AQUATIC CONTROL TECHNOLOGY

November 2, 2015

Property Owners' Association of Lake Hayward
Mr. Robert Sudell, President
PO Box 230
Colchester, CT 06415

Re: Year-End Report for the 2015 Aquatic Management Program at Lake Hayward

Dear Mr. Sudell:

Please accept this as our Year-End Report for the 2015 Aquatic Management Program at Lake Hayward. After treating the whole lake with Sonar (fluridone) herbicide in 2008 to control fanwort (*Cabomba caroliniana*), this was the fourth consecutive year that the program included partial lake treatment of fanwort re-growth and also, beginning in 2013, variable milfoil (*Myriophyllum heterophyllum*) in addition to the annual vegetation surveys.

Partial lake treatments in 2012-2013 utilized Clipper (flumioxazin) herbicide, which was not available after the earlier whole lake Sonar herbicide treatment of Lake Hayward in 2003. A small, partial lake treatment with Sonar herbicide was performed in 2006, but showed that such an approach with that herbicide would not be cost effective for addressing more substantial areas of re-growth. With no other viable alternative at the time, re-growth increased to the point where another whole-lake treatment with Sonar herbicide was warranted in 2008.

With the registration of Clipper herbicide in 2011, we now had a tool to perform effective partial lake treatments at Lake Hayward. Whereas there are substantial areas of the lake free from fanwort growth even when the fanwort infestation was at its worst, treatment with Clipper herbicide was deemed to be the most advantageous option moving forward, rather than perform another whole-lake treatment with Sonar herbicide. With a relatively recent increase in variable milfoil, which is less effectively treated with Clipper, Reward (diquat) herbicide was added to the treatment protocol in 2014.

This year's program consisted of detailed (transect) pre and post treatment vegetation surveys and treatment of five areas of the lake with Clipper/Reward herbicide.

Pre-Treatment Vegetation Data

The pre-treatment vegetation survey was conducted on June 8th. This survey was conducted along the established series of transects and data points used in past surveys of the lake. Figure 1 shows the layout of the data points and Table 1 (attached) provides the actual collected data from each point. For comparison, data from the 2011-2014 surveys is also included on the table. Figure 2 shows a map of the approximate vegetation distribution as indicated from the survey data.

Following now three years of targeted treatment, the presence of target species at the survey points was limited to scattered, mostly low biomass growth. Unlike previous years, there was no longer any large bed of fanwort observed in the northern end of the lake along the edge of the waterlilies and boat channel. Fanwort was observed at Point D5, G1, I6, J2 & O3. Fanwort was also observed along the western shore between Transect A & B and in the outlet channel near point K4. With the exception of Point D5, all of the other fanwort observances were within proposed treatment areas. The growth along Transect D was observed last year, but appears to be an area of very isolated growth not warranting treatment.

Variable watermilfoil (*Myriophyllum heterophyllum*), which was first observed at problematic levels in the lake in 2012, had developed into substantial growth along the northern and western edges of the northern basin. Variable watermilfoil is also a non-native, invasive species, which is now a target of management along with the fanwort. Very little growth of milfoil was observed during the spring survey, but given the aggressive nature of this species the proposed treatment plan was carried out as planned for both species.

Non-target growth was limited this spring and included stonewort (*Nitella sp.*), slender spikerush (*Eleocharis sp.*), bladderwort (*Utricularia sp.*) and filamentous algae. Floating heart (*Nymphoides sp.*) continues to be observed along the shorelines in the upper end of the northern basin.

Treatment

After receiving the approved CT DEEP permit and making the required notifications, five areas of the lake were treated with the Clipper (flumioxazin) and Reward (diquat) herbicides (See Figure 3). Treatment was completed on July 15th by Aquatic Control's licensed applicators. The treatment proceeded smoothly and with no observed adverse effects or difficulties.

Post Treatment Vegetation Data

The post-treatment transect survey was conducted on September 21st. Figure 4 shows the approximate vegetation distribution during this survey. Transect data for the fall survey is also included on Table 1.

Overall, the treatment worked well in Areas B, C & D (Figure 2), however some fanwort plants were observed post-treatment in Areas A & E. The growth in Area A was limited to scattered, low-biomass growth at one data point and likely was due to re-growth following the treatment. The growth in Area E however was more substantial and although the biomass was still relatively low, indicates that the effectiveness in this area may have been reduced by dilution as its relatively small and located along exposed shoreline.

Outside of the treatment areas, fanwort was observed to have expanded along the eastern shoreline into the areas of Transects M & N. Fanwort had been observed at Transect N in 2015 but not at Transect M. Additionally, the growth at Transect point D5 had expanded some and fanwort plants were also noted at Point C3. The growth at these two points may be part of larger area of fanwort growth and the adjacent areas should be carefully monitored in 2016. No milfoil was observed during the survey.

The growth of non-target species was again limited, however we observed additional species including ribbonleaf pondweed (*Potamogeton epihydrus*) and submersed arrowhead (*Sparganium sp.*). The density of stonewort, filamentous algae and slender spikerush fluctuated at many of the data points but was generally slightly less than pre-treatment, likely a result of environmental conditions rather than the treatment as these changes were generally seen throughout the lake.

Water Quality and Phytoplankton Data

During the June and September surveys, a Secchi disk transparency reading and phytoplankton (algae) sample were taken in two locations (Site #1 – South End & Site #2 – North End) on the lake. The following tables present this data.

Table 2 – 2015 Water Clarity and Phytoplankton Measurements

Water Clarity Measurements

Date	South End (Station #1) Feet	North End (Station #2) Feet
6/8/15	13'10"	13'3"
9/21/15	13'7"	13'7"

Phytoplankton Data

Date	South End	North End
6/11	< 5,000 cells per ml – Mostly dominated by greens with some diatoms	< 5,000 cells per ml – Mostly dominated by greens with some diatoms
9/21	< 5,000 cells per ml – Mostly dominated by greens with very low counts of blue-green species	< 5,000 cells per ml – Mostly dominated by greens with very low counts of blue-green species

Clarity readings in both sampling rounds were desirable and typical or better than usual for the lake (especially during the September round). The algae population was low and consisted mostly of non-blue-green species. The frequency and severity of algae blooms can be highly variable from year to year and water clarity can fluctuate rapidly over as short a time as a week.

Management Recommendations

We recommend continuing with the approach of conducting partial lake treatment with the Clipper/Reward herbicides to control fanwort and variable milfoil. There is some uncertainty at this point where the 2016 treatment areas should be, so we recommend holding off until the spring survey for a final determination. The option should be left open to target the most dense areas of fanwort growth as well as potentially use an increased dose of Clipper in some areas that may be subject to more dilution (i.e. Area E and Area A. We will also closely survey the lake in the vicinity of Transect C & D to determine if a treatment area should be added there.

As we enter more of a "maintenance" phase with the management of Lake Hayward, some areas of the lake that have been treated repeatedly may be rotated out of the treatment in favor of addressing areas of new growth (such as what was done for a majority of Area A this past summer). Our goal will be to keep the overall total treatment acreage at a similar level each year. The cost to treat approximately 30-acres (areas to be determined) of the lake with Clipper/Reward herbicide in 2016 is $15,250.

Depending on the growth stage of the fanwort, to be determined during a pre-treatment survey in late May/early June, and the level of lake outflow, treatment will likely occur sometime in mid-late June. Following treatment, all uses of the lake will be restricted for the remainder of the day. Additionally, the lake water should not be used for drinking, livestock watering and irrigation for 5-days following treatment.

It appeared that areas of abundant native vegetation along Lake Shore Road in the lake's northern basin did get thinned out some from the herbicide treatment to a more desirable level. It is not expected nor is it the intent however that the treatments will completely clear or open up these areas along the shore for recreation access. If more aggressive management of native, emergent plants is desired in individual waterfronts along this part of the lake, they can be treated with a glyphosate-based herbicide like Aqua-Pro to control most types of emergent and floating vegetation. The plant material will die and decompose in place, but the herbicide is systemic (root-killing) so control of the plant should last for at least 2-3 years. The cost of treatment would likely range from a minimum of $1,200 for an acre of spraying plus $200-$250 for each additional acre.

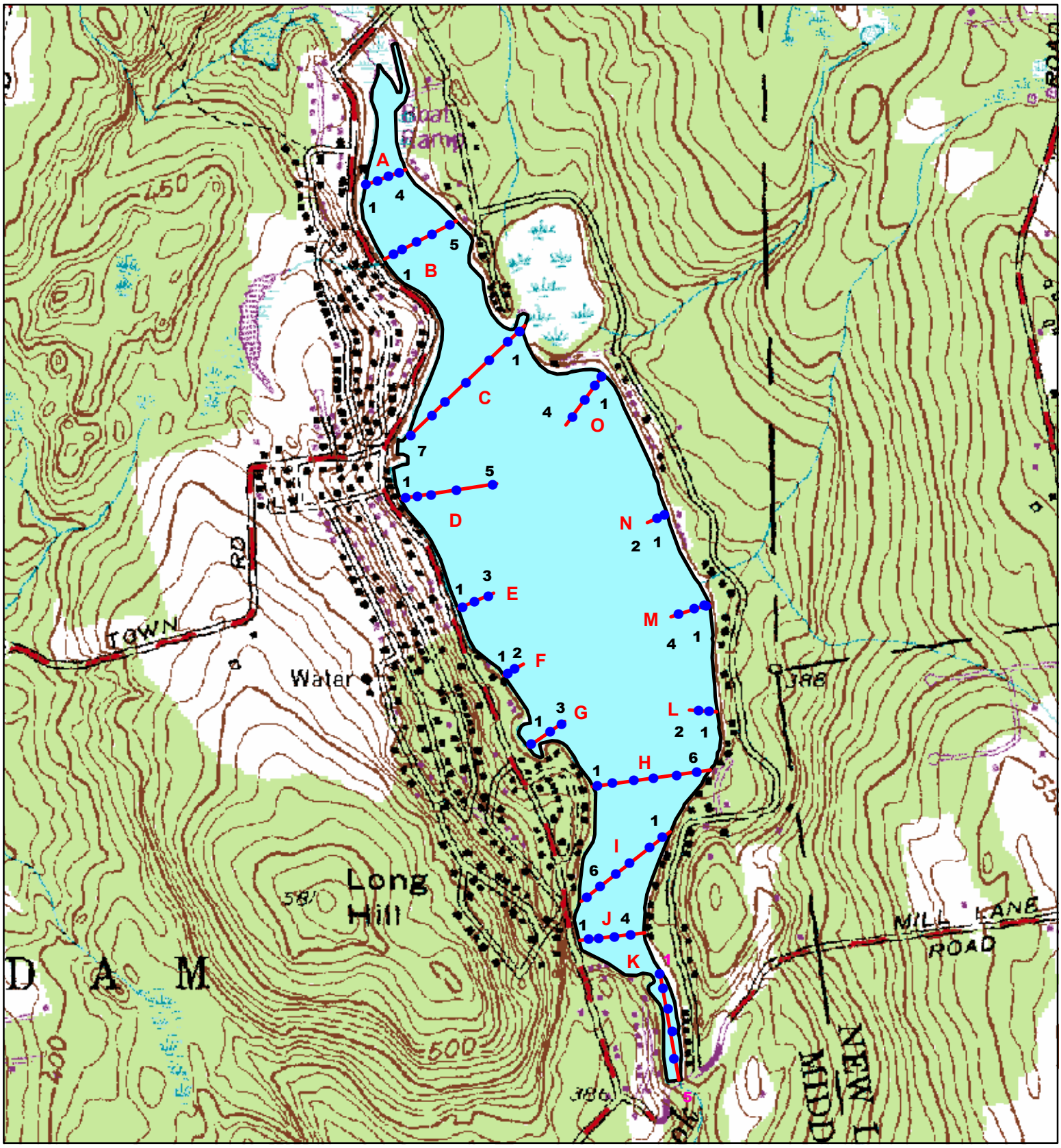
Should spot-treatments for filamentous algae be required or requested along sections of the shoreline, we would recommend treatment with the Cutrine Plus algaecide for a cost of $1,150 plus $85/acre. Filamentous algae has been intermittently problematic in some areas of the lake and we would defer to the Association to decide if and where treatment is needed.

A similar monitoring program is recommended for 2016. This will include detailed, transect pre & post treatment vegetation surveys and three rounds of water clarity measurement and algae sampling (one to be collected by the Association). The cost for the two vegetation surveys and two rounds of testing is $3,150. Additionally, we recommend the Association perform more frequent water clarity measurements (~ every week or two) from April through October.

We trust this report provides information to guide your future management decisions at Lake Hayward. If you have any questions, please feel free to give us a call. It has been a pleasure working with you this year and we look forward to continuing work with you and the Association in the future. With your permission, we'll forward a copy of this report to the appropriate parties at CT DEEP.

Sincerely,
AQUATIC CONTROL TECHNOLOGY

Dominic Meringolo
Senior Environmental Engineer



Lake Hayward

East Haddam, CT

Survey Points

FIGURE:	SURVEY DATE:	MAP DATE:
1	6/11 & 9/21/15	11/2015

Legend:

- Survey Point
- Transect

N

0 390 780 1,560 2,340 3,120 Feet

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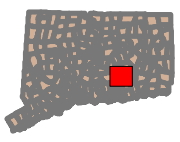

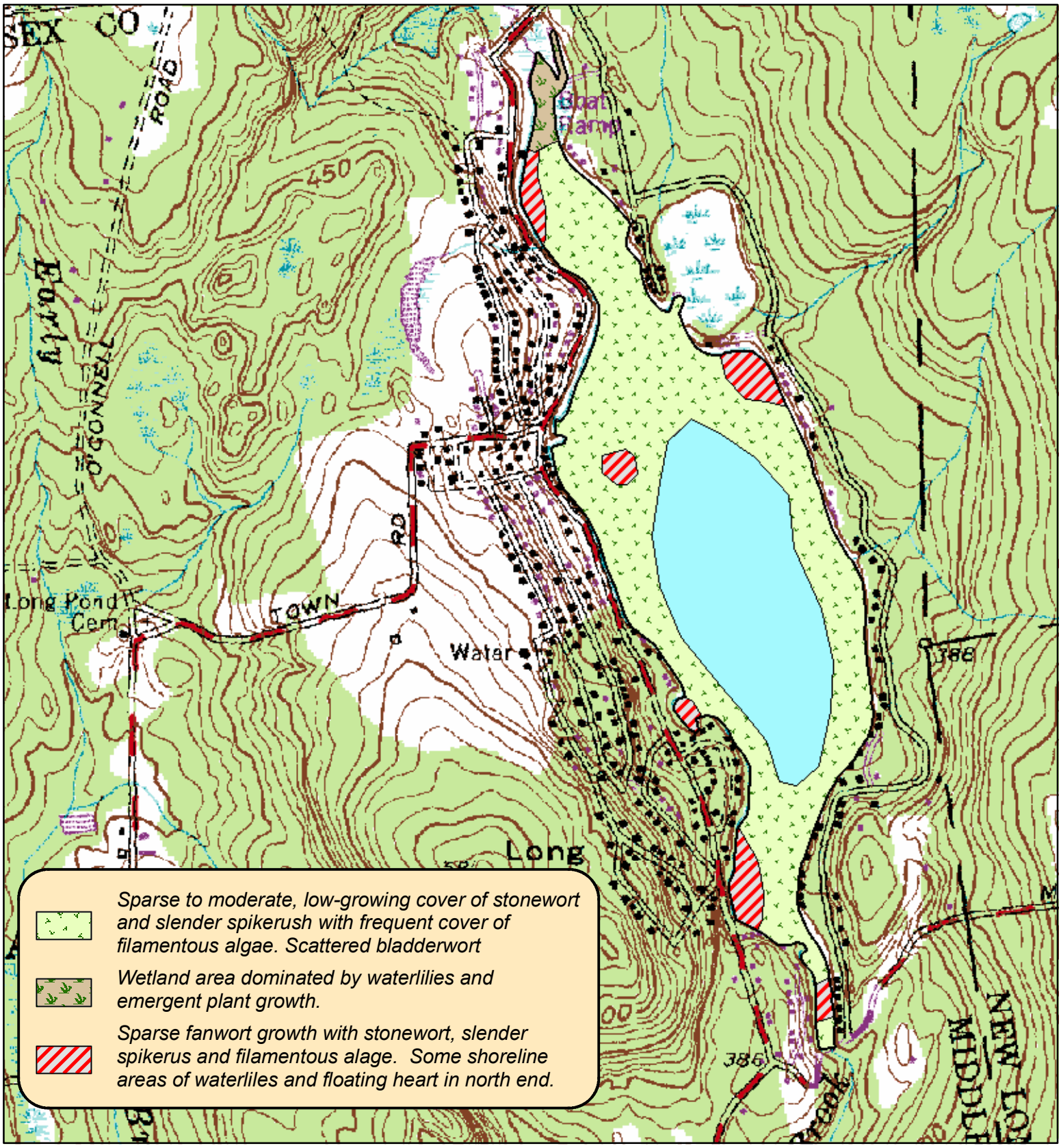

Lake Hayward

East Haddam, CT

2015 Pre-Treatment Plant Distribution

FIGURE:	SURVEY DATE:	MAP DATE:
2	6/8/15	11/2015

Legend:

N

0 425 850 1,700 2,550 3,400 Feet

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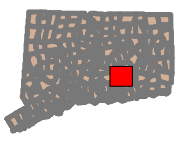

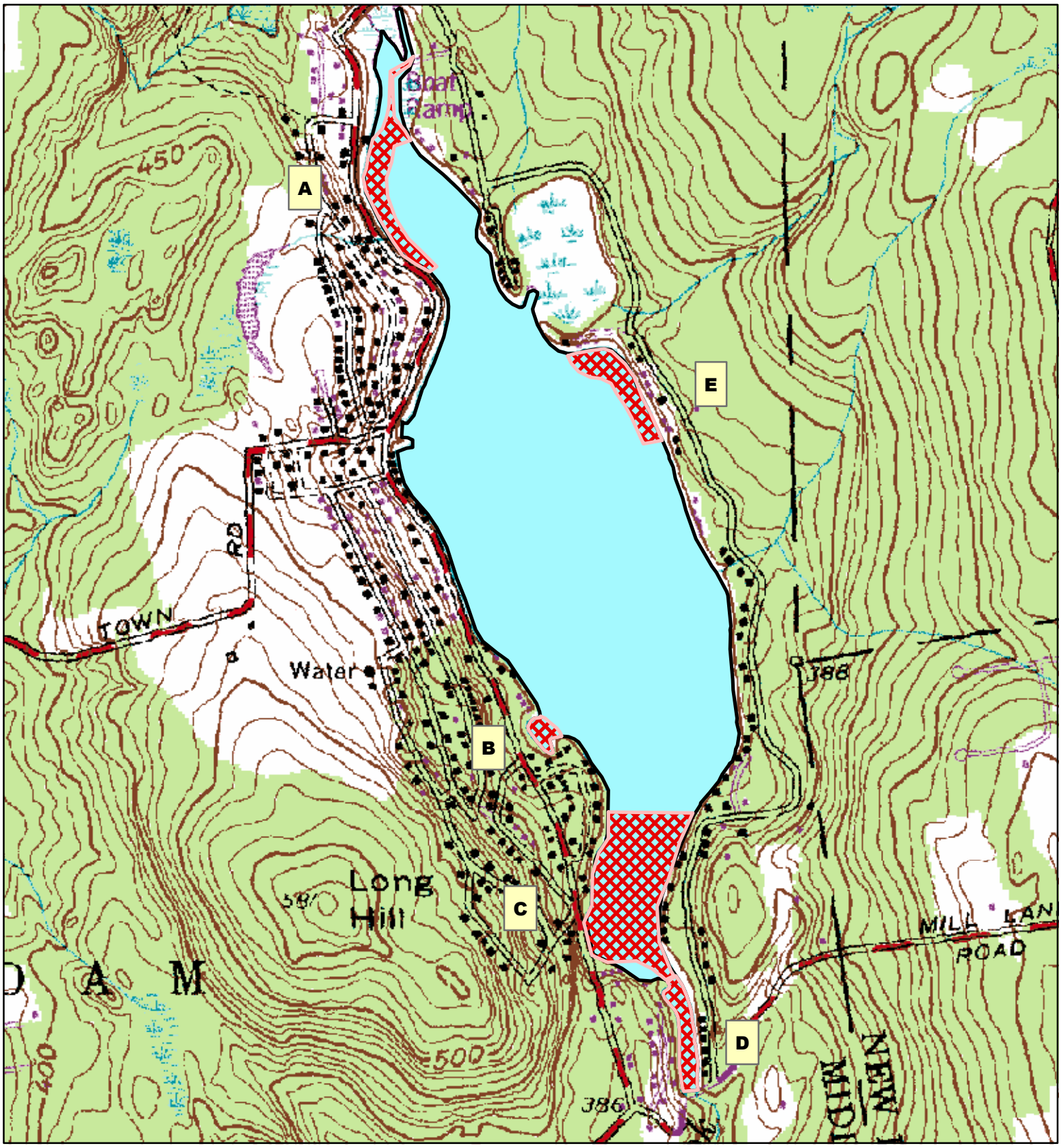

Lake Hayward

East Haddam, CT

Treatment Areas (2015)

FIGURE:	SURVEY DATE:	MAP DATE:
3		11/2015

Legend:

2015 Treatment Areas

N

0 400 800 1,600 2,400 3,200 Feet

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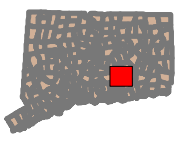

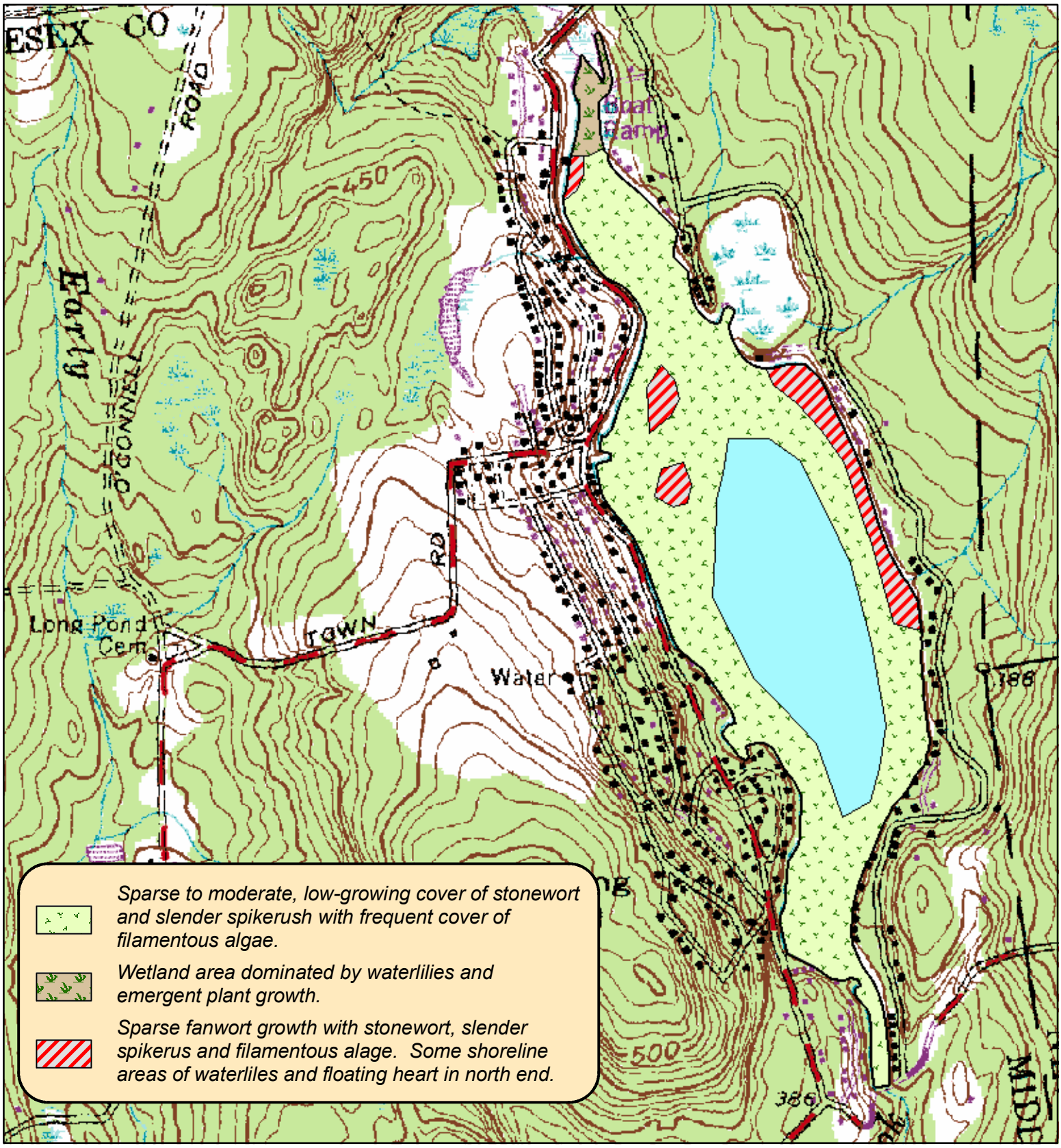

Lake Hayward

East Haddam, CT

2015 Post-Treatment Plant Distribution

FIGURE:	SURVEY DATE:	MAP DATE:
4	9/21/15	11/2015

Legend:

N

0 400 800 1,600 2,400 3,200 Feet

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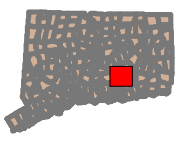

Table 1 – Lake Hayward Vegetation Data

Biomass Index Description

Index	Description
1	Plants growing at or near the bottom
2	Plants growing mid-way through the water column
3	Plants growing within 2-3 feet of the surface
4	Plants growing at or near the surface

Plant Symbol Description

Symbol	Common Name	Scientific Name
B	Watershield	Brasenia schreberi
Cc	Fanwort	Cabomba caroliniana
E	Waterweed	Elodea sp.
Eo	Slender spikerush	Eleocharis sp.
Fa	Filamentous algae	
Mh	Variable watermilfoil	Myriophyllum heterophyllum
Ni	Stonewort	Nitella sp.
Nj	Slender naiad	Najas flexilis
Nu	Yellow waterlily	Nuphar sp.
Ny	White waterlily	Nymphaea odorata
Pa	Largeleaf pondweed	Potamogeton amplifolius
Pe	Ribbonleaf pondweed	Potamogeton epihydrus
Pr	Robbins pondweed	Potamogeton robbinsii
Pp, P1	Thinleaf pondweed	Potamogeton pusilus
Sg	Submersed arrowhead	Saggitaria sp.
U	Bladderwort	Utricularia sp.
V	Tapegrass	Vallisneria americana

Table 1 - Lake Hayward Vegetation Data (2011-2014)

Transect	Point	Fall 2011			Fall 2012			Fall 2013			Spring 2014			Fall 2014			Spring 2015			Fall 2015		
		% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species
A	1	60%	2.5	U, s, Eo, Ny	100%	3.5	V, Cc, Sg, Fh, M	90%	3.5	Mh, Fh, Cc, Pr, Pp	100%	4	Fh, Mh, Cc, Pr	30%	4	Fh, Ny	15%	4	Fh, Ny	45%	3	Fh, Ni, Cc
	2	60%	2.5	U	80%	2.5	Pr, U, Cc, Pp, Mh	60%	1.5	Pr, Cc, Mh	100%	4	Fh, Mh, Cc	20%	1	Eo, Pr	10%	3.5	Fh, Ny	0%	0	-
	3	70%	3	U, Pa, Eo	80%	2.5	Pa, U, Cc, Pr	60%	2	Mh, Pr, Pp, Cc	100%	3	Fh, Mh, Cc, Pr, U	60%	1	Pr, Ni	5%	3	Fh	0%	0	-
	4	60%	3	U, Pr, Eo, Ny	70%	3.5	V, Sg, Cc, Fh	50%	2.5	Ny, Fh, Pp, Pr, Mh, Cc	100%	4	Mh, Cc, ProPal, Pr	30%	3	Pr, Eo, Fh,Ny	0%	0	-	10%	4	Fh, Ny
B	1	30%	1.5	Eo, U, S	50%	2.5	Pr, Cc, Mh, Sg	10%	1.5	Cc, Fh, Sg	80%	4	Fh, Ny, Sg	40%	3	Ni, Ny	0%	0	-	25%	3	Ny, Fa
	2	10%	1.5	U, Ni	40%	1.5	Cc, Ni, U, Pr	10%	1	Mh, Pp	100%	2	Mh, Cc, Fh	60%	1	Ni	100%	1	Ni	80%	1	Ni
	3	5%	1	Ni	20%	1.5	Ni, Cc, U	60%	1	Pp, Cc	100%	1	Ni, Mh	5%	1	Ni	50%	1	Ni	10%	1	Ni
	4	60%	1.5	Ni, U	40%	1.5	Ni, U, Cc	70%	1	Pp, E	100%	1	Ni	20%	1	Ni	20%	1	Ni	100%	1	Ni
	5	10%	1	Ni, U	30%	1.5	Cc, U, Mh, Ni	60%	1	Pp	100%	1	Ni	5%	1	Ni	50%	1	Ni	100%	1.5	Ni, Fa
C	1	80%	3.5	Cc, U, Eo	70%	3	P1, Fa	100%	1	Pp	100%	1	Fa, Eo	40%	2	Sp, Eo, Cc	30%	1	Ni	85%	1.5	Fa, U, Sg, Ni
	2	60%	2.5	Cc, Pr, Eo, Ni	40%	1.5	P1, Fa	20%	1	Pp, Fa	100%	1	Ni	30%	1	Ni, Eo	0%	0	-	70%	2	Ni, Pe
	3	5%	1	Ni	30%	1	Ni	20%	1	Ni	100%	1	Ni	50%	1	Ni	10%	1	Ni	30%	1	Cc, Fa
	4	5%	1	Ni	30%	1.5	Ni, Cc	10%	1	Ni	100%	1	Ni, Cc (1)	10%	1	Ni	0%	0	-	20%	1	Ni
	5	5%	1	Ni	5%	1.5	Ni, Cc	5%	1	Ni	100%	1	Ni	20%	1	Ni	0%	0	-	10%	1	Fa
	6	5%	1	Ni	5%	1	Ni	20%	1	Ni, Fa	-	-	-	30%	1	Ni	10%	1	Ni	15%	1	Fa, Ni
	7	5%	1	Ni	5%	1	Ni, Pr, U	40%	1	Ni Fa	-	-	-	30%	1	Ni, Fa	90%	1.5	Fa, Eo	5%	1	Fa
D	1	5%	1	Ni	20%	1	Pr, Ni, Fa, U	10%	1	Fa	50%	1	Ni	60%	1	Eo, Ni	100%	1	Eo	10%	1	Fa, Eo
	2	60%	1	Eo	80%	1	Eo	80%	1	Eo, Fa, Pp	100%	1	Ni	60%	1	Eo, Fa	100%	1	Eo	0%	0	-
	3	40%	1	Eo, U	40%	1	U, Ni, Eo	80%	1	Pp, Fa	-	-	-	60%	1	Ni, Eo	0%	0	-	70%	1	Ni, Fa, Eo
	4	60%	1	Eo, Ni, U	5%	1	Ni	70%	1	Ni	100%	1	Ni	60%	2	Ni, Cc	0%	0	-	5%	1	Ni
	5	0%	-	-	10%	1	Ni	15%	1	Pp. Ni	100%	1	Ni, Cc (1)	5%	1	Ni	5%	1	Cc	30%	2	Cc
E	1	10%	1	Eo, Pr, Ni	50%	1	Eo, U, Fa, Ni	20%	1	Pp, Fa	70%	1	Val	30%	1	Eo	60%	1	Eo	15%	1	Fa, Ni, Eo
	2	10%	1	Eo, Ni	10%	1	Eo, Ni	40%	1	Pp, Fa	90%	1	Ni	20%	1	Eo, Ni	30%	1	Eo	10%	1	Eo
	3	5%	1	Eo, Ni	10%	1	Eo, Ni	10%	1	Ni	70%	1	Ni	5%	1	Ni	0%	0	-	10%	1	Fa, Ni

		Fall 2011			Fall 2012			Fall 2013			Spring 2014			Fall 2014			Spring 2015			Fall 2015		
Transect	Point	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species
F	1	0%	-	-	10%	1	Eo, Ni	20%	1	Eo, Pp, Ni, Pr	-	-	-	20%	1	Fa	10%	1	Eo	0%	0	-
	2	0%	-	-	5%	1	Ni	40%	1	Ni, Eo	-	-	-	5%	1	Nu	20%	1	Eo	30%	1	Fa
G	1	60%	2	Cc, U, Eo	60%	1	P1, Fa	30%	1	Pp, Fa	80%	1	Eo, Fa	30%	1	Sp, Eo	30%	1	Cc	25%	1	Fa, Eo
	2	40%	1	Eo, Ni, U	40%	1	P1, Eo, U	5%	1	Pp, Fa	100%	1	Eo, Fa	40%	1	Sp, Eo, Ni, Fa	75%	1	Eo, U	40%	2	Fa
	3	20%	1	Ni	10%	1	Eo, Ni	30%	1	Eo, Pp, Nj	100%	1	Ni	40%	1	Sg, Eo, Ni	0%	0	-	30%	1	Ni, Fa
H	1	5%	1	Ni	5%	1	Eo, Ni	30%	1	Pp	60%	1	Ni, U	10%	1	Eo	40%	1	Fa	0%	0	-
	2	0%	-	-	5%	1	Ni	0%	-	-	100%	1	Ni	20%	1	Ni	0%	0	-	0%	0	-
	3	0%	-	-	0%	-	-	0%	-	-	-	-	-	0%			5%	1	Fa	0%	0	-
	4	0%	-	-	0%	-	-	0%	-	-	-	-	-				10%	1	Ni	0%	0	-
	5	5%	1	Ni	0%	-	-	10%	1	Pp	20%	1	Ni	30%	1	Ni	40%	1	Eo	40%	1	Fa, Ni
	6	5%	1	Eo, Ni	10%	1	Eo	70%	1	Pp. Fa	100%	1	Ni	20%	1	Eo, Io	30%	1	Eo, Fa	0%	0	-
I	1	0%	-	-	5%	1	Eo, Ni	5%	1	Fa	100%	1	Ni, (sponge)	10%	1	Eo, Fa	20%	1	Ni	5%	1	Eo
	2	40%	1	Eo, Ni	10%	1	Eo, Ni	20%	1	Ni	100%	1	Ni	20%	1.5	Eo, Ni, Cc	0%	0	-	60%	1	Fa
	3	5%	1	Ni	5%	1	Eo, Ni	10%	1	Ni	100%	1	Ni	30%	1.5	Ni, Cc	0%	0	-	40%	1	Fa
	4	10%	1.5	U, Ni, Eo, Pr	5%	1	Eo, Ni	5%	1	Ni	100%	1	Ni	10%	1.5	Ni, Cc	0%	0	-	0%	0	-
	5	5%	1	Ni	0%	-	-	5%	1	Ni	100%	1	Ni	10%	1	Ni	30%	1	Eo	0%	0	-
	6	5%	1	Ni	40%	1	P1, V, U, Fa	5%	1	Ni, U	90%	1	V, Ni, Cc	30%	1	Ni, Fa	50%	1	Eo, Cc, U	0%	0	-
J	1	5%	1	Pr, Ni	5%	1	Eo, Ni	20%	1	Pp	-	-	-	20%	1	Eo, Fa,	80%	1	Ni, Fa	5%	1	Eo
	2	20%	1.5	U, Eo, Ni	5%	1	Eo, Ni	10%	1	Pp	100%	1	Ni	40%	1	Ni	100%	1	Ni, Cc, U	0%	0	-
	3	40%	1	Eo	5%	1	Eo, Ni	80%	1	Fa, Eo	50%	1	Ni	20%	1	Eo	70%	1	Ni	0%	0	-
	4	30%	2.5	S, Eo, Ni	30%	1	Sg, U, Fa, Eo	60%	1	Sg, Pp	40%	4	Sg	10%	1	Ni, Eo	0%	0	-	20%	1	Fa
K	1	20%	2	Pr, U, Ni, Eo, S	20%	1	P1, Eo	5%	1	Pp	40%	1	Eo, Ni, Cc	30%	1	Eo, Sg, Ni	30%	1	Eo	0%	0	-
	2	40%	2.5	U, Cc, Pr, Fa, Ni	30%	1	P1, V	30%	1	Pp	100%	2	Eo, Mh (patches)	30%	1	Sg	100%	2	Eo	20%	1	Sg
	3	40%	2	Pr, U, Fa	40%	1	P1, Eo, Ni, Fa	50%	1	Pp	70%	1	Ni	40%	1	Sg	50%	1	Eo	0%	0	-
	4	60%	2.5	Cc, Pr, Fa, U	30%	1	P1, Pr, V, Fa	0%	-	-	100%	2	Ni, Mh	10%	1	Ni	0%	0	-	5%	4	Ny
	5	50%	2	Cc, Pr, Fa, U	0%	-	-	0%	-	-	-	-	-	10%	1	Ni	0%	0	-	0%	0	-

		Fall 2011			Fall 2012			Fall 2013			Spring 2014			Fall 2014			Spring 2015			Fall 2015		
Transect	Point	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species	% Cover	Biomass	Species
L	1	5%	1	Eo	5%	1	Eo, V	20%	1	Ni, Eo, Fa	100%	1	Ni	20%	1	Eo, Fa	90%	1	Eo	0%	0	-
	2	5%	1	Eo	5%	1	Eo	10%	1	Fa, Ni	100%	1	Ni	30%	1	Eo, Fa	90%	1	Eo	10%	1	Eo, Fa
M	1	5%	1	Eo	5%	1	Eo, Ni	5%	1	Ni	-	-	-	30%	1	Eo, Ni, Fa	0%	0	-	5%	1	Fa, Eo
	2	5%	1.5	S, Eo	10%	1	Fa	40%	1	Ni, Eo	10%	2	Sg	40%	1	Eo, Fa	20%	1	Eo	20%	1	Fa
	3	5%	1	U, Eo	20%	1	Eo	20%	1	Pp, Ni	100%	1	Ni	40%	1	Eo, Fa	60%	1	Eo	5%	1	Fa, Eo
	4	5%	1	U, Eo	30%	1	Eo	15%	1	Ni	100%	1	Ni	30%	1	Eo	70%	1	Eo	75%	1.5	Ni, Fa, Cc
N	1	10%	1	Eo	0%	-	-	5%	1	Ni, Eo	100%	1	Ni	20%	1	Eo,	100%	1	Ni	60%	1	Eo, Fa
	2	20%	1	Ni	5%	1	Ni	0%	-	-	100%	1	Ni	20%	2	Eo, Cc	100%	1	Ni	100%	1	Ni, Fa, Cc
O	1	0%	-	-	5%	1	Eo	5%	1	Eo	20%	1	Ni	20%	1	Eo, Fa, Io	0%	0	-	15%	1	Eo, Fa
	2	60%	1.5	U, Ni	60%	1	Ni, Eo, U, Fa	20%	1	U, Ni	50%	1	U, Ni	60%	2	Ni, Cc	100%	1	Ni	0%	0	-
	3	40%	1	Ni	10%	1	Eo, Ni	43%	1	Ni, Pp, Sg	100%	1	Ni	30%	1.5	Ni, Nj, Cc	20%	2	Cc	100%	1	Ni, Cc
	4	20%	1	Ni	10%	1	Eo, Ni	15%	1	Eo, Ni	50%	1	Ni	20%	1	Ni	50%	1	Ni	25%	1	Ni, Cc
		23%			24%			28%			85%			27%			35%			24%		