaining water levels that the abutters prefer.

POND GROUP ACTIONS: Establish a single point of communication within the Pond Group for abutters' requests or complaints concerning the Pond (including, in particular, water levels) and a means of communicating those requests or complaints to the Pond Group. Address requests and complaints with the Pond Group to achieve consensus. Establish a routine inspection protocol to check upstream water sources, identify impairments (blockages, beavers etc.) and to report same to the ConsCom and the Town's DPW.

IV. DAM OPERATION & MAINTENANCE

1. Description. The Four Mile Pond Dam situated at the east end of the Pond is classified by the state of Massachusetts as a Low Hazard, Intermediate sized dam under 302 CMR §10.06 (2), (3). The Dam was reconstructed in 1980-81 as a concrete structure under and Order of Conditions and repaired in 2010 under a further Order of Conditions. Presently the Dam owner is in compliance with state inspection requirements and no Certificate of Non-Compliance is outstanding with respect to the Dam under MGL c.253 §46A, 302 CMR §§10.07, 10.08. As provided under MGL c. 253 §48B and 302 CMR §10.13, the owner of a dam is responsible for liability for damage to property of others or injury to persons, including but not limited to loss of life, resulting from the operation, failure of or miss-operation of a dam. These legal obligations place a significant responsibility on the Dam owner to ensure that the Dam is properly maintained and operated. The commitments of the Dam owner to the Town of Boxford are reflected in the Dam Management Plan attached.

2. Pond Raises and Drawdowns. The activity with the most immediate effect of raising or lowering water levels is adjustment to Dam releases. From time to time boards placed in the Dam have been removed or inserted and a water release drain adjusted, affecting the Pond's water level. In some instances these actions were undertaken by the owner. In other cases action has been taken by persons other than the owner, and perhaps through acts of vandalism. Based on a September 14, 2015 Enforcement Order of the Boxford Conservation Commission, the Town has confirmed that changes to Pond water levels by adjustment to the Dam require a permit. Specifically, in the case of drawdowns from a Great Pond, a permit from the DEP is required unless a preexisting license addresses that activity (MGL Chapter 91; 310 CMR §9.05(2)(e)).

3. Communications and Cooperation. Water level adjustments desired by any abutter require the cooperation with the Dam owner and consensus among the abutters, with simple, timely and direct lines of communication. The Dam owner should not be burdened with multiple (and sometimes conflicting) requests for adjustment at the Dam. To ensure cooperation and consensus, the Dam owner has agreed that no adjustments to the Dam will occur unless the owner has first issued at least a 10-day notice to the ConsCom. Such notice will enable the

ConsCom to contact the Group's Representative for Pond Group input on the intended adjustment. Conversely, the Representative will serve as a single point of contact for adjustments initiated by the Pond Group that may be communicated to the Dam owner through the ConsCom. If appropriate, the Representative or Pond Group will meet with the ConsCom and/or Dam owner to discuss any concerns. The intent of this procedure is to inform abutters of the rationale for the raise or drawdown and to garner a consensus between the Dam owner and abutters before any required permit application is submitted to the appropriate authority and otherwise before the actual adjustment takes place. In the event of disagreement, the owner may proceed to apply for the permit and the abutters will be left to voice any objections to the Conservation Commission, Town of Boxford or the DEP, as applicable.

POND GROUP ACTIONS: Designate its Representative to interact with the ConsCom and Dam owner as a single point of contact to communicate requests for level adjustments. Arrange meetings as appropriate with the ConsCom and/or Dam owner to discuss intended actions. Support the intended action before the Town, ConsCom and/or DEP, when justified. In the event any state-required inspection of the Dam mandates improvements or maintenance that is capable of being implemented through the hands-on assistance of the Pond abutters, efforts will be made by the Pond Group to organize a work group to aid the Dam owner at no cost to the owner.

V. AQUATIC WEED CONTROL

Several native and invasive species of aquatic weeds are present in Four Mile Pond. Depending upon weather and water conditions, weed growth can become dense and impair water access and recreational use. To the extent it is determined that weed growth needs to be managed, there are several alternatives that may be considered.

Pond Drawdown. Lowering the water level of a pond is a method, when properly deployed, to control nuisance aquatic plants. Pond drawdown, during the winter months, exposes weeds to harsh conditions including freezing, desiccation (drying out), strong wind action, and bottom sediment compaction. In addition, frost heaving of the bottom sediments uproots the weeds and aids in their destruction. To insure effective over-winter control, the bottom muds should freeze to a depth of 4 inches for several weeks or longer. Pond levels are then restored at ice-out when water and snow runoff begin to contribute to water volumes.

Overwinter drawdown is especially effective against cattails, but some weed species are not controlled by this method. Vegetation exposed by lowering the water level should be collected and removed from the pond basin, or the rotting plants will contribute nutrients that promote new growths when the water level is raised.

Managing Phosphate and Nitrogen Loading. The presence of phosphorous and nitrogen in ponds can accelerate the growth of aquatic weeds and algae, particularly when combined with sunlight and elevated water temperatures. While these nutrients are naturally occurring, human activity including lawn and garden fertilization (and accompanying runoff), seepage from aging septic systems and pet traffic, can significantly elevate nitrogen and phosphorous loading. The use of

low-nitrogen fertilizers and low or non-phosphate detergents are recommended particularly by Pond abutters. An evaluation and testing of current septic systems for leaks and general septic efficiency is encouraged.

Manual Removal. Although labor-intensive and time-consuming, the physical removal of aquatic weeds can be an effective short-term solution to excessive weed growth. However, such removal may not prevent weed re-growth if root systems are not also removed. In addition, waste materials, which can be substantial, need to be disposed of properly as decaying aquatic weeds can add to the Pond's nutrient load.

Herbicides. In extreme cases control chemicals are used to reduce weed populations on ponds. This is an expensive alternative that needs to be repeated over a period of years to be effective requiring special licensing and certified professionals.

POND GROUP ACTIONS: Any attempt to manage aquatic weeds at Four Mile Pond needs to be discussed by the Pond Group in consultation of the Boxford Conservation Commission. Pond abutters who are not active in the Pond Group need to be notified of the intended management activity. AQUATIC WEED REMOVAL IS LIKELY TO REQUIRE A PERMIT ISSUED BY THE TOWN OF BOXFORD / BOXFORD CONSCOM IN ADVANCE OF THE REMOVAL ACTIVITY.

VI. WATER QUALITY MONITORING & IMPROVEMENT

A principal indicator of the health of any pond is the quality of its water. In the absence of water quality monitoring, physical observation provides very assessment of pond health. In addition, monitoring information offers insight into slowly emerging threats and may serve to pinpoint sources of external pollution and nutrient loading.

Conventional water assessment tools include the following measurements:

- Temperature
- pH (indicator or level of acidity)
- Dissolved oxygen (indicator of levels of oxygen in water, critical to fish health)
- Turbidity (measuring water clarity)
- Nitrates (nutrient concentration levels)
- Phosphates (nutrient concentration levels)
- Coliform Bacteria

Test kits are available to take these measurements by interested parties or a professional may be engaged to take periodic readings or to evaluate samples. It is important that a baseline of these measurements be captured at certain critical times of the year (Spring/Summer/Late Fall) so that changes against the baseline can be measured. Such historical data can be critical in identifying threats to pond health before they become unmanageable.

POND GROUP ACTIONS: The Pond Group will consider to what extent and by whom measurement of any of the foregoing indictors will be taken. To the extent baselines are developed and repeat measurements are taken, the data will be retained by the Pond Group and shared with Boxford's ConsCom.

VII. SHORELINE EROSION

Limiting the inflow of sediments into a pond is an important tool in pond management. Excessive inflow can contribute to turbidity and nutrient loading, particularly from adjoining lawns and flower beds. Pathways and parking areas can become degraded and expand slowly into adjacent native growth. Shorelines can become denuded of native vegetation which are important for filtration and absorption of nutrients.

While Four Mile Pond has very limited public access, that point of access as well as shoreline locations where erosion may be present, should be assessed and monitored on a regular basis. To the extent erosion threats exist, they should be addressed in a community-minded cooperative basis.

POND GROUP ACTIONS: The Pond Group shall determine whether a survey of the Pond's shoreline needs to be taken to identify conditions that may enable sediments to flow into the Pond, particularly during heavy rain events and spring runoff. To the extent such a survey is taken, results of the survey are to be retained by the Pond Group and shared with the Boxford ConsCom. Because conditions in and around the Pond may change over time, and annual survey may be necessary.

VIII. GOALS & OBJECTIVES

The immediate objective of this Plan is the formation of a cohesive group of Pond abutters who will work in a cooperative and responsible manner to identify and manage natural and artificial threats to Four Mile Pond. The long-term objective of this Plan is to establish a consistent means of monitoring the health of the Pond so that pro-active measures may be taken to curb or prevent conditions that may adversely affect recreational use, water volume, water quality, wildlife, and other environmental conditions in and around the Pond.

Goals set out in this Plan, particularly under the heading “Pond Group Actions” are repeated here as follows:

1. Identify one point of contact for communication with the dam owner for level adjustments and other dam-related matters.

2. Establish a protocol for regular inspection of upstream conditions and water passage.

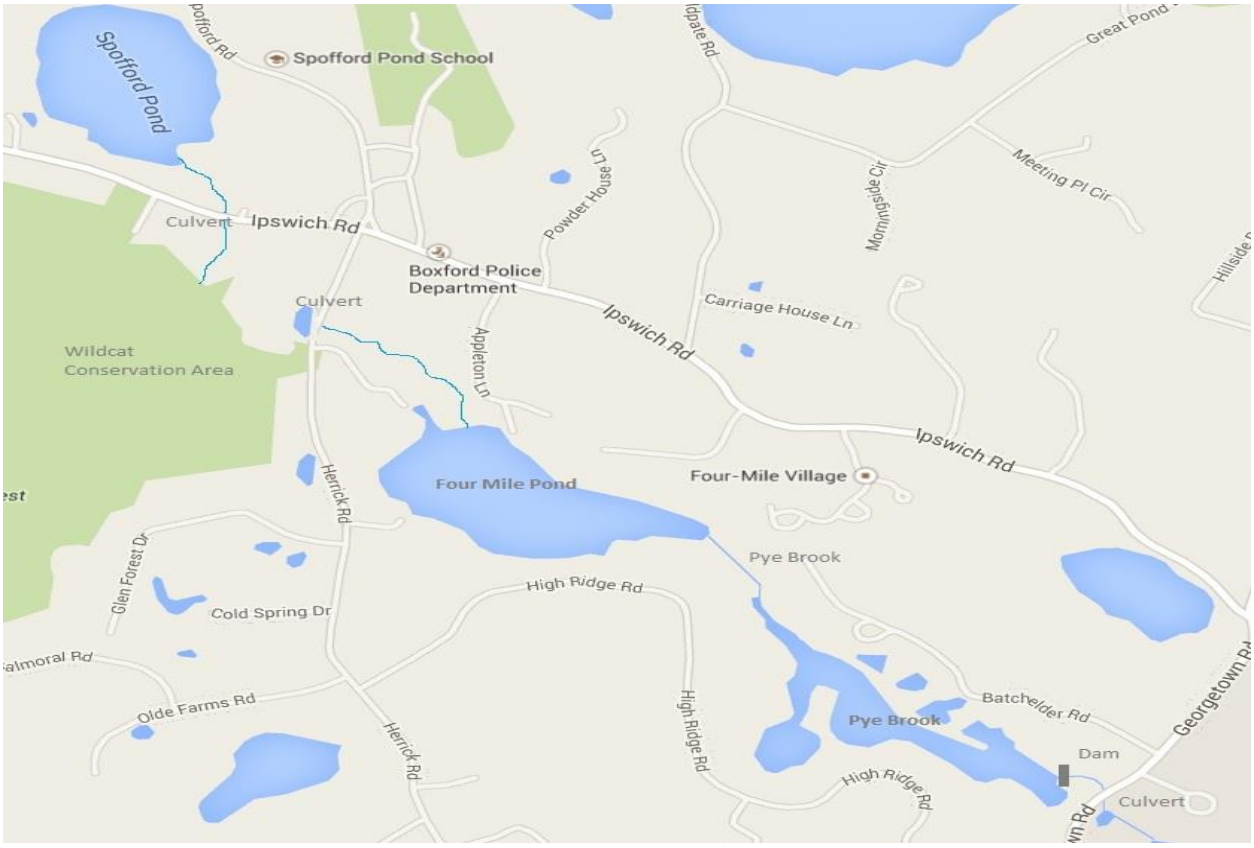
3. Establish a dam maintenance team to assist the dam owner in maintaining the dam.

4. Establish a consensus among abutters on aquatic plant management include if, how and when such management should occur.

5. Establish a protocol for monitoring pond water quality measurements.

6. Establish a survey protocol for regularly inspecting Pond shoreline and erosion concerns.

Four Mile Pond Map



DAM MANAGEMENT PLAN

This Dam Management Plan has been prepared in response to the September 14, 2015 Enforcement Order of the Town of Boxford's Conservation Commission. The undersigned, as owner of the Four Mile Pond Dam (Parcel No. 1d) agrees to the following management steps:

1. Periodically inspect the Dam and submit timely inspection reports as required under 302 CMR §10.07.

2. Allow a representative of Pond abutters (the "Representative") to periodically examine the Dam for conditions that may affect its proper function, including beaver activity or other obstructions, provided that the Representative timely reports any adverse conditions to both the undersigned and to the Conservation Commission (the "ConsCom").

3. Not cause the raising or lowering of the water level in Four Mile Pond by installing or removing boards at the Dam, manipulating the Dam's drain or other activity (each an "Adjustment") until the following action has been taken:

A. Notify the ConsCom of an intended adjustment of the Dam at least ten (10) days before the Adjustment, or in the event of an emergency, as soon as possible. Notification may occur by telephone, email or face-to-face meeting.

B. Receive an acknowledgement from the ConsCom that the notification has been received.

4. In emergency situations, comply with the requests of the Town's Police and Public Works Departments for Adjustments to protect persons and properties.

5. Secure the necessary permit(s) and issue any notifications that may be required by state or Town authorities with respect to the drawdown of water from Four Mile Pond that will result from Adjustments made at the Dam, including those arising under 302 CMR §10.09, 310 CMR §9.05 and 310 CMR §10.00.

6. Advise the Representative of any required Dam improvements or modifications that may be completed in part or in whole by manual assistance from the Pond abutters.

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Charles Killam