AQUATIC CONTROL TECHNOLOGY, INC.
POND AND LAKE MANAGEMENT SPECIALISTS

October 31, 2012

Mr. Paul Boudreau, Chief Procurement Officer
Town of Lanesborough
83 No. Main St.
Lanesborough, MA 01237

Re: 2012 Year End Report - Aquatic Management Program at Pontoosuc Lake – Lanesborough & Pittsfield, MA

In 2012 a treatment program using Reward (diquat) herbicide was conducted at Pontoosuc Lake to control growth of non-native, invasive Eurasian watermilfoil (*Myriophyllum spicatum*) and curlyleaf pondweed (*Potamogeton crispus*). The Year End Report for the 2012 Aquatic Management Program follows. This report will serve to document the herbicide application process, the post-treatment monitoring of aquatic vegetation in the waterbody and the observed response of the targeted weeds. Attached to this report are several figures and supporting documentation that further help to explain the project and the observed results.

All work performed at Pontoosuc Lake in 2012 was conducted in accordance with the Order of Conditions (OOC) issued by the Lanesborough & Pittsfield Conservation Commissions (DEP #: 194-0161) and the License to Apply Chemicals issued by the MA DEP – Office of Watershed Management (Permit #: 12035).

A chronology of this past year's management and brief description of events follows.

2012 Program Chronology:

- DEP License to Apply Chemicals Issued 3/22/12
- Early Season Vegetation Survey 5/22/12
- Diquat Treatment for Milfoil 5/31/12
- Post-Treatment Inspection 7/26/12
- Late Season Vegetation Survey 9/19/12

Pre-treatment Survey:

A Pre-Treatment Survey was conducted on May 22nd to document pre-treatment vegetation composition and confirm the extent of the proposed treatment area. The survey was performed with representatives from Friends of Pontoosuc Lake and ACT, Inc. During the survey the entire littoral area of the lake was toured and the extent of the milfoil infestation was marked with GPS. The presence of other aquatic plant species was also documented and general observations regarding distribution of species type, species density and species location were collected. An AquaVu underwater camera and plant collection with a throw-rake were used to assist in the identification of vegetation and the determination of the milfoil boundary. Observed conditions in the lake were generally consistent with pre-treatment conditions documented over the past several years.

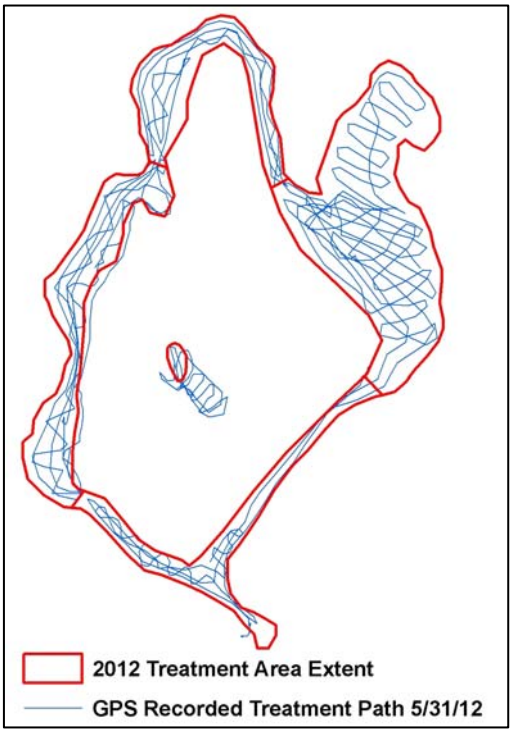
- The littoral area of the lake (<12' deep) supported moderate to dense cover (40%-60%) of aquatic plants, primarily Eurasian watermilfoil and curlyleaf pondweed.
- Consistent with previous surveys, milfoil and curlyleaf pondweed density were greatest at intermediate water depths (4-8 feet), but growth was observed to a depth of 12' feet.

Very little growth of milfoil or curlyleaf pondweed is found in shallower depths (<4' feet), owing to the fall/winter drawdown performed annually.

- Milfoil was actively growing at the time of the survey but had not reached peak biomass and was generally 4'-8' feet tall in 6-10 ft water depths.
- Distribution of milfoil was similar to previous years with moderate to dense growth extending along the southern, western and northern shorelines. Growth along the eastern shore was very limited and consisted of scattered low-density milfoil.
- Curlyleaf pondweed cover was more extensive compared to previous years and generally accounted for 20%-30% of the vegetative cover. Low to moderate growth of curlyleaf pondweed extended along the southern, western and northern shorelines; a few dense patches were also observed.
- Growth of curly-leaf pondweed was very advanced and was at or near the surface in '-10' feet of water.
- Cover of native plants was generally low (<25% cover) and was mixed with varying cover of milfoil and curlyleaf pondweed.
- Native plant species recorded during the survey included: coontail (*Ceratophyllum demersum*), common waterweed (*Elodea canadensis*) sago pondweed (*Stuckenia pectinatus*) and southern naiad (*Najas guadalupensis*).
- No spiny naiad was observed during the pre-treatment survey.
- Water clarity was fair at the time of the survey with a Secchi disk reading of 6'0".
- Dissolved oxygen concentrations were good averaging 7.8 mg/L at 16.2°C or roughly 85% saturation to a depth of 9 meters.

Eurasian Watermilfoil Management

Based on the advanced stage of milfoil and curlyleaf pondweed growth observed during the pre-treatment survey, the diquat application at Pontoosuc Lake was scheduled and performed for the following week on Thursday, May 31.



Treatment scope did not change significantly from previous years and ultimately, ~215 acres around the perimeter of the lake were targeted for treatment. Notification of treatment including all temporary water use restrictions to be imposed following treatment was printed in The Berkshire Eagle. Printed signs displaying the water use restrictions were also posted around the lake in advance of treatment. The public boat ramp was closed during the day of treatment.

An 18 foot airboat equipped with a low pressure pump and calibrated spraying system was used for the treatment. The treatment area was split into five sections; each section was treated individually with the calculated dosage of Reward herbicide (see Figure 1 – attached). Application rates ranged from 1.0-1.5 gal/acre; rates were primarily determined by vegetation density and dilution potential in each area. The liquid Reward herbicide was mixed with lake water in an on-board tank and injected subsurface through weighted hoses to prevent aerial drift of the herbicide. GPS was used during the

application to monitor boat speed and ensure a uniform distribution of the herbicide in each treatment area. The GPS track recorded during the treatment is pictured below.

Air temperature during the treatment was approximately 71°F. Water temperature at the surface was ~68 °F. Conditions were mostly sunny with breezy wind from the west.

The treatment was completed by Aquatic Control's state certified applicators, Gerry Smith and Michael Lennon, and was conducted in accordance with the product label directions and the permits issued by MA DEP and the Lanesborough & Pittsfield Conservation Commissions. At no time during the course of this management program did we either observe or receive any reports of negative affect of treatment on fish, other aquatic life or wildlife.

Post-treatment Inspection:

A cursory post-treatment inspection of Pontoosuc Lake was performed by Michael Lennon (ACT, Inc.) on July 26th to assess the results of the diquat application. During the survey the western shore and northern cove were checked for cover of milfoil.

- At the time of the inspection milfoil growth in the lake was relatively sparse and what remained was mostly dead and decaying on the lake bottom.
- Plant cover where large milfoil beds had existed was scant and was dominated by coontail and southern naiad and tapegrass.
- Stonewort/muskgrass (*Nitella sp./Chara sp.*), thin-leaf pondweed (*Potamogeton pusillus*), spiny naiad (*Najas minor*) and waterweed were also recorded.

Late Season Survey:

A Late Season Vegetation Survey was performed on September 19th. The survey was performed by Michael Lennon (ACT, Inc.) and representatives from Friends of Pontoosuc Lake.

The littoral area of the lake was toured and vegetation was identified. An AquaVu underwater camera and plant collection with a throw-rake were used to assist in the identification of vegetation. A map of the late season vegetation composition is attached (Figure 2 – Late Season Vegetation Assemblage).

To satisfy additional monitoring requirements, pre-established data points were also visited and vegetation was classified based on parameters defined by the Friends of Pontoosuc Lake. The data from that monitoring effort is attached to the end of this report.

- Plant distribution was consistent with what was recorded during the spring and was generally confined to depths of less than 12' feet.
- Plant cover was low-moderate density throughout the littoral zone with overall cover ranging from 5%-50% cover. Vegetation was dominated by a combination of spiny naiad (*Najas minor*), tapegrass and milfoil.
- Milfoil re-growth was low-density (<10% cover) and where found was fairly immature, typically only 1'-2' feet in height.
- The greatest concentration of milfoil re-growth was found in the northwestern cove where moderate (~40% cover) of milfoil was observed to the southwest of the inlet. Milfoil in this area was mixed with moderate to dense growth of tapegrass.
- Other plant species recorded during the survey include: Southern naiad (Najas guadalupensis), coontail (*Ceratophyllum demersum*), common waterweed (*Elodea*

canadensis), water stargrass (*Heteranthera dubia*), thinleaf pondweed (*Potamogeton pusillius*), sago pondweed (*Stuckenia pectinatus*) and muskgrass *(Chara spp.*)

- Water clarity at the time of the survey was poor with a Secchi disk reading of just 4'6".
- Dissolved oxygen concentrations were good averaging 8.0 mg/L at 19.8°C or roughly 90% saturation in the upper 8 meters of water. Temperature and dissolved oxygen dropped quickly below the thermocline.

Recommendations for Ongoing Management

The Reward (diquat) treatment performed in 2012 provided excellent season-long control of milfoil throughout Pontoosuc Lake. Late season re-growth of milfoil was reduced significantly by comparison to post-treatment conditions in 2009 and 2010 and, where found, was generally scattered and low-growing. Again, the success of treatment at Pontoosuc Lake is in part the likely result an number of factors including: weather conditions on the day of treatment; timing with regards to plant maturity; and reduced overall milfoil abundance resulting from previous years of management.

Although we cannot guarantee that results of subsequent treatments will yield the same lasting results we observed in 2011 and 2012 we are hopeful that the cumulative effect of annual treatments will continue to reduce milfoil abundance leading to higher treatment efficacy. We will continue to evaluate treatment timing and dosage to achieve the best possible milfoil control at Pontoosuc Lake. We strongly encourage Lanesborough, Pittsfield and the Friends of Pontoosuc Lake to continue with the scheduled milfoil management efforts in 2013.

Specifically for the 2013 season, we recommend the following invasive aquatic plant management efforts:

1. Early Season Vegetation Survey to access milfoil growth and finalize treatment scope - early May.
2. Spot-treatment of dense milfoil growth with Reward (diquat) for the control of Eurasian watermilfoil. Treatment timing should be performed between late May and early June before annual native plants have germinated. (Specific treatment requirements will be determined following our pre-treatment survey in May 2013.)
3. Continued monitoring of vegetation in the lake with both a post-treatment inspection and a late season vegetation survey.

We look forward to continuing our involvement with your lake management efforts over the next year. If you have any questions, please do not hesitate to contact us.

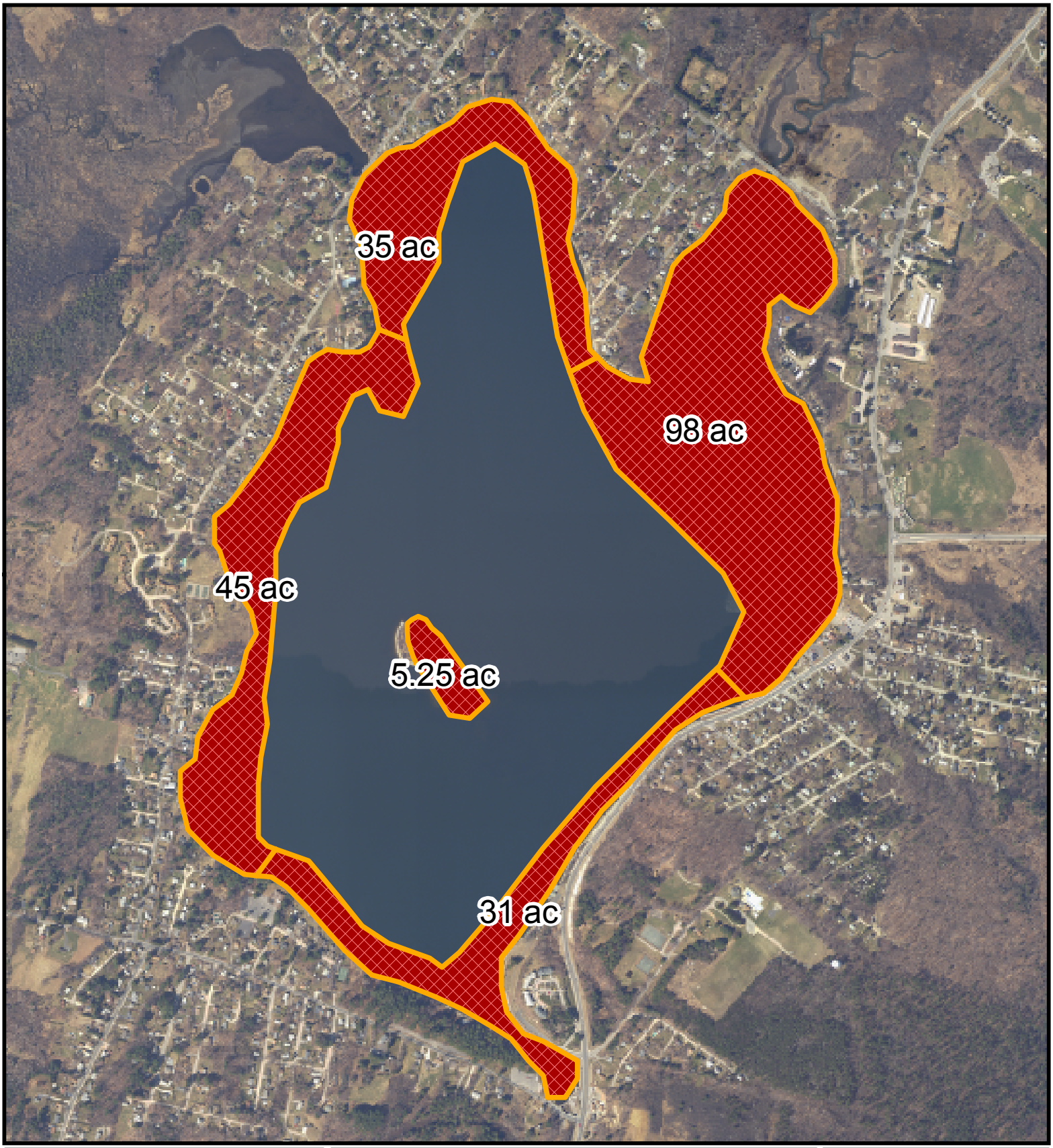
This report has been sent electronically to representatives with the Friends of Pontoosuc Lake. Please be sure to forward a copy of this report to the Conservation Commission in each town.

Sincerely,

Aquatic Control Technology, Inc.

Gerald N. Smith
President/Aquatic Biologist

Michael Lennon
Biologist



Pontoosuc Lake
Lanesborough, MA

2012 Treatment Map

FIGURE:	TREATMENT DATE:	MAP DATE:
1	5/31/12	10/31/12

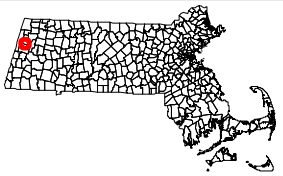
Legend:

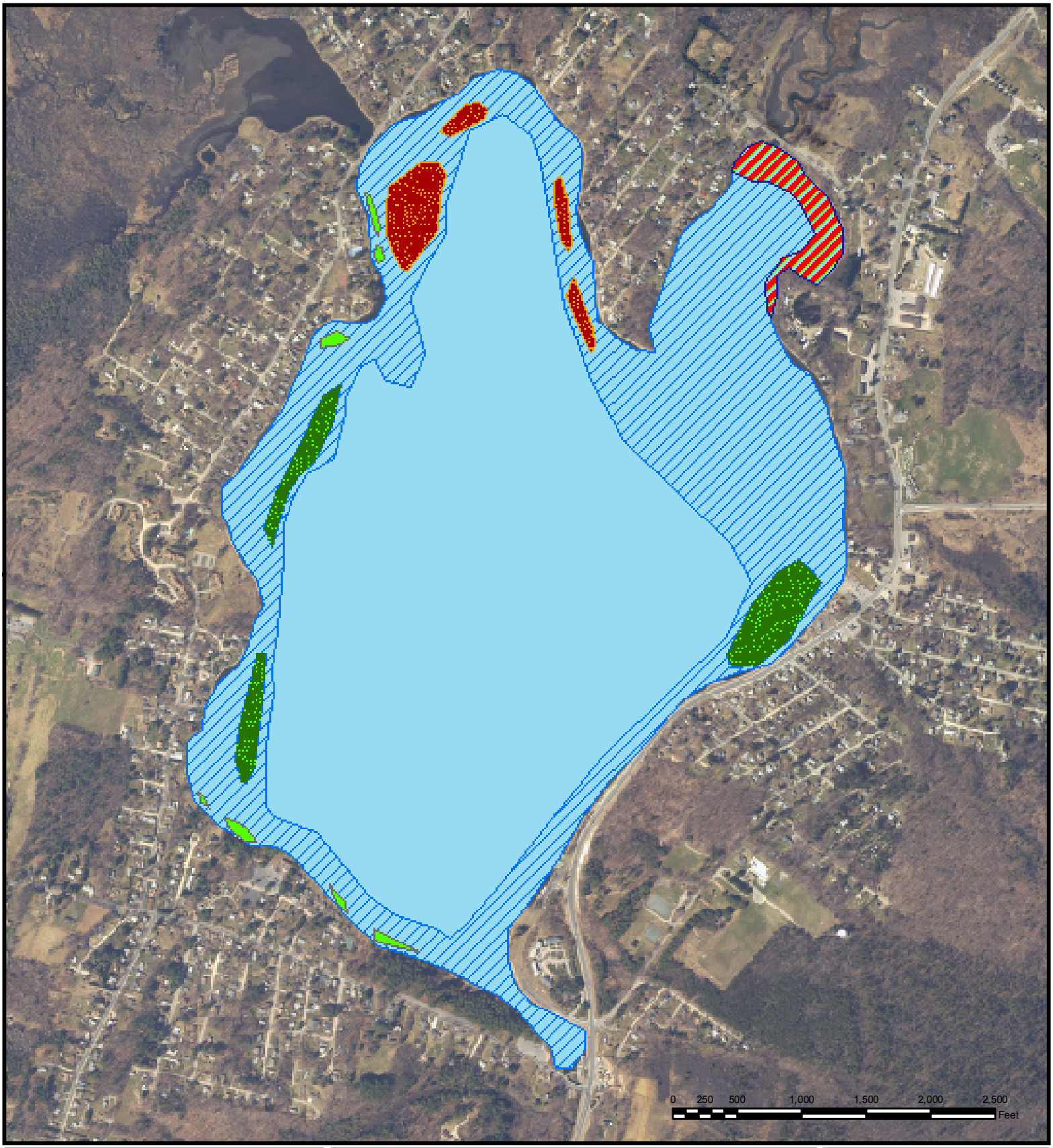
2012 Treatment Area Extent (~215 acres)

N

0 250 500 1,000 1,500 2,000 2,500 Feet

AQUATIC CONTROL TECHNOLOGY, INC.
11 JOHN ROAD
SUTTON, MASSACHUSETTS 01590
PHONE: (508) 865-1000
FAX: (508) 865-1220
WEB: WWW.AQUATICCONTROLTECH.COM





Pontoosuc Lake

Lanesborough, MA

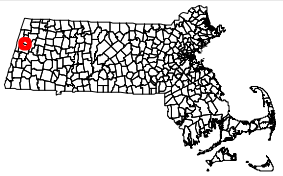
Late Season Aquatic Plant Distribution

FIGURE:	SURVEY DATE:	MAP DATE:
2	9/19/12	10/31/12

- Low-moderate density of mixed vegetation including: stonewort, spiny naiad, southern naiad, Eurasian watermilfoil, thinleaf pondweed, tapegrass, waterweed and coontail
- Dense cover of Eurasian watermilfoil and tapegrass
- Low to moderate density Eurasian watermilfoil (5-15% cover) with mixed natives
- Dense beds of spiny naiad
- Low to moderate density growth of Eurasin watermilfoil and spiny naiad with lesser amounts of thinleaf pondweed, waterweed, southern naiad and filamentous algae

N

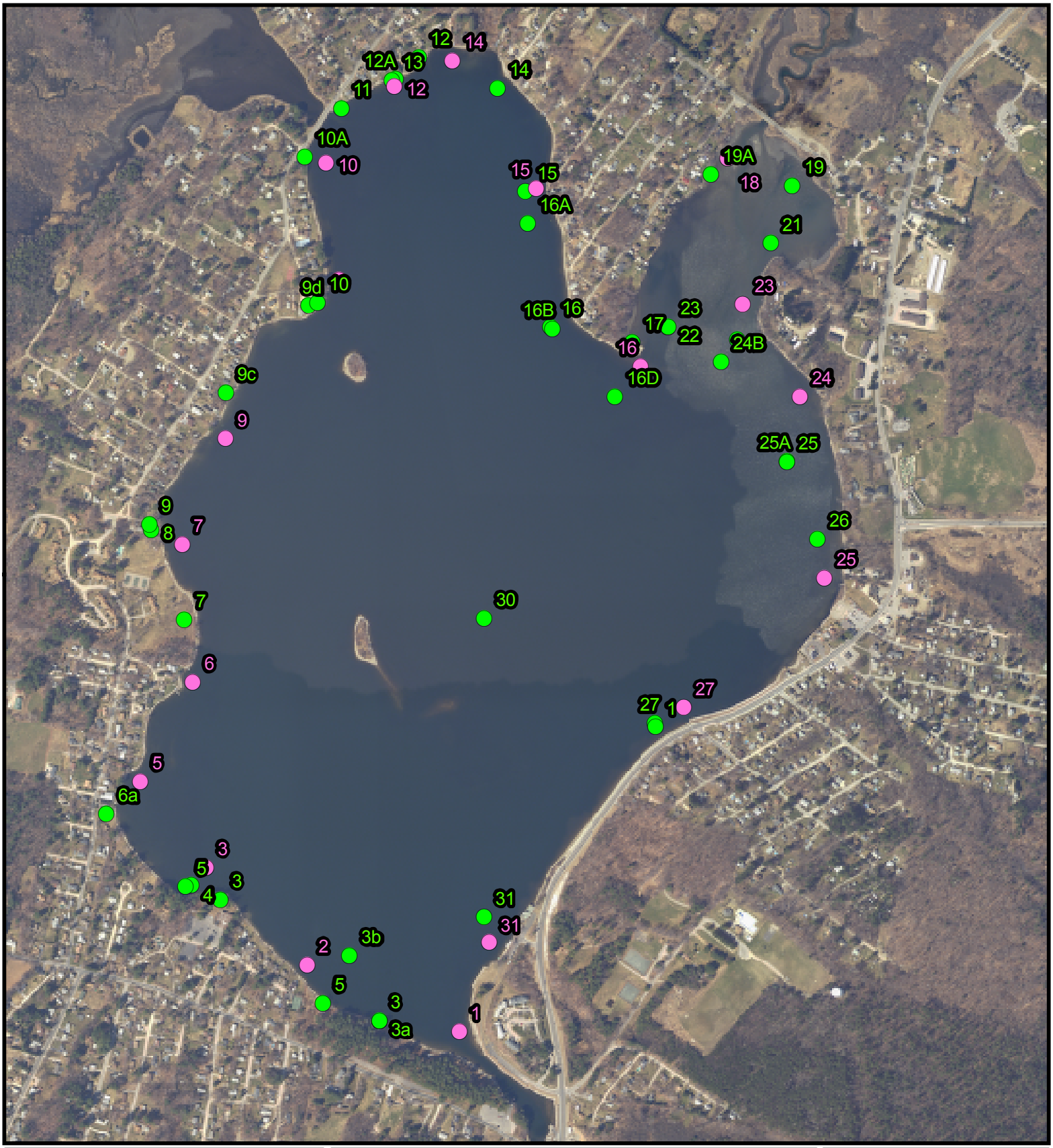
AQUATIC CONTROL TECHNOLOGY, INC.
11 JOHN ROAD
SUTTON, MASSACHUSETTS 01590
PHONE: (508) 865-1000
FAX: (508) 865-1220
WEB: WWW.AQUATICCONTROLTECH.COM



Attachment A

Friends of Pontoosuc Lake Vegetation Survey Information

- Figure 1: Survey Point Map
- Field Data
  - 5/22/12
  - 9/19/12



Pontoosuc Lake

Lanesborough, MA

Friends of Pontoosuc Lake
Survey Point Map

FIGURE:	SURVEY DATE:	MAP DATE:
--	5/22 & 9/19/12	10/31/12

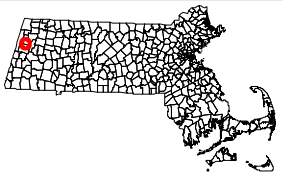
Legend:

Friends of Pontoosuc Data Points

N

0 200 400 800 1,200 1,600 2,000
Feet

AQUATIC CONTROL TECHNOLOGY, INC.
11 JOHN ROAD
SUTTON, MASSACHUSETTS 01590
PHONE: (508) 865-1000
FAX: (508) 865-1220
WEB: WWW.AQUATICCONTROLTECH.COM



PONTOOSUC LAKE																	
MACROPHYTE SURVEY LOG																	
DATE 5/22/12			WEATHER Showers					LAST RAIN Now									
	Ref.	Depth ft	Dep from Sur	42deg	73deg	weed height*	Density	Biomass	Dominate	Others	in (d<5)						
1	1	8	1	29.126	14.844		2	3	B	A			*weed heighth, + from bottom				
2	2	12		29.199	14.998		1	1	A	E B			- from top				
3	2	10		29.000	15.186		3	3	A	B							
4	3	8	2	29.341	15.284		3	3	A	B F			Weed Type			# Dominate	%
5	3	13		29.361	15.286				B	A		A.	Milfoil				
6	3	8	1	29.361	15.352		4	3	A	B F		B.	Curlyleaf				
7	5			29.470	15.416		1	1	B	A F		C.	Coontail				
8	5	8	1	29.464	15.381		3	3	B	A		D.	Bushy Pondweed				
9	6	9		29.639	15.322		2	2	B	A		E.	Waterweed				
10	9	8	2	29.936	15.250		3	3	A	B		F.	Fil. Green Alge				
11	10	6		30.199	15.150		1	2	B	F E		G.	Yellow Water Lilly				
12	10	8	2	30.169	15.075		3	4	A	B		H.	Narrow Leaf Cat Tail				
13		13		30.247	14.941		1	1	A	F E		I.	Bur-Reed				
14		6		30.303	14.924		2	2	A	B		J.	Wild Celery				
15	15	9		30.006	14.778		1	3	A	B		K.	European (Spiny) Najais				
16		8	0	29.947	14.679		2	3	B			L.	Cat tail				
17	15/16			30.121	14.592		0	0	Q			M	Musk Grass (Cara)				
18	16	11		29.911	14.640		3	4	B			N	Thin Leaf Pondweed				
19	25	11		29.705	14.496		1	1				O	Southern Niad				
20	25	6		29.670	14.475		1	1				P	Richards Pondweed				
21												Q	Sago Pondweed				
22												R	Water Stargrass				
												Z	None				
																	0%

PONTOOSUC LAKE

MACROPHYTE SURVEY LOG

DATE 9/19/12 WEATHER Clear windy cool LAST RAIN 2" yesterday Water: green, cloudy, sechi 4.5

	Ref.	Depth ft	Dep from Sur	42deg	73deg	Density	Biomass	Dominate	Others	in (d<5)						
1	1	9		29.122	14.850	1	1	M				*weed heighth, + from bottom				
2	1/2	8		29.194	15.021	1	1	A				- from top				
3	2	8		29.247	15.152	0	0									
4	3	7		29.338	15.269	0	0					Weed Type		# Dominat	other	%
5	5	6		29.378	15.410	2	1	K			A.	Milfoil		7	9	57%
6	5	6		29.540	15.389	1	1	F	A		K.	European (Spiny) Naja		4	9	46%
7	6	7		29.662	15.331	1	1	A	J		J.	Wild Celery/Tape Gras		4	7	39%
8		5		29.761	15.393	1	1	K	AF		F.	Fil. Green Alge		2	2	14%
9		<7		29.911	15.278	1	1	K	AJ		M	Musk Grass (Cara)		2		7%
10	9	>7		29.906	15.260	1	1	A			Z	None		2		7%
11	9	6		29.964	15.238	2	3	A	OK		E.	Waterweed		1	1	7%
12	9	7		30.021	15.137	1	2	J	AKE		N	Thin Leaf Pondweed		1	1	7%
13	9D	7		30.142	15.127			F	AJK		B.	Curlyleaf		0	0	0%
14		3		29.997	15.236	4	3	J	RNOKA		C.	Coontail			1	4%
15		4		30.17	15.175	1	1	J			O	Southern Niad			2	7%
16		5		30.275	15.062	1	1	K			D.	Bushy Pondweed				0%
17		5		30.314	14.991	1	1	J	FKA		G.	Yellow Water Lilly				
18		6		30.212	14.805	2	1	J	CA		H.	Narrow Leaf Cat Tail				
19				30.085	14.788	3	1	M	KAJ		I.	Bur-Reed				
20		3		30.063	14.633	1	1	F			L.	Cat tail				
21		4		30.2	14.533	1	1	F	A		P	Richards Pondweed				
22		4		30.182	14.501	4	3	N E	AJ		Q	Sago Pondweed				
23		4		29.946	14.414	2	2	J	K		R	Water Stargrass				
24	24	5		29.797	14.793	3	1	K	J							
25		9		29.802	14.455	1	1	A								
26		8		29.585	14.491	4	3	A	K							
27		8		29.518	14.939	4	3	A	JK							
28		8		29.257	14.897	2	2	K	A							
Average						1.7	1.4									
COMMENTS																