

Friends of Leverett Pond
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February 14, 2023

Mr. Adam Kohl
Administrator
Leverett Conservation Commission
PO Box 300, 9 Montague Road
Leverett, MA 01054

Annual Proposal-Treatment Plan 2023
Friends of Leverett Pond, Inc. (FLP)
Leverett Pond Weed Management Project, Leverett, Massachusetts
DEP Wetlands Protection Act Permit 200-0196
Year #2

Dear Adam and LCC members,

As outlined in the Order of Conditions for DEP Permit 200-0196, use of herbicide treatment, mechanical equipment, and other weed removal efforts on Leverett Pond require the prior annual approval of the Leverett Conservation Commission (LCC) before such actions may occur. For that reason, this proposal details our aquatic weed management/treatment proposal for 2023.

The Friends of Leverett Pond (FLP), in the spirit of Integrated Pest Management practices (IPM), proposes to conduct nuisance aquatic weed management in 2023, as outlined in our permit application for Wetlands Protection Act Permit 200-0196. This treatment plan follows an herbicide treatment in 2022 that applied *ProcellaCOR* to treat milfoil (*Myriophyllum spicatum* and *M. heterophyllum*) over approximately 8 acres on the Pond. Because of the success of the 2022 herbicide application, **the FLP is not recommending herbicide treatment for milfoil this year.** Other IPM techniques proposed in the NOI (200-0196) include mechanical removal; benthic barriers; hand raking; and if warranted, SCUBA hand-removal. Because milfoil foliage was dramatically reduced in 2022 the risk of spreading the weed with mechanical methods is also reduced. FLP recommends the follow-up use of a mechanical harvester (preferably an Eco-Harvester™) or a hydro-rake to remove areas of regrowth of milfoil, and growth of other invasive plants such as Swollen bladderwort (*Utricularia inflata*), Curly-Leaf pondweed (*Potamogeton crispus*) and others. It is anticipated that in some areas Large Leaf Pondweed (*Potamogeton amplifolius*) will be entangled with invasives and will be removed. The same is true for Waterweed (*Elodea nutalli and canadensis*) in the Public Access pool. Large Leaf Pondweed invaded the pond in large volume in 2019 following two years of low-water (24 inches) and is now found throughout the Pond, especially in shallow water. NB According to Thomas Flannery of the Massachusetts Department of Conservation and Recreation (MDCR) this increase in pondweed has been observed in other ponds in the Commonwealth following

periods of long-term low-water. In Leverett Pond this weed has become monoculturistic in some areas outcompeting more beneficial native weeds. The low water was caused by a leaking dam that has since been replaced.

Pre-Treatment Aquatic Weed Surveys

Prior to the proposed mechanical treatment, two weed identification studies will be conducted in advance. They include:

- *Third-Party Annual Survey* - a pond-wide survey will be conducted by SWCA Environmental Consultants of Amherst. This will be a continuation of the survey conducted in 2022 and will be conducted just before the proposed mechanical treatment (probably mid- to late July). This late date will assure identification of the locations of milfoil as well as weeds that are visible later in the season such as bladderwort and curly-leaf pondweed.
- *FLP Annual Survey* - a weed identification study conducted by FLP at 38 locations (treatment areas and control plots) throughout the pond. This survey was begun in 2018 at the request of the LCC and has been conducted annually since then. These surveys (two annually) are conducted post-treatment and at the end of the season (usually late September).

Both surveys will provide information that will inform the mechanical treatment and document the effectiveness of the weed management program. **Prior to the treatment, FLP will provide the LCC with a map of treatment based on the two surveys.**

The total area of proposed mechanical treatment in the approximately 102-acre pond, is approximately 4-8 acres. A map of potential treatment areas is provided with this proposal. NB this map shows the areas *within which* the treatment may take place.

The treatment is planned for late July 2023

Proposed Treatment

This section covers the mechanical treatment portion discussed in a Notice of Intent (NOI) (MADEP 200-0196) proposed by the Friends of Leverett Pond (FLP) to take place within Leverett Pond, Leverett, MA (Figures 1 and 2) in 2023. The purpose of the project is to control invasive and nuisance aquatic vegetation in Leverett Pond and improve fish habitat. A secondary goal is to improve public access to the pond and recreation. Harvesting will take place as *weed conditions warrant*. The following activities are proposed to take place *within* the areas outlined in Figures 1 and 2 and *do not necessarily cover the whole area pictured*. Elevations of Ordinary High Water (OHW) (99.5ft) and Ordinary Low Water (OLW) (98.5ft) are adopted from DEP License #14591 and are requested by the MDEP Division of Waterways. All treatment will occur waterward of the OLW (one foot depth or more). Important components of the plan include the following:

- Use of an Eco-Harvester (Attachment 1) to pull regrowth of invasive weeds and some nuisance native weeds following the herbicide treatment of 2022 and as regrowth is observed. The area of coverage is 4-8 acres. Use of mechanical equipment will avoid repeated use of herbicides while causing minimal disturbance to the pond bottom and is also an important follow-up to the herbicide treatment of 2022. A mechanical harvester (or if permitted by the LCC a Hydro-Rake) may be substituted for an Eco-Harvester™ depending upon availability. The Eco Harvester uses a roller attachment to pull milfoil and other weed roots and detritus from past treatment, while also removing the foliage. This minimizes removal of sediment and sand and gravel from the bottom. The machine pulls the plants into a hopper via a conveyor belt, that when full will be transported to the shore for temporary deposition to dry.

Turbidity will be minimized by avoiding immediate harvesting adjacent to waterfronts or the public access pool that are immediately adjacent to an area that has just been treated. This will allow sediment to settle before the harvester moves on to adjacent areas. The harvester will move on to a distant area and complete that area before returning to the adjacent area. A mechanical harvester cuts the weeds up to approximately 5.5 feet below the surface and as with the Eco-Harvester™ pulls the plants into a hopper via a conveyor belt, that when full will be transported to the shore for temporary deposition to dry.

- Because Leverett Pond is categorized as a Great Pond (public waterbody) mechanical harvesting is considered “dredging” even though removal of bottom soils is not proposed. FLP has applied to the DEP Division of Waterways for a dredging permit and will have received it before the proposed weed treatment.
- Hand removal of recent growth of approximately 200 square feet of cattails (out of 3.5 acres [152,460 square feet] of cattails in this area) at the public access that now block a widely used picnic table for public use, and partially block freshwater input from the only perennial stream on the pond. This brook is also the intake for a now dry fire hydrant partially blocked by these plants (Figures 3 and 4).
- All harvested weeds and detritus after drying will be deposited in areas that are not in a wetland or wetland buffer (100 ft). These locations are indicated with stars (*) in Figures 1 and 2 and are available for inspection by the LCC. Some weeds will be removed off site by landscape contractors.
- Other methods of weed management continue to include hand-raking, benthic barriers, and if needed SCUBA as identified in the Notice of Intent for 200-0196.
- The FLP continues to research alternatives to herbicide treatment. In 2020, FLP proposes to continue experimentation with geo-textile fabric (also known as a benthic barrier). At present there are four geo-textile benthic barriers in use around the pond, and their effectiveness is good, but they cover a tiny area. Annual maintenance is required (cleaning and re-setting). This is done on a limited basis as a non-herbicide method to

further restrict re-growth in small areas.

- *Hand-pulling/raking* of weeds continues. Hand-pulling is effective in the shallowest areas where mechanical equipment cannot reach.

Disposal of Removed Weeds.

All removed weeds, roots and detritus will be placed on land to dry and will then be moved to a location outside any buffer zone (100 ft) from the pond or a wetland. Storage at a distance less than 100 ft can only be used if approved by the LCC. In some cases a landscape contractor will remove piles to an off-site "stump dump" or mulching operation in a non-wetland location. Weeds removed from the public access pool and channel will be removed to the town's "stump dump." These deposit areas are not in wetlands or wetland buffers.

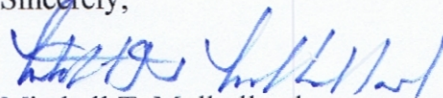
Reporting of Results.

Prior to conducting the mechanical operation, the FLP will contact the LCC administrator to have a notice included in the Town of Leverett's web site. The FLP also will supply the LCC with a report of results in an Annual Report/Year-End-Report by December 15, 2023 as required by the Order of Conditions.

If at all possible, the FLP requests a review of this proposal by the LCC at the March 2023 meeting.

If you require additional information, you can reach me at home (413-548-9161) or cell: (413-531-2730). I will provide you with a hard-copy of this proposal at the Town Hall. My E-Mail address is mulholland@anthro.umass.edu.

Sincerely,



Mitchell T. Mulholland
VP of Aquatic Weed Management
Friends of Leverett Pond, Inc.

Attachments: Figures 1-4 indicating location of treatment and deposit areas
Attachment showing examples of equipment

Figure 1. South portion of project on assessor's map showing locations of potential treatment. Hatched areas show potential removal of recurring invasive aquatic plants and limited nuisance native weeds; and weed deposit locations (stars). Proposed treatment areas are 4-8 acres, total volume not to exceed 99 cubic yards during the project.

Figure 2. North portion of project on assessor's map showing locations of potential treatment. Hatched areas show potential removal of recurring invasive aquatic plants and limited nuisance native weeds; and weed deposit locations (stars). Proposed treatment areas are 4-8 acres, total volume not to exceed 99 cubic yards during the project.

Figure 3. Public Access showing location of cattails to be removed by hand (from 200-0196).

Figure 4. Profiles of areas where cattails proposed to be removed by hand (from 200-0196).

Attachment 1. Photographs of Eco-Harvester, Mechanical Harvester and Hydro-Rake

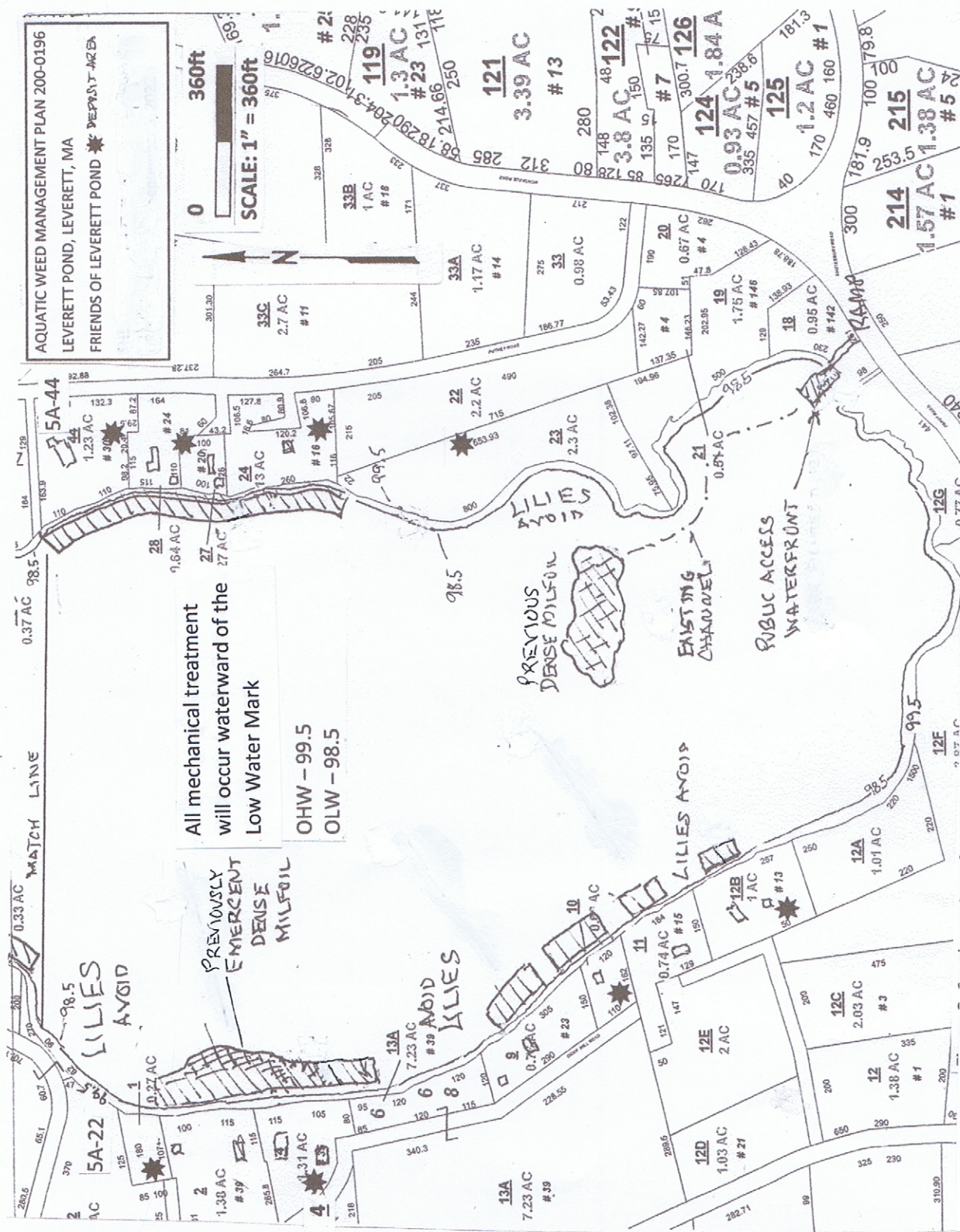
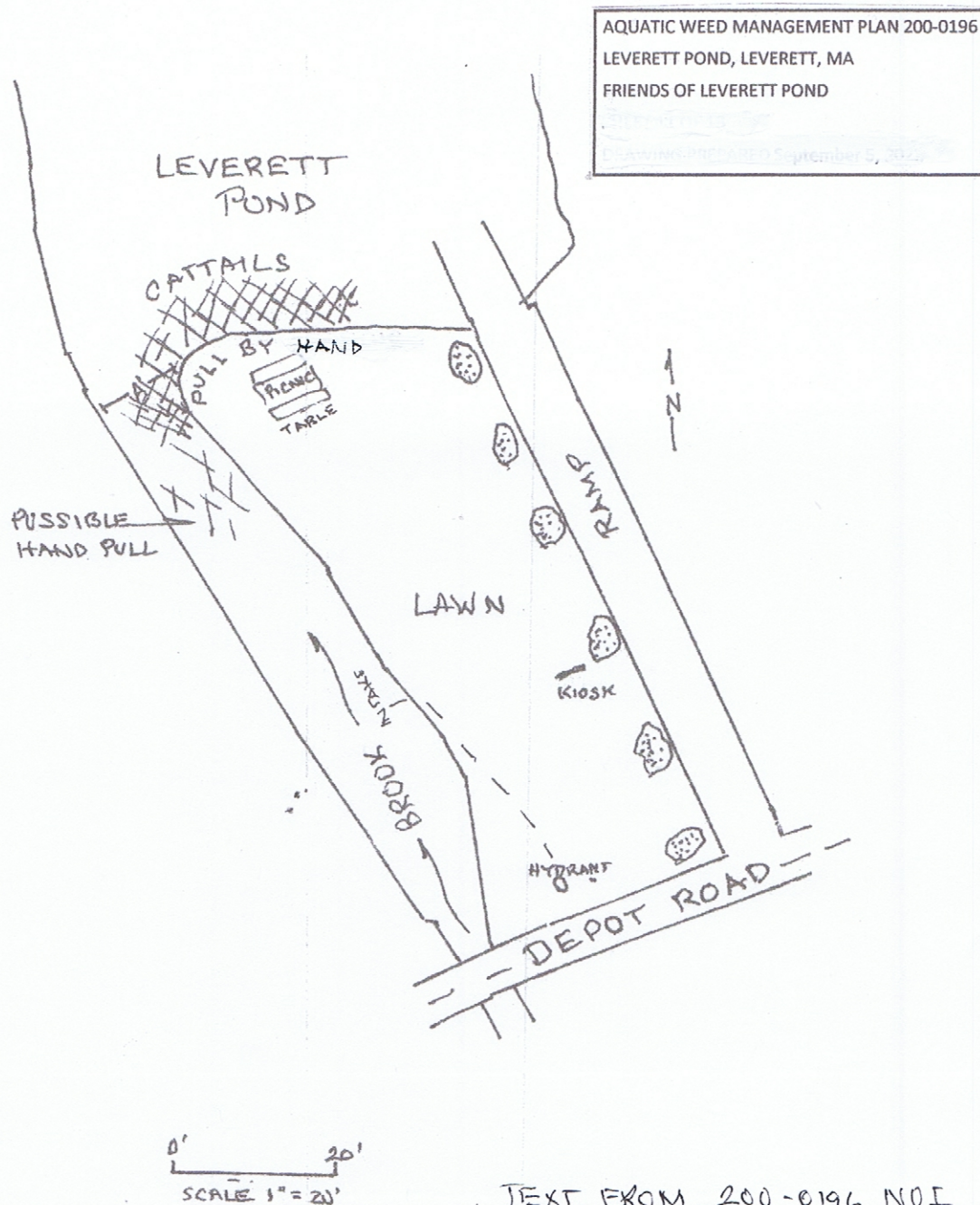
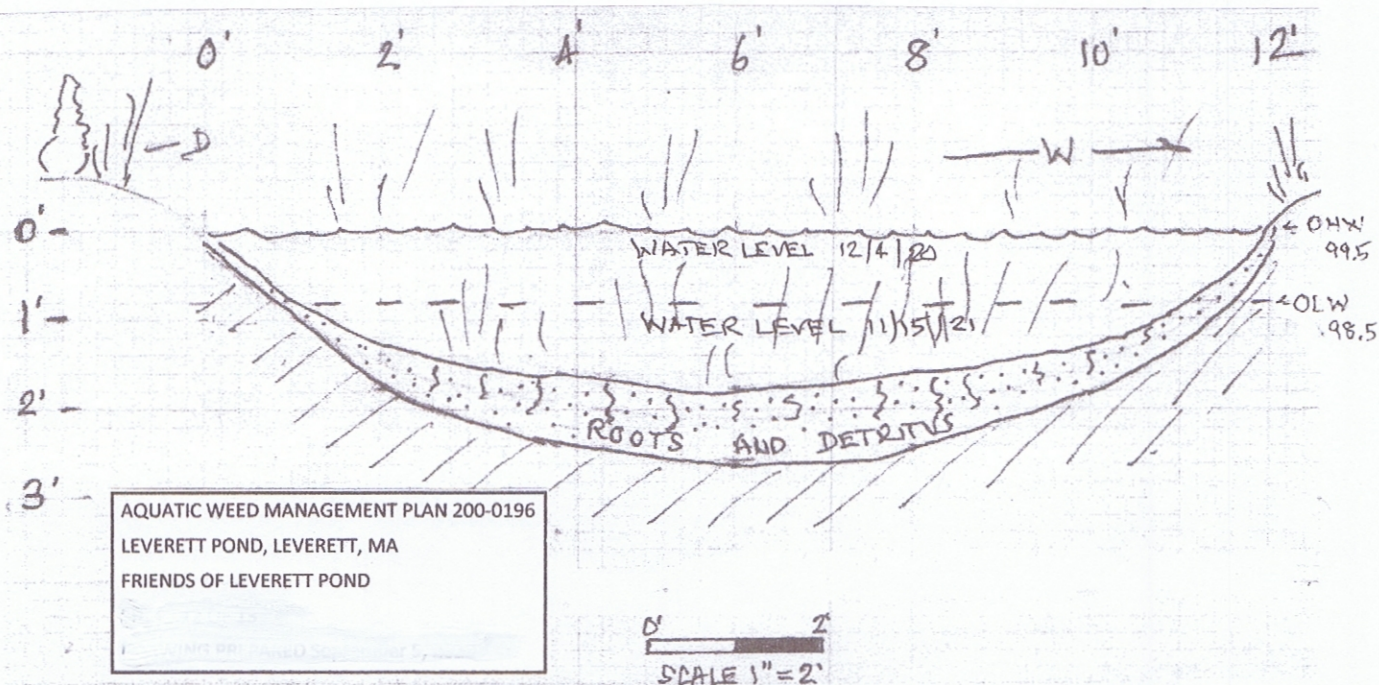


Figure 1. South portion of project on assessor's map showing locations of potential treatment. Hatched areas show potential removal of recurring invasive aquatic plants and limited nuisance native weeds; and weed deposit locations (stars). Proposed treatment areas are 4-8 acres, total volume not to exceed 99 cubic yards during the project.

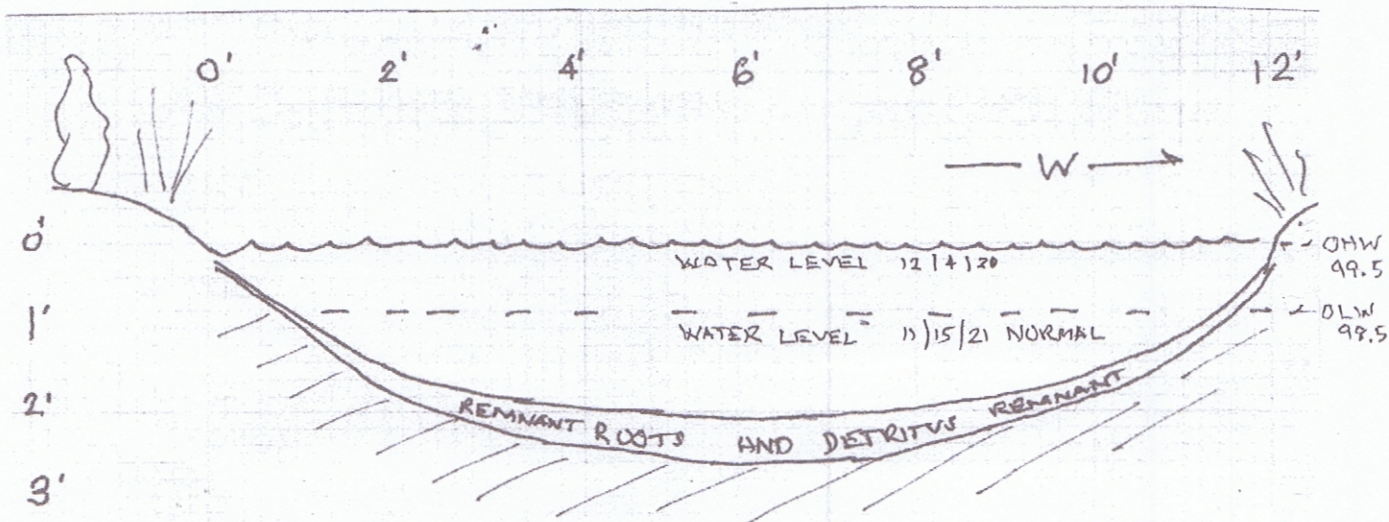


DEP Notification Item 2b. Figure 1. Fire Hydrant Water Source. Plan of the Public Access area showing the location of proposed removal of cattails blocking small brook/rivulet and against lawn/picnic area blocking view. Cattails are growing their way toward the boat ramp. Approximate area of removal along bank is 24x8ft. There is also a small area (approximately 10x8ft) in the middle of the brook where cattails are beginning to grow that could be removed by hand with volunteer help. It will soon fill the channel. The hydro-rake will not reach that far. See DEP Notification Item 2b Figures 2 and 3 (next page).

Figure 3. Public Access showing location of cattails to be removed by hand (from 200-0196).



DEP Notification Item 2b. **Figure 2.** Profile before proposed raking of mouth of small brook/rivulet that enters the pool at the Public Access. View to north. Drawing shows base of muck and detritus containing the roots of cattails that are beginning to block the stream. Cattails fill most of the stream at this location. !



TEXT FROM 200-0196 NOI

DEP Notification Item 2b. **Figure 3.** Profile after raking of mouth of small brook/rivulet that enters the pool at the Public Access. View to north. It is estimated that about 2-4 inches of muck may attach to cattail roots. RAKERS will shake off as much of this as possible. See A' on Figure 1. Note that removed material will be deposited at the Town's "stump dump" at the Transfer Station.

Figure 4. Profiles of areas where cattails proposed to be removed by hand (from 200-0196).



Eco Harvester pulling aquatic weeds in a Minnesota Lake



Mechanical harvester operated by Aquatic Control Technology, Inc.



Hydro-Rake operating in Fosters Pond, Andover, MA

