Foster's Pond Annual Report
2022 Aquatic Management Program

Andover, MA

Prepared for: Foster's Pond Corporation
c/o Stephen Cotton, President
19 Pomeroy Road
Andover, MA 01810
scotton@fosterspond.org

Prepared by: SOLitude Lake Management
590 Lake Street
Shrewsbury, MA 01545

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Introduction

Invasive aquatic vegetation control, cyanobacteria bloom management and monitoring were the focus of this year's lake management efforts at Foster's Pond. This year's management activities included spot-treatment for fanwort (*Cabomba caroliniana*) with three split applications of fluridone herbicide and one copper algaecide treatment for cyanobacteria management. This season marked seven years since a whole-pond Sonar (fluridone) herbicide treatment program was conducted (2015) to control invasive fanwort, and some areas of regrowth were targeted for treatment with Sonar again this season. The purpose of the 2022 survey was to determine the level of control from the previous year's treatments, document the biodiversity of aquatic vegetation, and assess water quality. Again, this season, hydro-raking was conducted in some areas of private shoreline to remove nuisance aquatic vegetation and accumulated organic matter. The treatments, survey, and monitoring described in this report were performed by SŌLitude Lake Management under contract with the Foster's Pond Corporation. Hydro-raking, which was also performed by SŌLitude Lake Management, was coordinated by the Foster's Pond Corporation (FPC) but contracted by individual homeowners.

All work performed at Foster's Pond this season was conducted in accordance with the current Order of Conditions (OOC) issued by the Andover Conservation Commission (DEP #090-535) and the MA DEP – Office of Watershed Management issued License to Apply Chemicals (#WM04-0000864).

A chronology of this year's management and brief description of events is as follows:

2022 Program Chronology

• MA DEP License to Apply Chemicals issued	04/19/22
• Pre-treatment inspection	05/25/22
• Initial fanwort treatment	06/24/22
• Hydro-raking of shoreline areas commenced	06/02/22
• Hydro-raking completed	06/07/22
• Fanwort follow-up treatment	07/25/22
• Late-season vegetation survey	08/04/22 & 08/05/22
• Collection of water quality samples	08/04/22
• Algaecide Treatment	08/05/22
• Fanwort follow-up treatment	09/07/22

Hydro-raking

Private shoreline hydro-raking services were provided for various residents of Foster's Pond to remove nuisance aquatic vegetation as well as accumulated organic matter. Approximately thirty-six (36) hours of hydro-raking services were provided between June 2nd and June 7th. All removed material was placed on the respective residents' shoreline. Pursuant to the OOC, property owners were responsible for proper upland disposal.

This was the sixth consecutive year when hydro-raking operations were scheduled for the spring/summer, rather than in the fall. Spring/summer hydro-raking will continue to be the preferred option moving forward, depending on water levels.

Algae Monitoring

Nuisance algae blooms and corresponding poor water clarity have exhibited themselves periodically through the years at Foster's Pond. The blooms are commonly dominated by cyanobacteria, or blue-green algae, due to elevated phosphorus concentrations within the various basins. The Foster's Pond Corporation diligently monitors water clarity, with FPC volunteers conducting multiple rounds of Secchi disk readings in different basins. When water clarity drops sharply, the FPC sends suspect samples to Northeast Laboratories to conduct formal counts of blue-green algae. These counts are used to make management decisions for the control of cyanobacteria.

This season, when water clarity dropped noticeably in the Main Pond as of July 11th, FPC volunteers submitted water samples from the Main Pond and the Outlet Cove to Northeast Laboratories. Those samples revealed negligible blue-green algae counts. However, as water clarity in the Main Pond declined further, samples were taken again on July 28, at which time the cyanobacteria count remained low in the Outlet Cove but measured at 56,000 cells/mL in the Main Pond. This concentration is below the 70,000 cells/mL at which the Massachusetts Department of Health recommends that people have no contact with the water. However, the weather was very hot, and continued hot weather and drought conditions were forecast, both of which can increase algae and cyanobacteria growth. A copper algaecide treatment was requested right away, and administered on August 5th.

As part of the comprehensive survey which was also undertaken on August 5th, previously scheduled water quality samples taken from the Main Pond and later reported by Northeast Laboratories were found to contain 126,000 cyanobacteria cells/ml, well above MDPH's 70,000 cells/ml safety threshold. Since this sample was collected the same day as the algaecide treatment, and the results were received long after the treatment, the spike in the count obviously did not inform the decision-making process, but the testing confirms the wisdom of close monitoring and prompt action to preempt dangerous blooms. Samples collected after the algaecide treatment showed a desirable reduction in cyanobacteria counts which continued through the rest of the season.

Algaecide Treatment

The algaecide treatment this summer, based on visual observations and laboratory analysis, was conducted on August 5th. On this occasion, half of the pond (60 acres) was treated with copper sulfate. The treatment area consisted of only the Main Pond this year. Copper sulfate was applied at a rate of 0.6 pounds per acre foot which equates to 0.625 ppm of active copper. A total of 150 pounds of copper sulfate was applied.

Fanwort Herbicide Treatment

Based on 2021 and early 2022 survey data, fanwort growth within Azalea Drive and Outlet Cove was targeted for treatment with Sonar (fluridone) herbicide this year. This area totaled 14.5 acres. Other areas of growth were designated for diver hand-pulling. Given the location of the treatment areas, the pellet formulation of fluridone (Sonar ONE) was utilized.

On May 25th, a SŌLitude biologist conducted the cursory, pre-treatment survey to assess the fanwort growth stage for timing of the initial Sonar application. At this time, fanwort plants were just beginning to grow within the water column, as well as other native species. Based on prior years' Sonar treatment programs at Foster's Pond, it is imperative to apply the herbicide early to allow the plants to "grow into" the fluridone concentration within the water. This treatment approach allows for lower concentrations of Sonar to be used as there is less plant biomass to impact. Following the pre-treatment survey, the initial herbicide treatment was scheduled for June 24th.

All treatment dates for the Sonar treatment applications were coordinated with the FPC. Notification of treatment was submitted to the Conservation Commission, email notifications of the treatment areas and water-use restrictions were provided to shoreline property owners and local residents on the FPC's email list, notice was posted on the FPC's website, and warning posters were posted by the FP along the shoreline at key access points of the pond prior to treatment. The initial treatment was completed on June 24th, with follow-up, booster treatments completed on July 25th and September 7th; both treatments were applied to the same predetermined 14.5 acres in Outlet Cove and Azalea Cove by SŌLitude's licensed aquatic applicators in accordance with conditions of the DEP License to Apply Chemicals, the Sonar ONE herbicide label, the OOC, and the program and protocol approved by the Conservation Commission. The herbicide was applied via gasoline powered backpack blower The

predetermined treatment area was loaded into a GPS unit which was used for navigation during the treatment to ensure even application of the herbicide within the area.

The total amount of Sonar ONE applied to the Pond through the course of the three treatments was 240 pounds. The target in-water concentration in the treatment area was 4 to 8 ppb. On August 8t^{h} (approximately 6 weeks after the initial application and 2 weeks after the first "booster" treatment, when it was anticipated that fluridone concentration would peak), a water sample was drawn from the treatment area to measure the Sonar concentration. That sample was analyzed for the presence of fluridone and yielded a result of 7.9 ppb. The laboratory report is attached.

A map of the treatment areas (**Figure 3**) is attached.

Spiny Naiad Management

Spiny naiad growth has been observed in various areas of Foster's Pond over the last few seasons. In anticipation of this again in 2022, the FPC sought approval from the Conservation Commission for a treatment, with the precise locations determined based on pre-treatment observations. No significant growth of spiny naiad was observed this year and therefore no treatments were required.

Annual Late-Season Vegetation Survey

On August 4th& 5th, a SŌLitude biologist conducted the annual aquatic vegetation survey of Foster's Pond, including the Main Pond, Outlet Cove, Azalea Drive, Mill Reservoir, the channels connecting these basins, and Dug Pond. This survey was completed over two days because the equipment was not all present on the first day, and a canoe was used for ease of access for Dug Pond, Azalea Drive basin, and the channel areas. This annual survey documents the aquatic plant composition and distribution utilizing consistent survey methodology, transects and data points established at the time of the first survey in 2004. Supplementary survey points have been added into the survey based on client recommendation and request: ten data points including G1-G4 in Dug Pond in 2008, A-E in 2016, and F-J in 2018. A total of 61 data points were surveyed. A map (**Figure 1**) illustrating the transect and data point locations is included below; the raw data collected is attached.

Figure 1: Survey point locations within Foster's Pond.

Overall, the basins supported similar levels of vegetation to those observed over the last few years, with regard to total percent cover, biomass, and species richness (see **Table 2**). White and yellow water lilies, fanwort, and slender naiad were the dominant species within the lake. Other plant species in the lake are fairly sporadic across the basins – most notably purple bladderwort (*Utricularia purpurea*), common bladderwort (*Utricularia vulgaris*), ribbon-leaf pondweed *(Potamogeton epihydrus)*, thin-leaf pondweed (*Potamogeton pusillus*), spiny naiad (*Najas minor*), and a variety of filamentous and macroalga species.

Table 2: Aquatic vegetation analysis summary from 2004-2022.

Year	Estimated % Total Plant Cover	Estimated % Fanwort Cover	Biomass Index	Species Richness Index
2004	78.9	54.5	2.9	3.6
2005[1]	25.5	0.1	1.4	1.7
2008	15.9	0.9	1.6	1.7
2009	34.2	6.1	1.6	5.5
2011[1]	19.0	0	1.2	1.4
2012	21.2	0.1	1.3	1.6
2014	53.6	10.9	2.4	2.7
2015[1]	41.7	0	1.6	0.8
2016	70.3	0.2	2.4	1.3
2017[2]	67.6	17.7	2.2	1.8

Year	Estimated % Total Plant Cover	Estimated % Fanwort Cover	Biomass Index	Species Richness Index
2018[2]	59.3	11.7	2.0	1.4
2019[2]	41.5	1.5	1.8	3.0
2020[2]	49.6	2.1	3.1	2.8
2021[2]	35.5	4.6	3.1	2.4
2022[2]	20.1	7.7	1.4	1.4

[1] Whole-lake Sonar (fluridone) treatment performed,
[2] Excludes additional points A-J, compares to 2016 data points

The above table (**Table 2**) displays historical data collected over the years from 2004 to present, and also shows calculations made from this data. The biomass index is a measurement of the height of plants within the water column, and the species richness index is the average number of vegetation species found at each survey point.

Percent fanwort cover increased from 4.6% in 2021 to 7.7% in 2022 comparing only the 2016 point locations. The majority of the fanwort observed was showing signs of chlorosis in the treatment areas. The additional points A-J should not be used for past comparison, but rather documentation for future efforts. However, the frequency of fanwort documentation across all points generally remained the same regardless of the point additions at a 3% increase in frequency. Of the A-J points surveyed in 2022, only two supported fanwort growth, points C & I. Spiny naiad was documented at several points throughout the water body(6.6% of points), however it was only found at sparse densities within the survey point areas.

An attached map (**Figure 4)** displays additional observations of fanwort outside of the survey points, as many points did not contain fanwort during the post-management survey. Much of the observed fanwort was chlorotic, with the exception of Dug Pond of course, due to the lack of treatment within that part of the water body. An additional attached map displays the treatment areas for 2022 (**Figure 3)**, as well as a third attached map that displays 2021 and 2022 pre-management fanwort observations (**Figure 2**).

Notably, the fanwort infestation in Dug Pond (G1-G4) was present at three of the four sites (G1, G2, & G3) within that basin, and at sparse to dense abundance. This fanwort was healthy and thriving because it was not treated this year, while most or all other areas of fanwort within and directly adjacent to the treatment areas showed signs of chlorosis.

The shallow and cove areas support the majority of white and yellow water lilies. Other species encountered include a variety of pondweeds (*Potamogeton spp.*), coontail (*Ceratophyllum demersum*), spikerush (*Eleocharis spp.)*, and bladderwort (*Utricularia spp.)*.

Tables for temperature and dissolved oxygen readings, vegetation species and abundance, algae and cyanobacteria counts and species identification are attached. On the raw data table from the vegetation survey, D indicates dense vegetation or macroalgae observations, and X means observed vegetation or macroalgae.

Table 3 (below) catalogs the species observed over the past years during surveys, and this is helpful to track the observances of the listed species.

Table 3: Aquatic species list with historical comparison from years 2005-present.

Type	Macrophyte Species	Common Name	2005	2008	2009	2011	2012	2014	2015	2016	2017	2018	2019	2020	2021	2022
Submersed	*Bidens beckii*	Water marigold			x											
	Cabomba caroliniana	Fanwort	x	x	x		x	x		x	x	x	x	x	x	x
	Callitriche sp.	Water starwort			x					x		x		x		
	Ceratophyllum demersum	Coontail	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Chara sp.	Muskgrass			x	x						x	x	x	x	x
	Chlorophyta sp.	Filamentous algae	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Egeria densa	Brazilian elodea	x	x	x											
	Elodea canadensis	Common waterweed			x							x				x
	Hypericum boreale	Northern St. John's wort			x											
	Isoetes sp.	Quillwort	x	x	x	x	x									
	Ludwigia palustris	Water purslane			x	x	x									x
	Musci/Fontinalis sp.	Aquatic moss	x	x	x		x	x	x		x	x			x	
	Myriophyllum humile	Low watermilfoil	x	x	x	x		x			x	x	x		x	x
	Najas flexilis	Slender naiad	x	x	x		x	x						x	x	
	Najas guadalupensis	Southern naiad										x		x		
	Najas minor	Spiny naiad			x			x		x	x	x	x	x	x	x
	Nitella sp.	Stonewort	x	x	x	x	x	x	x	x	x				x	x
	Potamogeton amplifolius	Big-leaf pondweed										x	x			x
	Potamogeton epihydrus	Ribbon-leaf pondweed		x	x	x	x	x	x	x	x	x	x	x	x	x
	Potamogeton gramineus	Variable-leaf pondweed			x		x				x	x				
	Potamogeton natans	Floating leaf pondweed		x	x			x			x		x	x	x	
	Potamogeton pusillus	Thin-leaf pondweed						x		x		x	x	x	x	x
	Potamogeton robbinsii	Robbins' pondweed								x	x		x		x	x
	Sagittaria sp.	Arrowhead		x	x		x									
	Schoenoplectus subterminalis	Grassy bulrush										x	x			
	Utricularia spp.	Bladderwort	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Vallisneria americana	Tapegrass			x						x					
Floating Leaf	*Brasenia schreberi*	Watershield		x	x		x	x	x		x		x	x	x	
	Lemna minor	Lesser duckweed			x											
	Nuphar variegata	Yellow waterlily	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Nymphaea odorata	White waterlily	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Nymphoides cordata	Little floating heart										x				
	Spirodela polyrhiza	Big duckweed			x											
Emergent	*Decodon verticillatus*	Water willow	x	x	x	x	x		x	x	x	x	x	x	x	
	Eleocharis sp.	Spikerush			x									x	x	x
	Eriocaulon sp.	Pipewort	x	x												
	Lythrum salicaria	Purple loosestrife	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Peltandra virginica	Arrow arum			x							x	x			
	Pontederia cordata	Pickerelweed	x	x	x	x	x				x	x	x	x	x	x
	Scirpus sp.	Rushes	x	x								x	x	x	x	
	Sparganium sp.	Bur-reed		x	x	x	x	x	x	x	x	x	x		x	x
	Typha sp.	Cattail	x	x	x	x	x		x	x	x	x	x	x	x	x

X indicates species was observed
Red text indicates an invasive species

Water Quality Monitoring

Water quality sampling was performed at Foster's Pond in 2022 consistent with prior year's efforts and locations, as well as the addition of the Azalea Drive site in 2017. Surface grab water samples were collected from five locations, shown on the map below, on August 4 and 5th. Laboratory analysis was performed for the following parameters: pH, total alkalinity, total phosphorus, turbidity, true and apparent color, and fecal and total coliform. The results are discussed further within this report.

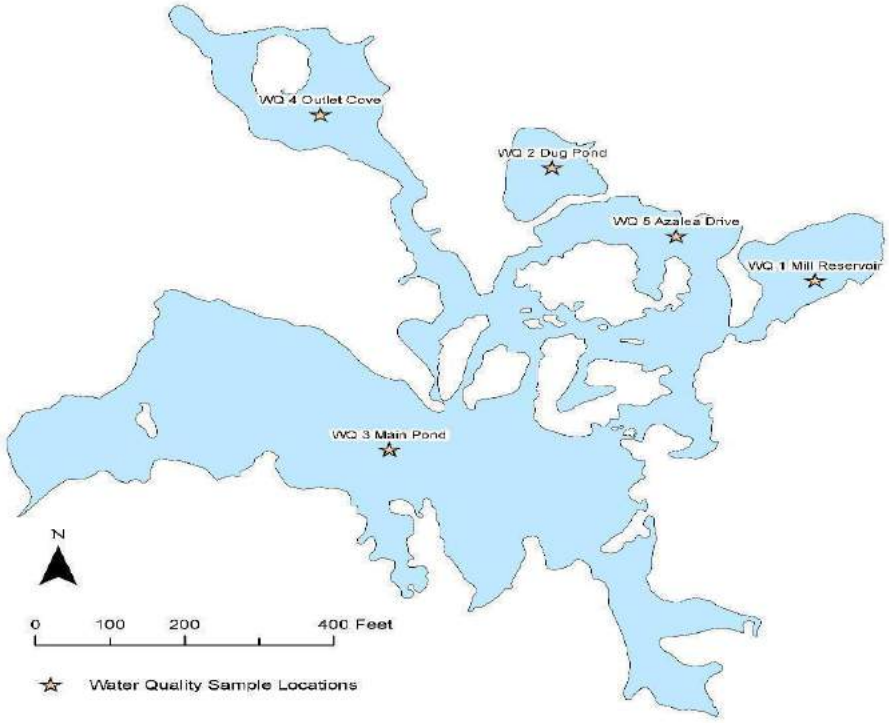


Figure 2: Water quality sample locations.

Table 4: Water quality results collected on August 4th and 5th, 2022.

Parameter	Units	Desirable Thresholds	Mill Reservoir (WQ1)	Dug Pond (WQ2)	Main Pond (WQ3)	Outlet Cove (WQ4)	Azalea Drive (WQ5)
pH	S.U.	6.0-8.0	7.2	7.1	7.2	7.2	7.2
Alkalinity, total	mg/L CaC03	<50	30.0	18.3	25.9	26.5	25.2
Phosphorus, total	mg/L	0.030	0.016	ND	0.031	0.022	0.015
True Color	Pt-Co	-	20	ND	20	25	35
Apparent Color	Pt-Co	-	27	ND	44	37	47
Turbidity	NTU	-	2.2	0.73	8.8	2.0	0.95
Fecal Coliform	col/100mL	<235	15	7.0	ND	ND	8.0
Total Coliform	MPN/100mL		1119.87	3950	7757	1299.65	1986.29

ND = None Detected

Water Quality Explanations

Alkalinity is the measure of the water's capacity to neutralize acids. A higher alkalinity can buffer the water against rapid pH changes, which in turn prevents undue stress on aquatic biota due to fluctuating pH levels. The alkalinity of a lake is primarily a function of the

watershed's soil and rock composition. Limestone, dolomite and calcite are all a source of alkalinity. High levels of precipitation in a short amount of time can decrease the water's alkalinity. A typical freshwater lake has an alkalinity of 20-200 mg/L. A lake with a low alkalinity typically also has a low pH, which can limit the diversity of aquatic biota. ***Total alkalinity values varied between locations, as some values were slightly lower than desirable, but all are characteristic for waterbodies in the region and similar to historical values.***

pH is a measurement of alkalinity or acidity of a water body. The pH scale ranges from 0 (acidic) to 14 (basic) with 7 being neutral. Natural pH values of most freshwater systems range between 6 and 8. Extreme pH values (less than 5.5 and greater than 9) have detrimental effects on organism physiology and can result in the direct loss of sensitive species. Diurnal fluctuations in pH are common in freshwater ponds and lakes. The extent to which the pH fluctuates depends on how well the freshwater system is buffered. If the pH remains between 5.0-9.0, adverse impacts to fish and other aquatic biota are generally not observed. ***The pH values of all locations were very close to neutral and within desirable ranges for northeast freshwater systems.***

Total Phosphorus is considered the limiting nutrient for aquatic plant growth in freshwater environments. The amount of phosphorus present in the water column determines the amount of phytoplankton and, to a lesser degree, aquatic plants that will grow in the water body. Generally, TP over 30 parts per billion (ppb), or 0.03 mg/l, is the threshold at which algal growth can become problematic. Increased total phosphorus levels in the hypolimnion can most likely be attributed to the biomass accumulation of dead algae cells and release from the bottom sediments. For total phosphorus, levels over 0.03 mg/l are high enough to support nuisance algae blooms and ideally the concentration would be < 0.02 mg/l. The higher total phosphorus levels in the Main Basin was evidenced by high cyanobacteria levels in the pond this year. ***Total phosphorus levels in the Main Pond were slightly elevated at the time of the sampling (≥ 0.03 mg/L), whereas Mill Reservoir, Outlet Pond and Azalea Drive fell within the desirable threshold. Dug Pond was determined to have no detectable phosphorus at the time of sampling.***

True Color is the color of filtered pond water, free of particulates; it represents only dissolved organic matter (DOM) in the water. This value can be subtracted from the Apparent Color to determine the quality of water inputs. **Apparent Color** is the color of the unfiltered pond water, caused by suspended and dissolved matter. This value can change drastically depending on weather conditions: increase with storm events, decrease with drought. There are four approximate categories for Color: 0-25 is clear, 25-40 is light tea-color, 40-80 is tea color, >80 is dark tea color. ***True and apparent color measurements were categorized between light tea and tea color.***

Turbidity is a relative measurement of suspended material in the water, through a process involving light diffraction of the pond sample as compared to a series of prepared samples. Turbidity values in most waterbodies rarely rise above 5 NTU. Values greater than 10 NTU indicate high suspended solids, often due to increased runoff, high inflow, construction activity, or severe microscopic algae blooms. Suspended solids include soil particles (clay,

silt and sand), algae, and plankton. ***Turbidity in the Main Pond was very high, indicative of the cyanobacteria bloom during the sampling event. All other samples were at a desirable turbidity level.***

Total and fecal coliform bacteria can be understood as a series of concentric circles: the outermost ring of total coliform bacteria encompasses all forms; the next ring is fecal coliform which is a sub-group of total coliform and is composed of many strains of bacteria commonly found in the intestines and feces of people and animals; the innermost ring is that of *E. coli* which is a specific strain of fecal coliform linked to causing illness in humans. Measuring fecal coliform allows for an indicator to the presence of human or animal waste inputs. Acceptable values for "swimmable waters" for fecal coliform bacteria is less than 235 organisms per 100 mL. Total coliform amounts are recommended to be zero for drinking water, but it is unclear at which amount they can be safely present in recreational lakes and ponds. The sources of coliform bacteria include: animal waste, wastewater runoff, agricultural runoff, soil, leaking septic tanks, and bacteria blooms. ***All basins fell below concerning thresholds for fecal and total coliform counts.***

Dissolved oxygen (DO) is very important in pond systems. Fish and other aquatic biota require adequate levels of oxygen, and DO affect many aspects of the water chemistry. Values below 3.0-5.0 mg/l are undesirable for most aquatic life; however, lower values are not uncommon near the sediment layer where oxygen demand is great and oxygen influx is at a minimum. Under extreme anoxic conditions (<1.0 mg/l), phosphorus can be released from the sediment and stimulate algal blooms. Under stratified conditions, which occur in deeper water bodies, anoxia can occur in a significant portion of the water column, possibly endangering fish populations, especially cold-water species. ***Dissolved oxygen levels remained at typical levels within each sampling location, and showed an anoxic bottom of the sites within the Main Basin, Mill Reservoir, and Azalea Drive. This is typical of many water bodies.***

Conclusions and Recommendations

The native vegetation in Foster's Pond has reached a relatively stable state since the last whole pond treatment with fluridone in 2015. Based on the history of conditions and management at Foster's Pond, as well as the presence of invasive aquatic species, specifically fanwort, it is likely that problematic aquatic plant growth will continue in the future. Timely management will be required to maintain control of non-native species, fanwort and spiny naiad. It is highly recommended that the Foster's Pond Corporation continue early and late-season annual monitoring efforts to assess fanwort distribution and watch for potential new infestations of other invasive species, as many other invasive species are in nearby water bodies.

Within Dug Pond, an early season Sonar treatment is recommended to treat the fanwort infestation before it has time to grow throughout the spring and summer. April would be an ideal time to get ahead of the plants and allow the chemical to "grow into" the plants when they emerge for the spring. After the initial treatment, it is recommended to employ divers to maintain fanwort areas that may emerge later in the season to keep control of the plants within the Pond.

Fanwort control: We continue to recommend a balanced approach to managing fanwort: attempting with non-chemical controls where economically and logistically feasible and targeting with spot treatments specific infestations that are too large or too dense to be effectively controlled by other means. Eradicating small infestations as they emerge and are identified is the best way to minimize the need for whole-lake treatments. We recommend a herbicide treatment with Sonar in Dug Pond, due to the dense cover of fanwort observed in the water body. It is recommended to perform an early season treatment to get ahead of the fanwort growth rather than waiting until after performing an early season pre-treatment survey.

A two-person dive team spent two days removing fanwort from Dug Pond in 2022. They estimated that they removed approximately 1.5 cubic yards, but found the conditions difficult. Dug Pond is much deeper than most parts of Foster's Pond, decreasing the efficiency of the divers. In addition, much of the fanwort is entwined with water lilies, making it difficult to remove fanwort root balls wrapped around the much more substantial roots of the lilies. After two days of intense effort, the divers concluded that they were unable to remove the dense growth in Dug Pond cost-effectively, and concentrated on other parts of Foster's Pond. In their written report, the dive team suggested considering chemical treatment for Dug Pond.

Fanwort alternatives analysis: The Massachusetts Department of Conservation and Recreation (MA DCR) has provided guidance that considers alternative methods of controlling fanwort. MA DCR reviewed eradication and control options, including hand harvesting, suction harvesting, benthic barriers, water level drawdown, and herbicides. The Foster's Pond Corporation has varying degrees of experience with all of these methods, most recently experimenting with the use of hand harvesting, suction harvesting, and benthic barriers. The Corporation's experience to date is consistent with the MA DCR alternatives analysis.

The Corporation has long used winter drawdowns, primarily to protect the Foster's Pond Dam from overtopping in potential spring-time flood events but secondarily to control nuisance vegetation. Due to the physical limitations of the 160-year-old dam, the Pond can only be lowered about 18 inches below the lip of the spillway. As a consequence, only the shallowest coves are exposed to freezing temperatures over the winter. While nuisance vegetation appears to be controlled in these coves, the geographic reach of the drawdown, as a weed management technique, is limited and is anticipated to continue to be. Moreover, with climate change, milder winters result in shorter and less severe intervals of freezing, which may render drawdowns a less effective control technique.

In 2019, the Corporation experimented for the first time with both diver-assisted suction harvesting (DASH) and hand harvesting by divers. DASH proved to be impractical in the conditions presented by Foster's Pond. There are no launch points to accommodate the large craft typically used for the necessary equipment. Even a small raft proved difficult to maneuver into position through the Pond's shallow channels. Moreover, as predicted by the MA DCR analysis, the Pond's thick and silty sediments instantly turned the water opaque, blinding the diver and making it impossible to see the target plants. The operation also resulted in a great deal of fragmentation, which could not be effectively controlled as the fragments interspersed

with non-target vegetation. The 2019 DASH experiment was terminated, and divers were instead deployed to engage in hand-pulling.

Hand-pulling yielded mixed results in 2019 but proved more effective in 2020, perhaps due to the deployment of more experienced divers, greater selectivity in the target areas, and scheduling repetitive dives in the same areas on successive days. Diver hand-pulling was utilized again in 2021 & 2022, but mostly after we had conducted our annual vegetation survey, so the results could not be evaluated by the survey. A less systematic observation by the FPC concluded that divers had markedly reduced the concentration of fanwort in the areas they targeted (Dug Pond, Main Pond), but left behind significant numbers of plants. Moreover, the work proceeded more slowly than anticipated, and the divers exhausted their budget before clearing all the targeted areas. Hand-pulling, like DASH, increases the turbidity of the water, making it challenging for the diver to distinguish between target and non-target plants; diving in the same area on a later date allows sediments to settle, revealing plants that were missed on the first dive. Additionally, if fanwort is interspersed with lilies, the delicate fanwort stems entwine around the sturdier lily stems, making it impossible for divers to remove the fanwort root balls or stems without extensive fragmentation. The Foster's Pond Corporation's experience has been consistent with the MA DCR alternatives analysis, which indicated that areas of more than a few hundred square feet, with more than 10 fanwort stems per 100 square feet, are not susceptible to effective control through hand-pulling.

Based on the MA DCR analysis, the Foster's Pond Corporation has determined not to attempt the use of large benthic barriers. Large barriers require significant time and effort to install, relocate and remove over the course of a season and have additional, negative impacts to other aquatic species present within the immediate area. The use of large barriers is not permitted under the current OOC.

The Foster's Pond Corporation has experimented over the course of three years with smaller scale benthic barriers, which are authorized by the OOC. During the 2018 season, the FPC and SŌLitude coordinated the use of nine (9), small scale (5' x 5') benthic barriers within Foster's Pond on individual and/or small areas of fanwort growth that were observed later in the season outside of any treatment areas. The barriers proved difficult for the volunteers to install, as fanwort was detected in locations that were too deep and heavily silted for the volunteers to stand. The installation caused some fragmentation. The barriers were likewise difficult to remove, clean, and store in the fall. The results of this experiment could not conclusively be evaluated in 2019, as the barriers had been emplaced in areas that were treated in 2019 with Sonar (based on the 2018 vegetation survey) before fanwort emerged anywhere in the Pond. However, because it was evident when the barriers were positioned that they did not completely cover the infested areas, it was obvious that fanwort control would be unsatisfactory.

In 2019 and 2020, an effort was made to continue experimenting with the small barriers. It was time-consuming and difficult to locate suitable locations at which to deploy the barriers. The infestation needed to (1) be accessible from the shoreline, so that the barrier could be assembled on dry ground; (2) consist of just one or two plants that could be completely covered by the barrier; (3) be growing in water shallow enough for a volunteer to stand while carefully

guiding the barrier into position; and (4) not be interspersed with lilies or other plants which would interfere with proper placement. Only two such locations were identified in 2019, and one in 2020. The barriers were successful at all sites but eliminated only a very small number of plants. Diving would likely have been quicker and as effective.

With respect to chemical alternatives, only two herbicides are currently approved for use in Massachusetts to manage fanwort infestations. Fluridone and Clipper (flumioxazin) are both registered by the Massachusetts Department of Agricultural Resources and authorized by the current OOC for Foster's Pond. Clipper has proven effective in spot-treating fanwort growth in Massachusetts lakes and ponds; however, the Department of Environmental Protection limits treatment to less than 25% of the total water body's acreage in one year, and a treated area may not be retreated for 3 years. Since Clipper is a contact herbicide, regrowth can be expected in the year after treatment. Experience in other jurisdictions indicates that at least several years of consecutive treatment followed by periodic re-treatment are usually required to manage an infestation with Clipper. Given the current restrictions on the use of Clipper in Massachusetts and the past success of treatments with fluridone in Foster's Pond, addressing the re-growth using Clipper is not likely to provide a substantial benefit to Foster's Pond. We will continue to evaluate new technologies as they become available or re-visit options should regulatory restrictions change.

In the meantime, spot-treatment with granular or liquid Sonar remains the best alternative for controlling regrowth in 2023 and beyond. Based on this year's and past experience in Foster's Pond, it is anticipated that, if necessary, treating a limited number of acres on an ongoing basis will minimize the need for a whole-lake treatment in the immediate future. This allows less herbicide to be used at any one given time and provides a more financially feasible approach for the FPC.

Spiny naiad control: Spiny naiad is a late germinating species which spreads via seed production. Plants typically emerge in mid to late July from seeds dropped by plants in the previous year or two. A mid-July survey is necessary to assess growth and determine the extent requiring a spot-treatment. Multiple years of successful treatment can effectively reduce the viable seed bank. Small amounts of spiny naiad were observed in Foster's Pond in 2022. This hopefully is a result of continued management, however we cannot rule out other environmental conditions and so it will be important to remain vigilant and see if the trend continues.

As with past years, we again recommend that in 2023 the FPC conduct a survey focusing on the presence of spiny naiad and, to the extent treatable infestations are observed, proceed with a spot-treatment of those areas with diquat. Timely application would require securing Conservation Commission approval, and a DEP license, in advance for this contingency, as was done since 2017 (whether treatment ends up being necessary or not).

Spiny naiad alternatives analysis: According to NOAA's Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS), use of aquatic herbicides is the most effective method of controlling spiny naiad growth, especially as it relates to the infestation within Foster's Pond.

Diquat and fluridone herbicides are two of the recommended aquatic herbicides that provide control of spiny naiad and are also included in the current OOC for Foster's Pond. Mechanical removal of spiny naiad is also possible (but not recommended), using a mechanical harvester or hydro-rake. However, spiny naiad is an incredibly brittle plant which spreads via fragmentation and thus mechanical removal may provide short-term relief but would likely increase the infestation within the pond overall. Benthic barriers are also a viable option, but as mentioned previously in regard to fanwort control, these are time consuming to manage while having non-target impacts. However, a smaller scale option may be more feasible within isolated areas of growth. The FPC and SŌLitude will continue to assess the feasibility each year of utilizing smaller barriers where appropriate for spiny naiad growth and do so accordingly, if possible. To date, no spiny naiad growth has been applicable for this approach.

Algae control: Continued algal composition and density monitoring through the summer months is recommended as it allows for appropriately timed algaecide treatment(s) when necessary.

Based on the Watershed-Based Plan developed by Geosyntec for the FPC, we understand that overall phosphorus remains an extensive challenge within the surrounding watershed. To better understand the phosphorus loading, we recommend conducting in-pond sediment sampling to be analyzed for available phosphorus. By gaining this information, and utilizing the Watershed-Based Plan, we can develop the most effective in-water nutrient management plan to correlate with the watershed plan.

Based on the in-lake sediment phosphorus analysis, SŌLitude can work with the FPC to align nutrient management techniques with their goals. Management of phosphorus within the pond, among other nutrients, will likely limit algal growth. Using various management techniques together can prevent excessive algae growth, potential health hazards and associated waterbody closures from state agencies.

Copper-based algaecides effectively manage an active algae bloom; however, an algaecide treatment is merely controlling the symptom of excessive nutrients present within Foster's Pond. Low-dose aluminum treatments have proven to be effective in reduction of nutrients, specifically phosphorus, while limiting the need for conducting copper-algaecide treatments. Ultimately, by reducing the phosphorus readily available for uptake by algae, the frequency and severity of algal blooms is also reduced. Annual, low-dose alum treatments have been found to have cumulative effects on reducing iron-bound phosphorus released from sediments during anoxic times. Prior to any alum treatment implementation, a detailed plan would need to be established. Higher dose alum treatments are also available as an option for Foster's Pond; however, we recommend conducting more in-lake phosphorus sampling before proceeding with any alum treatments.

SeClear is another available product that combines algaecide properties with a phosphorus reducing agent. SeClear will not reduce the available phosphorus levels as significantly as alum would, but it could be a viable alternative to conducting copper sulfate treatments. A SeClear treatment would carry a cost in between that of traditional copper sulfate treatments and a

low-dose alum treatment, while potentially reducing phosphorus levels enough to minimize the potential for subsequent blooms later in the season.

Thank you for your continued collaboration with SOLitude Lake Management. We look forward to working with you again in 2023.

Attachments

Figure 1: Survey Data Points

Figure 2: Pre-Treatment Fanwort Observations Map

Figure 3: 2022 Fanwort Treatment Areas Map

Figure 4: Fanwort and Brittle Naiad Observation Map (August 2022)

Aquatic Plant Survey Field Data Table

Temperature and Dissolved Oxygen Readings Table

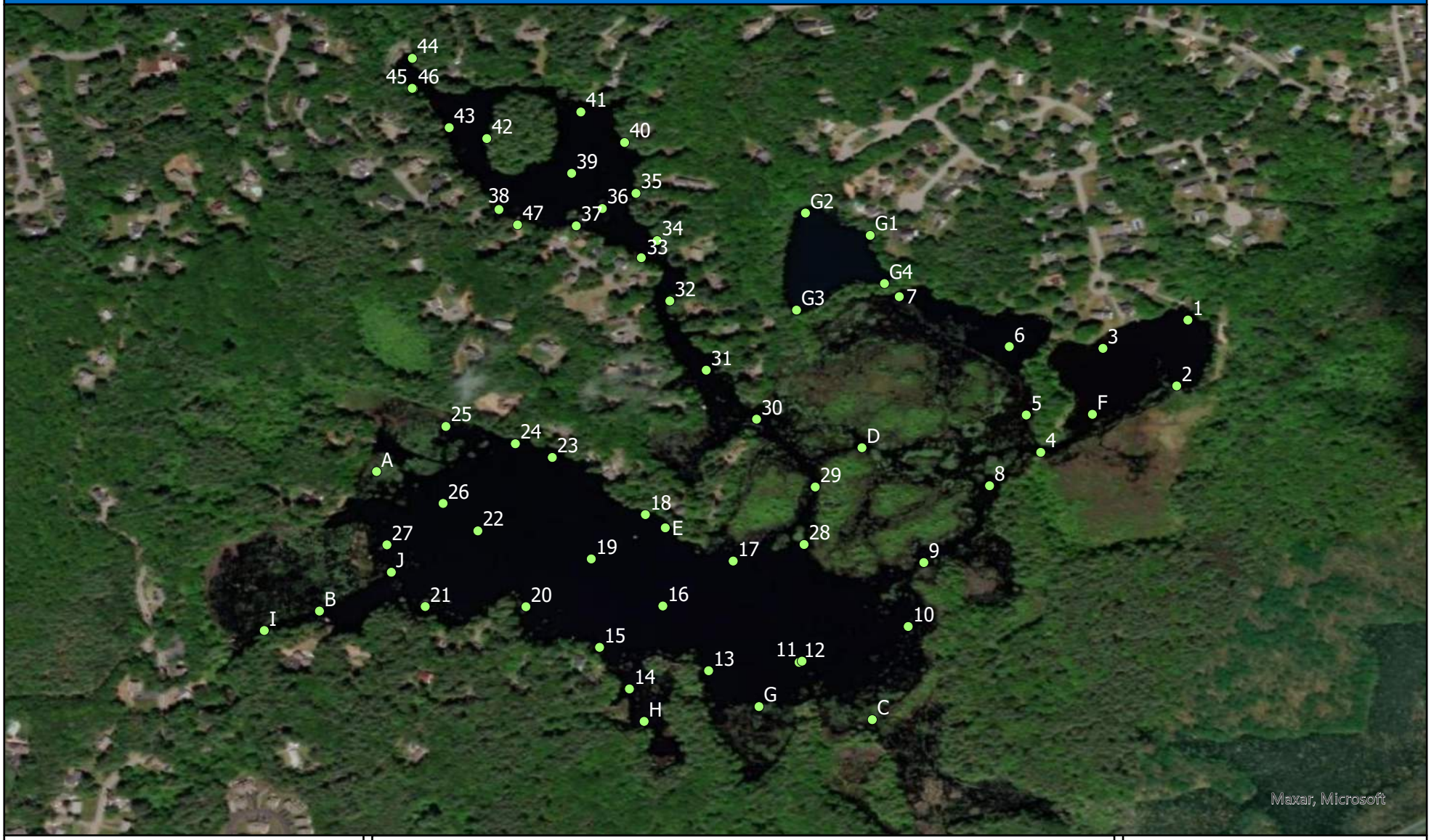
Water Quality Laboratory Reports

Northeast Laboratories Algae and Cyanobacteria Reports

FasTEST Sample Report

FIGURE 1: Data Points
Foster's Pond

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



Foster's Pond
Andover, MA

Legend

Survey Points

Foster's Pond

1:17,055,183

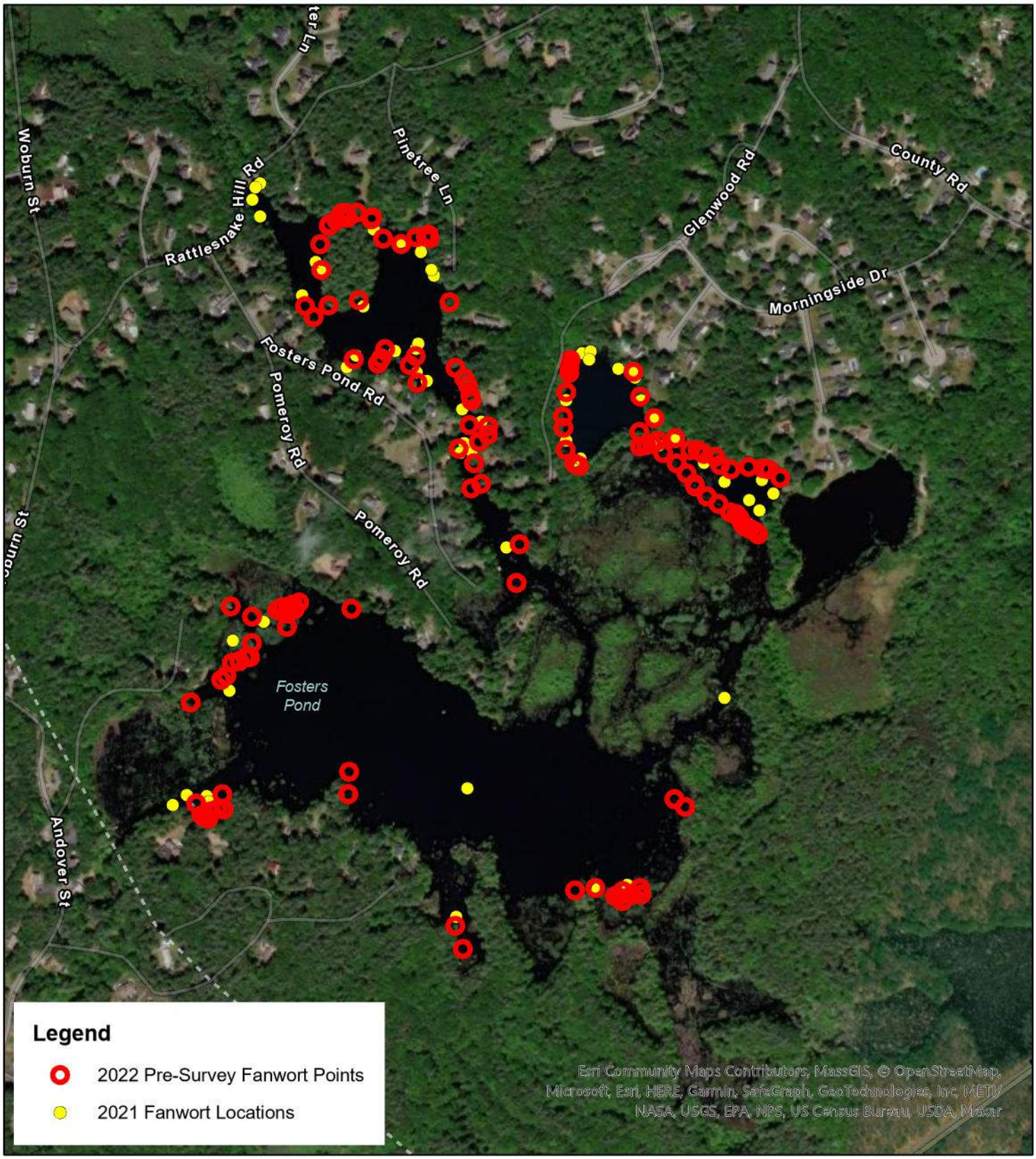
580 290 0 580
Feet

N

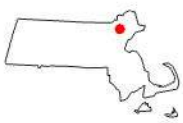
Map Date: 11/10/2022
File: FostersPd22.SurveyPts
Prepared by: KV
Office: Shrewsbury, MA

Figure 2: Pre-Treatment Fanwort Locations (2021 & 2022)

SOLITUDE LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



Foster's Pond
Andover, MA
Essex County
42.6060° N, 71.1382° W



Foster's Pond

0 600 1,200 Feet

1:7,489

N

Survey Date: 5/25/22, 8/9/21
Map Date: 6/2/22
Prepared by: DM
Office: SHREWSBURY, MA

Figure 3: 2022 Fluridone Treatment Area

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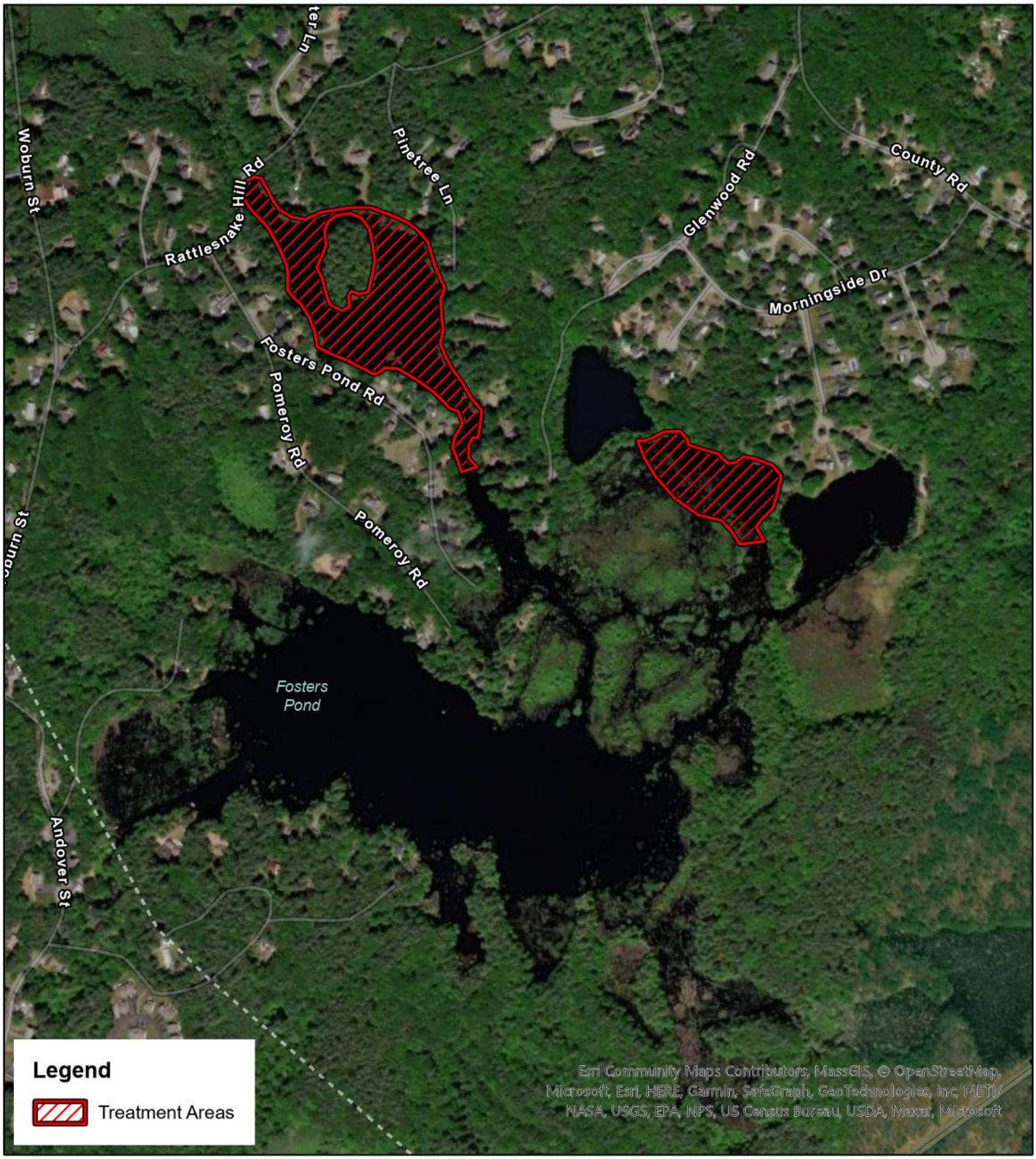
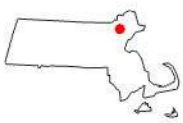
solitudelakemanagement.com



Foster's Pond
Andover, MA
Essex County
42.6060° N, 71.1382° W



Foster's Pond

0 600 1,200 Feet

1:7,489

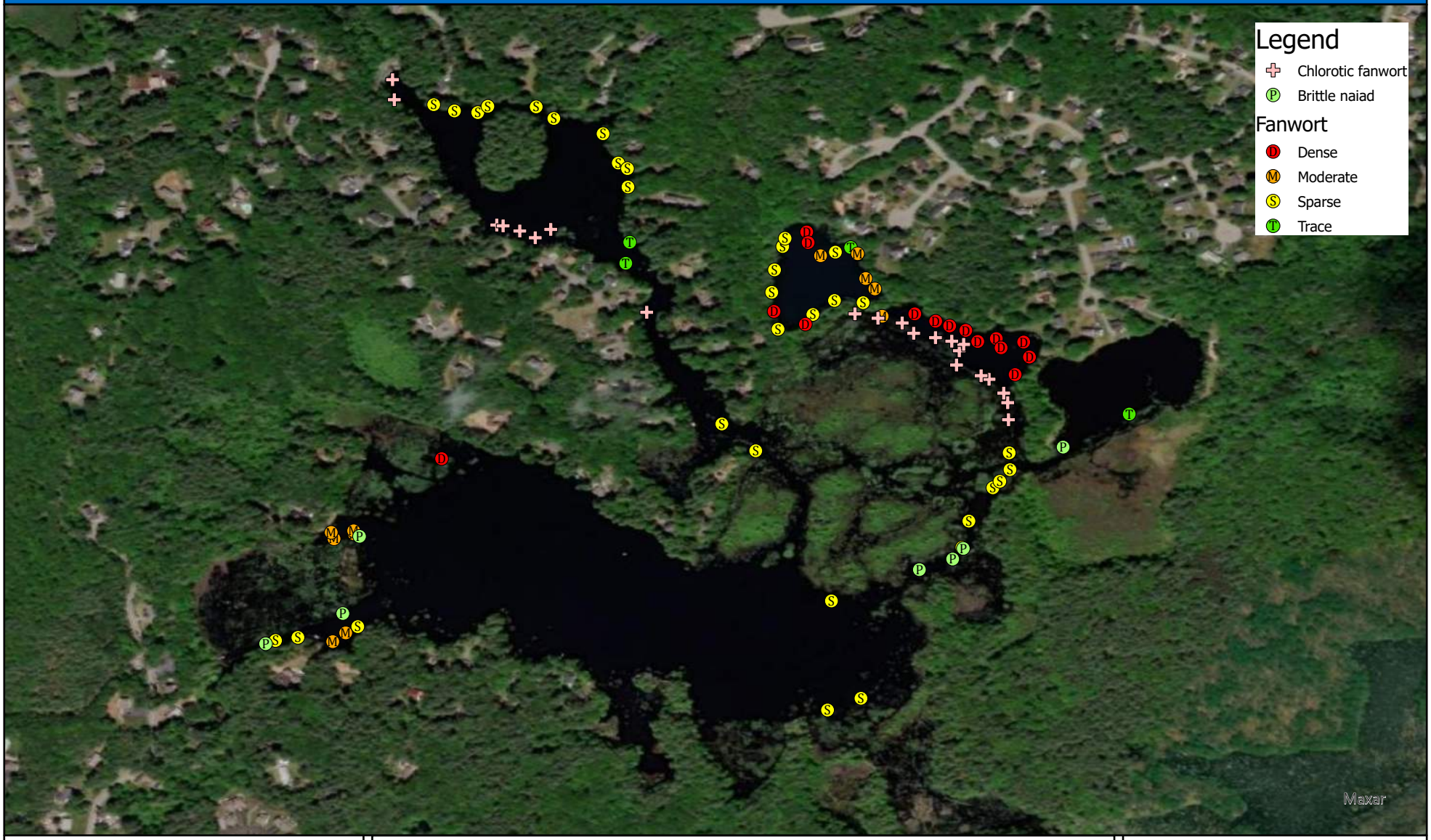
N

Map Date: 6/2/22

Prepared by: DM
Office: SHREWSBURY, MA

FIGURE 4: Additional Fanwort and Brittle Naiad Observations, August 2022
Foster's Pond

SOLITUDE LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



Foster's Pond
Andover, MA

Foster's Pond

1:8,666

580 290 0 580 Feet

N

Survey Date: 08/05/2022
File: FostersPd22.PostCC
Prepared by: KV
Office: Shrewsbury, MA

Data Point	Water Depth (ft.)	% Total Plant Cover	% Fanwort Cover	Biomass index	Species Richness index	Watershield	Water starwort	Fanwort	Coontail	Chara	Filamentous Algae	Bulrush	Brittle naiad	Slender naiad	Southern naiad	Spikerush	Big-leaf pondweed	Ribbon-leaf pondweed	Floating-leaf pondweed	Thin-leaf pondweed	Robbins' pondweed	Creeping bladderwort	White waterlily	Yellow waterlily	Water purslane	Variable watermilfoil
1	10.5	0	0	0	0																					
2	5.1	0	0	0	0																					
3	8.6	0	0	0	0																					
4	3.0	30	0	1	3					D	X		X													
5	0.6	65	30	4	4			X		D													X	X		
6	9.2	0	0	0	0																					
7	5.7	75	65	4	4			X		X						X							X			
8	1.0	65	0	1	1								X													
9	1.0	0	0	0	1						X															
10	3.3	25	0	4	3						X												X	X		
11	8.2	0	0	0	0																					
12	8.3	0	0	0	0																					
13	5.1	0	0	0	1						X															
14	2.2	65	0	4	2						X												X			
15	6.7	0	0	0	1						X															
16	9.3	0	0	0	1						X															
17	5.6	10	0	4	2						X												X			
18	3.0	10	0	4	2						X												X			
19	9.8	0	0	0	0																					
20	8.8	0	0	0	0																					
21	4.3	25	0	4	3						X												X	X		
22	8.6	0	0	0	1						X															
23	2.8	0	0	0	1						X															
24	3.5	0	0	0	1						X															
25	1.5	0	0	0	1						X															
26	6.4	0	0	0	0																					
27	3.8	0	0	0	1						X															
28	2.8	0	0	0	1						X															
29	3.1	0	0	0	1						X															
30	2.0	80	0	2	2					D																
31	3.2	0	0	0	1						X															
32	2.8	0	0	0	1						X															
33	3.5	0	0	0	1						X															
34	3.1	50	35	3	3			X			X															
35	3.6	30	10	4	4			X			X												X			
36	0.5	0	0	0	0																					
37	3.3	0	0	0	1						X															
38	3.1	0	0	0	1						X															
39	5.7	0	0	0	0																					
40	4.8	35	35	3	2			X			X															
41	3.2	80	65	4	4			X									X						X			
42	5.1	0	0	0	1						X															
43	4.9	65	0	3	4					X	X											X			T	
44	n/a				0																					
45	n/a				0																					
46	n/a				0																					
47	2.6	10	0	4	1																		X			
G1	2.1	35	35	3	1			X																		
G2	4.7	80	65	4	4			X		X								X					D			
G3	7.8	65	30	3	2			X		X																X
G4	3.7	65	0	4	1																		X			
A	n/a				0																					
B	2.3	60	0	4	4					X	X												X	X		
C	0.5	85	85	3	1			D																		
D	n/a				0																					
E	2.0	30	0	1	1								X													
F	8.1	0	0	0	0																					
G	5.2	10	0	4	1																		X			
H	1.8	75	0	4	3						X												X	X		
I	2.1	65	35	4	3			X					X										X			
J	2.9	0	0	0	1						X															

08/05 Main Basin Cyanobacteria	
Species	Cell Count
Anabaena	26,000
Microcystis	380
Pseudanabaena/ Kromvophoron	100,000
TOTAL	126,380

08/05 Main Basin Algae ID	
Species	Cell Count
Asterionella	10
Diatoma	390
Fragilaria	67
Crucigenia	67
Synedra	19
Lagerheimia	10
Staurastrum (#)	77
Monoraphidium	180
Xanthidium	10
Pediastrum (#)	77
Scenedesmus	58
Dinobryon	200
TOTAL	1165

Azalea		
Depth	**Temp**	**DO**
SW	28.9	6.35
1	29.1	6.29
2	28.5	6.01
3	28.0	5.19
4	27.3	3.74
5	27.1	3.10
6	26.4	2.02
7	23.5	1.93
8	22.6	<1.00
Time: 10:45	Secchi: 6.2ft	

Outlet		
Depth	**Temp**	**DO**
SW	29.9	8.08
1	29.4	8.05
2	28.8	8.03
3	28.4	7.95
4	28.1	7.64
5	27.8	6.57
Time: 12:30	Secchi: 5.6ft (bottom)	

Mill Reservoir		
Depth	**Temp**	**DO**
SW	28.6	8.42
1	28.6	8.3
2	28.5	8.21
3	28.4	8.01
4	28.1	8.16
5	27.7	8.38
6	27.4	8.05
7	26.2	6.1
8	24	4.02
9	23.8	1.51
Time: 10:25	Secchi: 5.5ft	

Dug Pond		
Depth	**Temp**	**DO**
SW	29.2	7.8
1	29.1	7.81
2	28.9	7.82
3	28.9	7.87
4	28.8	7.82
5	28.7	7.77
6	28.6	7.5
7	28.5	7.37
8	28.4	7.4
9	28.3	7.34
10	28.3	7.24
11	28.2	6.44
12	27.9	5.51
Time: 11:15	Secchi: 10.4ft	

Main Basin		
Depth	**Temp**	**DO**
SW	28.3	10.31
1	28.4	10.30
2	28.2	9.56
3	28.1	9.45
4	28.0	8.71
5	27.4	8.30
6	27.0	3.27
7	26.5	<1.00
Time: 10:05	Secchi: 2.6ft	

ANALYTICAL REPORT

Lab Number:	L2242063
Client:	Solitude Lake Management, LLC 590 Lake Street Shrewsbury, MA 01545
ATTN:	Amanda Mahaney
Phone:	(508) 865-1000
Project Name:	FOSTER'S POND
Project Number:	Not Specified
Report Date:	08/19/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2242063-01	MAIN BASIN	WATER	ANDOVER, MA	08/04/22 11:30	08/04/22
L2242063-02	OUTLET	WATER	ANDOVER, MA	08/04/22 14:20	08/04/22
L2242063-03	MILL RESERVOIR	WATER	ANDOVER, MA	08/04/22 12:50	08/04/22
L2242063-04	DUG POND	WATER	ANDOVER, MA	08/05/22 11:15	08/05/22
L2242063-05	AZALEA POND	WATER	ANDOVER, MA	08/05/22 10:45	08/05/22

Project Name:	FOSTER'S POND	**Lab Number:**	L2242063
Project Number:	Not Specified	**Report Date:**	08/19/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: FOSTER'S POND **Lab Number:** L2242063
Project Number: Not Specified **Report Date:** 08/19/22

Case Narrative (continued)

Sample Receipt

The samples were received at the laboratory above the required temperature range. The samples were delivered directly from the sampling site but were not on ice.

Coliform, Fecal (MF)

L2242063-01 and -02: The sample has an elevated detection limit due to the dilution required by the method.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 08/19/22

INORGANICS
&
MISCELLANEOUS

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

SAMPLE RESULTS

Lab ID: L2242063-01
Client ID: MAIN BASIN
Sample Location: ANDOVER, MA

Date Collected: 08/04/22 11:30
Date Received: 08/04/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Total (MPN)	7757		MPN/100ml	100	NA	100	-	08/04/22 19:24	121,9223B	TL
Coliform, Fecal (MF)	ND		col/100ml	2.0	NA	2	-	08/04/22 19:24	121,9222D	TL
General Chemistry - Westborough Lab										
Turbidity	8.8		NTU	0.20	--	1	-	08/04/22 23:40	44,180.1	AS
Color, True	20		A.P.C.U.	5.0	--	1	-	08/05/22 07:59	121,2120B	GB
Color, Apparent	44		A.P.C.U.	10	--	2	-	08/05/22 07:27	121,2120B	GB
Alkalinity, Total	25.9		mg CaCO3/L	2.00	NA	1	-	08/17/22 08:04	121,2320B	CS
pH (H)	7.2		SU	-	NA	1	-	08/04/22 22:48	121,4500H+-B	AS
Phosphorus, Total	0.031		mg/l	0.010	--	1	08/18/22 09:15	08/18/22 12:57	121,4500P-E	AA

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

SAMPLE RESULTS

Lab ID: L2242063-02
Client ID: OUTLET
Sample Location: ANDOVER, MA

Date Collected: 08/04/22 14:20
Date Received: 08/04/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Total (MPN)	1299.65		MPN/100ml	1	NA	1	-	08/04/22 19:24	121,9223B	TL
Coliform, Fecal (MF)	ND		col/100ml	2.0	NA	2	-	08/04/22 19:24	121,9222D	TL
General Chemistry - Westborough Lab										
Turbidity	2.0		NTU	0.20	--	1	-	08/04/22 23:40	44,180.1	AS
Color, True	25		A.P.C.U.	5.0	--	1	-	08/05/22 07:59	121,2120B	GB
Color, Apparent	37		A.P.C.U.	5.0	--	1	-	08/05/22 07:27	121,2120B	GB
Alkalinity, Total	26.5		mg CaCO3/L	2.00	NA	1	-	08/17/22 08:04	121,2320B	CS
pH (H)	7.2		SU	-	NA	1	-	08/04/22 22:48	121,4500H+-B	AS
Phosphorus, Total	0.022		mg/l	0.010	--	1	08/18/22 09:15	08/18/22 12:58	121,4500P-E	AA

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

SAMPLE RESULTS

Lab ID: L2242063-03
Client ID: MILL RESERVOIR
Sample Location: ANDOVER, MA

Date Collected: 08/04/22 12:50
Date Received: 08/04/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Total (MPN)	1119.87		MPN/100ml	1	NA	1	-	08/04/22 19:24	121,9223B	TL
Coliform, Fecal (MF)	15		col/100ml	2.0	NA	2	-	08/04/22 19:24	121,9222D	TL
General Chemistry - Westborough Lab										
Turbidity	2.2		NTU	0.20	--	1	-	08/04/22 23:40	44,180.1	AS
Color, True	20		A.P.C.U.	5.0	--	1	-	08/05/22 07:59	121,2120B	GB
Color, Apparent	27		A.P.C.U.	5.0	--	1	-	08/05/22 07:27	121,2120B	GB
Alkalinity, Total	30.0		mg CaCO3/L	2.00	NA	1	-	08/17/22 08:04	121,2320B	CS
pH (H)	7.2		SU	-	NA	1	-	08/04/22 22:48	121,4500H+-B	AS
Phosphorus, Total	0.016		mg/l	0.010	--	1	08/18/22 09:15	08/18/22 12:59	121,4500P-E	AA

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

SAMPLE RESULTS

Lab ID: L2242063-04
Client ID: DUG POND
Sample Location: ANDOVER, MA

Date Collected: 08/05/22 11:15
Date Received: 08/05/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Total (MPN)	3950		MPN/100ml	100	NA	100	-	08/05/22 17:32	121,9223B	TL
Coliform, Fecal (MF)	7.0		col/100ml	2.0	NA	2	-	08/05/22 18:34	121,9222D	TL
General Chemistry - Westborough Lab										
Turbidity	0.73		NTU	0.20	--	1	-	08/06/22 04:35	44,180.1	MR
Color, True	ND		A.P.C.U.	5.0	--	1	-	08/06/22 04:45	121,2120B	MR
Color, Apparent	ND		A.P.C.U.	5.0	--	1	-	08/06/22 04:45	121,2120B	MR
Alkalinity, Total	18.3		mg CaCO3/L	2.00	NA	1	-	08/18/22 08:01	121,2320B	CS
pH (H)	7.1		SU	-	NA	1	-	08/08/22 17:57	121,4500H+-B	AS
Phosphorus, Total	ND		mg/l	0.010	--	1	08/18/22 09:15	08/18/22 13:02	121,4500P-E	AA

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

SAMPLE RESULTS

Lab ID: L2242063-05
Client ID: AZALEA POND
Sample Location: ANDOVER, MA

Date Collected: 08/05/22 10:45
Date Received: 08/05/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Total (MPN)	1986.29		MPN/100ml	1	NA	1	-	08/05/22 17:32	121,9223B	TL
Coliform, Fecal (MF)	8.0		col/100ml	2.0	NA	2	-	08/05/22 18:34	121,9222D	TL
General Chemistry - Westborough Lab										
Turbidity	0.95		NTU	0.20	--	1	-	08/06/22 04:35	44,180.1	MR
Color, True	35		A.P.C.U.	5.0	--	1	-	08/06/22 04:45	121,2120B	MR
Color, Apparent	47		A.P.C.U.	5.0	--	1	-	08/06/22 04:45	121,2120B	MR
Alkalinity, Total	25.2		mg CaCO3/L	2.00	NA	1	-	08/18/22 08:01	121,2320B	CS
pH (H)	7.2		SU	-	NA	1	-	08/08/22 17:57	121,4500H+-B	AS
Phosphorus, Total	0.015		mg/l	0.010	--	1	08/18/22 09:15	08/18/22 13:03	121,4500P-E	AA

Project Name: FOSTER'S POND
Project Number: Not Specified
Lab Number: L2242063
Report Date: 08/19/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01-03 Batch: WG1671450-1										
Coliform, Fecal (MF)	ND		col/100ml	1.0	NA	1	-	08/04/22 19:24	121,9222D	TL
Microbiological Analysis - Westborough Lab for sample(s): 01-03 Batch: WG1671455-1										
Coliform, Total (MPN)	<1		MPN/100ml	1	NA	1	-	08/04/22 19:24	121,9223B	TL
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1671490-1										
Turbidity	ND		NTU	0.20	--	1	-	08/04/22 23:40	44,180.1	AS
Microbiological Analysis - Westborough Lab for sample(s): 04-05 Batch: WG1671891-1										
Coliform, Total (MPN)	<1		MPN/100ml	1	NA	1	-	08/05/22 17:32	121,9223B	TL
Microbiological Analysis - Westborough Lab for sample(s): 04-05 Batch: WG1671909-1										
Coliform, Fecal (MF)	ND		col/100ml	1.0	NA	1	-	08/05/22 18:34	121,9222D	TL
General Chemistry - Westborough Lab for sample(s): 04-05 Batch: WG1671953-1										
Turbidity	ND		NTU	0.20	--	1	-	08/06/22 04:35	44,180.1	MR
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1676164-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	08/17/22 08:04	121,2320B	CS
General Chemistry - Westborough Lab for sample(s): 01-05 Batch: WG1676472-1										
Phosphorus, Total	ND		mg/l	0.010	--	1	08/18/22 09:15	08/18/22 12:39	121,4500P-E	AA
General Chemistry - Westborough Lab for sample(s): 04-05 Batch: WG1676710-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	08/18/22 08:01	121,2320B	CS

Lab Control Sample Analysis

Batch Quality Control

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1671489-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1671490-2								
Turbidity	101		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 04-05 Batch: WG1671953-2								
Turbidity	97		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 04-05 Batch: WG1672429-3								
pH	101		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1676164-2								
Alkalinity, Total	108		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1676472-2								
Phosphorus, Total	101		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 04-05 Batch: WG1676710-2								
Alkalinity, Total	109		-		90-110	-		10

Matrix Spike Analysis
Batch Quality Control

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1676164-4 QC Sample: L2242063-01 Client ID: MAIN BASIN												
Alkalinity, Total	25.9	100	140	114		-	-		86-116	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1676472-3 QC Sample: L2240853-01 Client ID: MS Sample												
Phosphorus, Total	0.036	0.5	0.522	97		-	-		75-125	-		20
General Chemistry - Westborough Lab Associated sample(s): 04-05 QC Batch ID: WG1676710-4 QC Sample: L2242719-01 Client ID: MS Sample												
Alkalinity, Total	213	100	312	99		-	-		86-116	-		10

Lab Duplicate Analysis
Batch Quality Control

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1671489-2 QC Sample: L2241616-01 Client ID: DUP Sample						
pH	7.4	7.3	SU	1		5
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1671490-3 QC Sample: L2242063-03 Client ID: MILL RESERVOIR						
Turbidity	2.2	2.2	NTU	0		13
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1671653-1 QC Sample: L2242063-03 Client ID: MILL RESERVOIR						
Color, Apparent	27	27	A.P.C.U.	0		
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1671654-1 QC Sample: L2242063-03 Client ID: MILL RESERVOIR						
Color, True	20	20	A.P.C.U.	0		
General Chemistry - Westborough Lab Associated sample(s): 04-05 QC Batch ID: WG1671953-3 QC Sample: L2242063-05 Client ID: AZALEA POND						
Turbidity	0.95	0.91	NTU	4		13
General Chemistry - Westborough Lab Associated sample(s): 04-05 QC Batch ID: WG1671954-1 QC Sample: L2242063-05 Client ID: AZALEA POND						
Color, Apparent	47	47	A.P.C.U.	0		
General Chemistry - Westborough Lab Associated sample(s): 04-05 QC Batch ID: WG1671955-1 QC Sample: L2242063-05 Client ID: AZALEA POND						
Color, True	35	35	A.P.C.U.	0		
General Chemistry - Westborough Lab Associated sample(s): 04-05 QC Batch ID: WG1672429-4 QC Sample: L2241563-01 Client ID: DUP Sample						
pH	3.0	3.0	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1676164-3 QC Sample: L2242063-01 Client ID: MAIN BASIN						
Alkalinity, Total	25.9	26.4	mg CaCO3/L	2		10

Lab Duplicate Analysis

Batch Quality Control

Project Name: FOSTER'S POND

Project Number: Not Specified

Lab Number: L2242063

Report Date: 08/19/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1676472-4 QC Sample: L2240853-01 Client ID: DUP Sample					
Phosphorus, Total	0.036	0.036	mg/l	0	20
General Chemistry - Westborough Lab Associated sample(s): 04-05 QC Batch ID: WG1676710-3 QC Sample: L2242719-01 Client ID: DUP Sample					
Alkalinity, Total	213	213	mg CaCO3/L	0	10

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
A1	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2242063-01A	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		F-COLI-MF(.33)
L2242063-01B	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		F-COLI-MF(.33)
L2242063-01C	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		T-COLI-QT(.33)
L2242063-01D	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		T-COLI-QT(.33)
L2242063-01E	Plastic 250ml unpreserved	A	7	7	30.1	Y	Absent		TURB-180(2),PH-4500(.01)
L2242063-01F	Plastic 250ml unpreserved/No Headspace	A	NA		30.1	Y	Absent		ALK-T-2320(14)
L2242063-01G	Plastic 250ml H2SO4 preserved	A	<2	<2	30.1	Y	Absent		TPHOS-4500(28)
L2242063-01H	Amber 500ml unpreserved	A	7	7	30.1	Y	Absent		COLOR-T-2120(2),COLOR-A-2120(2)
L2242063-02A	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		F-COLI-MF(.33)
L2242063-02B	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		F-COLI-MF(.33)
L2242063-02C	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		T-COLI-QT(.33)
L2242063-02D	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		T-COLI-QT(.33)
L2242063-02E	Plastic 250ml unpreserved	A	7	7	30.1	Y	Absent		TURB-180(2),PH-4500(.01)
L2242063-02F	Plastic 250ml unpreserved/No Headspace	A	NA		30.1	Y	Absent		ALK-T-2320(14)
L2242063-02G	Plastic 250ml H2SO4 preserved	A	<2	<2	30.1	Y	Absent		TPHOS-4500(28)
L2242063-02H	Amber 500ml unpreserved	A	7	7	30.1	Y	Absent		COLOR-T-2120(2),COLOR-A-2120(2)
L2242063-03A	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		F-COLI-MF(.33)
L2242063-03B	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		F-COLI-MF(.33)
L2242063-03C	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		T-COLI-QT(.33)
L2242063-03D	Bacteria Cup Na2S2O3 preserved	A	NA		30.1	Y	Absent		T-COLI-QT(.33)
L2242063-03E	Plastic 250ml unpreserved	A	7	7	30.1	Y	Absent		TURB-180(2),PH-4500(.01)
L2242063-03F	Plastic 250ml unpreserved/No Headspace	A	NA		30.1	Y	Absent		ALK-T-2320(14)

*Values in parentheses indicate holding time in days

Project Name: FOSTER'S POND
Project Number: Not Specified

Lab Number: L2242063
Report Date: 08/19/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2242063-03G	Plastic 250ml H2SO4 preserved	A	<2	<2	30.1	Y	Absent		TPHOS-4500(28)
L2242063-03H	Amber 500ml unpreserved	A	7	7	30.1	Y	Absent		COLOR-T-2120(2),COLOR-A-2120(2)
L2242063-04A	Bacteria Cup Na2S2O3 preserved	A1	NA		16.6	Y	Absent		F-COLI-MF(.33),T-COLI-QT(.33)
L2242063-04B	Bacteria Cup Na2S2O3 preserved	A1	NA		16.6	Y	Absent		F-COLI-MF(.33),T-COLI-QT(.33)
L2242063-04C	Bacteria Cup Na2S2O3 preserved	A1	NA		16.6	Y	Absent		F-COLI-MF(.33),T-COLI-QT(.33)
L2242063-04D	Bacteria Cup Na2S2O3 preserved	A1	NA		16.6	Y	Absent		F-COLI-MF(.33),T-COLI-QT(.33)
L2242063-04E	Plastic 250ml unpreserved/No Headspace	A1	NA		16.6	Y	Absent		ALK-T-2320(14)
L2242063-04F	Plastic 250ml unpreserved	A1	7	7	16.6	Y	Absent		TURB-180(2),PH-4500(.01)
L2242063-04G	Plastic 250ml H2SO4 preserved	A1	<2	<2	16.6	Y	Absent		TPHOS-4500(28)
L2242063-04H	Amber 500ml unpreserved	A1	7	7	16.6	Y	Absent		COLOR-T-2120(2),COLOR-A-2120(2)
L2242063-05A	Bacteria Cup Na2S2O3 preserved	A1	NA		16.6	Y	Absent		T-COLI-QT(.33),F-COLI-MF(.33)
L2242063-05B	Bacteria Cup Na2S2O3 preserved	A1	NA		16.6	Y	Absent		T-COLI-QT(.33),F-COLI-MF(.33)
L2242063-05C	Bacteria Cup Na2S2O3 preserved	A1	NA		16.6	Y	Absent		T-COLI-QT(.33),F-COLI-MF(.33)
L2242063-05D	Bacteria Cup Na2S2O3 preserved	A1	NA		16.6	Y	Absent		T-COLI-QT(.33),F-COLI-MF(.33)
L2242063-05E	Plastic 250ml unpreserved/No Headspace	A1	NA		16.6	Y	Absent		ALK-T-2320(14)
L2242063-05F	Plastic 250ml unpreserved	A1	7	7	16.6	Y	Absent		TURB-180(2),PH-4500(.01)
L2242063-05G	Plastic 250ml H2SO4 preserved	A1	<2	<2	16.6	Y	Absent		TPHOS-4500(28)
L2242063-05H	Amber 500ml unpreserved	A1	7	7	16.6	Y	Absent		COLOR-T-2120(2),COLOR-A-2120(2)

*Values in parentheses indicate holding time in days

Project Name:	FOSTER'S POND	**Lab Number:**	L2242063
Project Number:	Not Specified	**Report Date:**	08/19/22

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	FOSTER'S POND	**Lab Number:**	L2242063
Project Number:	Not Specified	**Report Date:**	08/19/22

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	FOSTER'S POND	**Lab Number:**	L2242063
Project Number:	Not Specified	**Report Date:**	08/19/22

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

Project Name: FOSTER'S POND
Project Number: Not Specified
Lab Number: L2242063
Report Date: 08/19/22

REFERENCES

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 8/4/22

ALPHA Job #: L2242063

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Client Information

Client: Solitude Lake Mgmt
Address: 590 Lake St
Shrewsbury, MA 01545
Phone: 508-865-1000
Email: awhaney@solitudelake.com

Additional Project Information:

Project Information

Project Name: Foster's Pond
Project Location: Andover, MA
Project #:
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due:

Report Information - Data Deliverables

☐ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC: ☐ 8260 ☐ 624 ☐ 524.2	SVOC: ☐ ABN ☐ PAH	METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15	METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	☐ PCB ☐ PEST	TPH: ☐ Quant Only ☐ Fingerprint	TdA Color	T Coli/Ecoli	PH/Turb	T Phos	Alk T	Sample Comments	TOTAL # BOTTLES
42063-01	Main Basin	8/4	11:30am	SW	KV									X	X	X	X	X		
-02	Outlet	8/4	2:20pm	SW	KV									X	X	X	X	X		
-03	Mill Reservoir	8/4	12:50pm	SW	KV									X	X	X	X	X		

Container Type
Preservative

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Katie Watts	8/4 16:15	Lylie Moran	8/4/22 16:15

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

Serial_No:08192216:00

L2242063

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 8/5/22

ALPHA Job #: ~~L2242343~~ 8/8/22

8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Client Information

Client: Solitude Lake Mgmt

Address: 590 Lalee St
Shrewsbury, MA 01545

Phone: 508-865-1000

Email: amahaney@solitudelake.com

Project Information

Project Name: Foster's Pond

Project Location: Andover, MA

Project #:

Project Manager:

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due:

Report Information - Data Deliverables

☐ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Additional Project Information:

Please add with other Foster's Pond (8/4) samples for a complete set

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2
SVOC: ☐ ABN ☐ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☐ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
A/T Color
T Phos
pH/Turb
Alk T
T col./F. coli

SAMPLE INFO
Filtration
☐ Field
☐ Lab to do
Preservation
☐ Lab to do

Sample Comments

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC	SVOC	METALS	METALS	EPH	VPH	PCB	TPH	A/T Color	T Phos	pH/Turb	Alk T	T col./F. coli	Sample Comments	TOTAL # BOTTLES
1-42343-01	Dog Pond	8/5/22	11:15	KV	SW									X	X	X	X	X		
2063-05 ~~02~~	Azalea Pond	8/5/22	10:45	KV	SW									X	X	X	X	X		

Container Type															
Preservative															

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Katie Mead	8/5/22 14:34		8/5/22 17:34

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

SOLitude Lake Management
590 Lake St.
Shrewsbury, MA 01545

Date Received: 8/09/2022
Laboratory ID#: N2288067-01
Date Tested: 8/15/2022
Report Date: 8/16/2022

Algae Species Identification (Expanded)

Sample Site: Surface Water @ Fosters Pond, Main Basin – Andover, MA
Date and Time Collected: 8/05/2022 11:15

Diatoms: Centric Diatoms	
Acanthoceras	
Aulacoseira	
Cyclotella	
Melosira	
Stephanodiscus	
Other centric	

Araphid Pennate Diatoms	
Asterionella	10
Diatoma	390
Fragilaria	67
Meridion	
Synedra	19
Tabellaria	
Other Araphid Pennates	
Monoraphid Pennate	
Achnanthidium	
Cocconeis	

Pyrrhophyta	
Ceratrium	
Gymnodinium	
Peridinium	
Other Dinofilagtes	

Euglenophtya	
Euglena	
Eutrepti	
Lepocinclis	
Phacus	

Flagellated Chlorophytes	
Chlamydomonas	
Coccomonas	
Eudorina	
Pandorina	
Pyramichlamys	
Tetraselmis	
Volvox	
Other Flagelated Greens	

Coccoid/Colonial Chlorophyta	
Actinastrum	
Ankistrodesmus	
Botryococcus	
Chlorella	
Chlorococcum	
Closteriopsis	
Coelastrum	
Crucigenia	67
Desmodesmus	
Dictyosphaerium	
Elakatothrix	
Golenkinia	
Kirchneriella	
Lagerheimia	10
Micractinium	
Monoraphidium	180

Filamentous Chlorophytes	
Bulbochaete	
Chaetophora	
Cladophera	
Draparnaldia	
Hydrodictyon	
Microspora	
Oedogonium	
Pithophora	
Rhizoclonium	
Stigeoclonium	
Ulothorix	
Other Filamentous Greens	

Biraphid Pennate	
Amphipleura	
Amphora (#)	
Cymtopleura	
Cymbella	
Entomoneis	
Epithemia	
Eunotia	
Frustulia	
Gomphonema	
Gyrosigma	
Navicula	
Nitzschia	
Pinnularia	
Rhoicosphenia	
Rhopalodia	
Stauroneis	

Trachelomonas	
Strombomonas	
Others	

Surirella	
Other Biraphid Pennate	

SOLitude Lake Management
590 Lake St.
Shrewsbury, MA 01545

Date Received: 8/09/2022
Laboratory ID#: N2288067-01
Date Tested: 8/15/2022
Report Date: 8/16/2022

Algae Species Identification (Expanded), cont.

Tribophytes/Eustigmatophytes	
Centritractus	
Ophiocytium	
Pseudostaurastrum	
Pseudotetraedron	
Tribonema	
Vaucheria	
Mischococcoid Taxa	
Chloramoeboid Taxa	
Rhizochlorid Taxa	
Heterogloeolid Taxa	
Other Tribophytes	
Raphidophytes	
Gonyostumum Taxa	
Euglenophtya	
Euglena	
Eutrepti	
Lepocinclis	
Phacus	
Trachelomonas	
Strombomonas	
Others	

Desmids	
Closterium	
Cosmarium	
Desmidium	
Euastrum	
Hyalotheca	
Micrasterias	
Mougeotia/Debarya	
Octacanthium	
Pleurotaenium/Related	
Spirogyra (#)	
Staurastrum (#)	77
Staurodesmus	
Teilingia	
Xanthidium	10
Zygnema/Zygnemopsis	
Others	

Chlorophytes	
Oocystis	
Pediastrum (#)	77
Paulschulzia	
Polyedriopsis	
Pseudopediastrum	
Quadrigula	
Scenedesmus	58
Schroederia/Ankyra	
Selenastrum	
Sphaerocystis	
Tetradesmus (#)	
Tetraedron	
Tetrastrum	
Treubaria	

Flagellated Classic Chrysophytes	
Chromulina	
Chrysococcus	
Chrysosphaerella	
Dinobryon	200
Kephyrian/Pseudokephyrian	
Mallomonas	
Ochramonas	
Synura	
Uroglena	
Uroglenopsis	
Others	
Non Motiles	
Haptophytes	

Total Cell Count: 1200/mL

Other Coccoid	
Other Elongate	

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 8/09/2022

Approved by:

Alan C. Johnson, Laboratory Director

NORTHEAST LABORATORIES

CERTIFICATE OF ANALYSIS

SOLitude Lake Management
590 Lake St.
Shrewsbury, MA 01545

Date Received: 8/09/2022
Laboratory ID#: N2288067-01
Date Tested: 8/15/2022
Report Date: 8/16/2022

Cyanobacteria

Sample Site: Surface Water @ Fosters Pond, Main Basin – Andover, MA
Date and Time Collected: 8/05/22 11:15

Cyanophyta: Unicellular & Colonial Forms	
Anabaena	26,000
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	
Microcystis	380
Snowella	
Synechococcus/Related	
Woronichinia	
Other Coccoid Blue Greens	

Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnoraphis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophoron	100,000
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: 126,000 /mL

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. on 8/09/2022

Approved by:

Alan C. Johnson, Laboratory Director

NORTHEAST LABORATORIES

CERTIFICATE OF ANALYSIS

Foster's Pond Corp.
19 Pomeroy Rd.
Andover, MA 01810

Date Received: 8/09/2022
Laboratory ID#: N2288054-01
Date Tested: 8/10/2022
Report Date: 8/11/2022

Cyanobacteria

Sample Site: Surface Water @ Foster's Pond Outlet Cove
Date and Time Collected: 8/08/2022 10:30

Cyanophyta: Unicellular & Colonial Forms	
Anabaena	480
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	
Microcystis	
Snowella	
Synechococcus/Related	1,100
Woronichinia	
Other Coccoid Blue Greens	

Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnoraphis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophoron	530
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: 2,100/mL

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 8/09/2022

Approved by:
Alan C. Johnson, Laboratory Director

Foster's Pond Corp.
19 Pomeroy Rd.
Andover, MA 01810

Date Received: 8/09/2022
Laboratory ID#: N2288054-02
Date Tested: 8/10/2022
Report Date: 8/11/2022

Cyanobacteria

Sample Site: Surface Water @ Foster's Pond Main Pond
Date and Time Collected: 8/08/2022 11:00

Cyanophyta: Unicellular & Colonial Forms	
Anabaena	2,200
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	380
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	
Microcystis	
Snowella	
Synechococcus/Related	770
Woronichinia	
Other Coccoid Blue Greens	

Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnoraphis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophoron	380
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	1,800
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: 5,500/mL

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 8/09/2022

Approved by:
Alan C. Johnson, Laboratory Director

Fosters Pond Corp.
19 Pomeroy Road
Andover, MA 01810

Date Received: 8/22/2022
Laboratory ID#: N2288186-01
Date Tested: 8/23/2022
Report Date: 8/24/2022

Algae Species Identification (Blue - Green)

Sample Description: Fosters Pond – Main Pond
Date and Time Collected: 8/22/2022 10:15

Cyanophyta: Unicellular & Colonial Forms	
Anabaena	
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	
Microcystis	
Snowella	
Synechococcus/Related	
Woronichinia	
Other Coccoid Blue Greens	

Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnoraphis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophoron	
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: None Detected /mL

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 8/23/2022

Approved by:
Alan C. Johnson, Laboratory Director

Fosters Pond Corp.
19 Pomeroy Road
Andover, MA 01810

Date Received: 8/22/2022
Laboratory ID#: N2288186-02
Date Tested: 8/23/2022
Report Date: 8/24/2022

Algae Species Identification (Blue - Green)

Sample Description: Fosters Pond – Hill Reservoir
Date and Time Collected: 8/22/2022 10:30

Cyanophyta: Unicellular & Colonial Forms	
Anabaena	
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	
Microcystis	
Snowella	
Synechococcus/Related	
Woronichinia	
Other Coccoid Blue Greens	

Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnoraphis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophoron	
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	29
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: 29 /mL

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 8/23/2022

Approved by:
Alan C. Johnson, Laboratory Director

Fosters Pond Corp.
19 Pomeroy Road
Andover, MA 01810

Date Received: 8/22/2022
Laboratory ID#: N2288186-03
Date Tested: 8/23/2022
Report Date: 8/24/2022

Algae Species Identification (Blue - Green)

Sample Description: Fosters Pond – Azalia Cove
Date and Time Collected: 8/22/2022 10:45

Cyanophyta: Unicellular & Colonial Forms	
Anabaena	
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	
Microcystis	
Snowella	
Synechococcus/Related	
Woronichinia	
Other Coccoid Blue Greens	

Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnoraphis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophoron	
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: None Detected /mL

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 8/23/2022

Approved by:
Alan C. Johnson, Laboratory Director

Fosters Pond Corp.
19 Pomeroy Road
Andover, MA 01810

Date Received: 8/22/2022
Laboratory ID#: N2288186-04
Date Tested: 8/23/2022
Report Date: 8/24/2022

Algae Species Identification (Blue - Green)

Sample Description: Fosters Pond – Outlet Cove
Date and Time Collected: 8/22/2022 11:00

Cyanophyta: Unicellular & Colonial Forms	
Anabaena	
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	
Microcystis	
Snowella	
Synechococcus/Related	
Woronichinia	
Other Coccoid Blue Greens	

Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnoraphis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophoron	
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: None Detected /mL

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 8/23/2022

Approved by:
Alan C. Johnson, Laboratory Director

Fosters Pond Corp.
19 Pomeroy Road
Andover, MA 01810

Date Received: 8/30/2022
Laboratory ID#: N2288252-01
Date Tested: 8/31/2022
Report Date: 9/01/2022

Algae Species Identification (Blue - Green)

Sample Description: Fosters Pond – Main Pond, Raft
Date and Time Collected: 8/29/2022 10:30

Cyanophyta: Unicellular & Colonial Forms	
Anabaena	
Aphanocapsa	
Aphanothece	
Chroococcus	
Coelosphoerium	
Dactylococcopsis	
Gomphosphaeria	
Merismpedia	
Microcystis	
Snowella	
Synechococcus/Related	
Woronichinia	
Other Coccoid Blue Greens	

Filamentous Non-Nitrogen Fixers	
Arthrospira	
Limonothrix	
Lyngbya	
Limnoraphis	
Microseira/Plectonema	
Oscillatoria	
Phormidium	
Planktolyngbya	
Planktothrix	
Pseudanabaena/Kromvophoron	
Spirulina	
Synechocystis	

Filamentous Nitrogen Fixers	
Anabaenopsis	
Aphanizomenon	470
Calothrix/Rivularia	
Chrysosporxium	
Cuspidothrix	
Cylindrospermium	
Dolichospermium	
Gloeotrichia	
Hapalosiphon	
Nodularia	
Nostoc	
Raphidiopsis	
Sytonema	
Sphaerospermopsis	
Tolypothrix	
Other Filamentous Bluegreens (L)	
Other Filamentous Bluegreens (S)	

Total Cell Count: None Detected 470/mL

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 8/30/2022

Approved by:
Alan C. Johnson, Laboratory Director

SePRO Research & Technology Campus FasTEST*

16013 Watson Seed Farm Road, Whitakers, NC 27891

Chain of Custody: COC13544 **LABORATORY REPORT**

Customer Company **Customer Contact**

Company Name SOLitude Lake Management	Contact Person: Dominic Meringolo
Address: 1320 Brookwood Drive, Ste. H Little Rock, AR 72202	E-mail Address: DMeringolo@Solitudelake.com
	Phone: 508.885.0101

Waterbody Information

Waterbody:	Fosters Pond - MA
Waterbody size:	120
Depth Average:	4.5

Sample ID	Sample Location	Test	Method	Results	Sampling Date / Time
CTM38087-1	1	Sonar/fluridone (ug/L)	FAST 10	7.9	08/08/2022

ANALYSIS STATEMENTS:
SAMPLE RECEIPT /HOLDING TIMES: All samples arrived in an acceptable condition and were analyzed within prescribed holding times in accordance with the SRTC Laboratory Sample Receipt Policy unless otherwise noted in the report.
PRESERVATION: Samples requiring preservation were verified prior to sample analysis and any qualifiers will be noted
in the report.
QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.
COMMENTS: No significant observations were made unless noted in the report.
MEASUREMENT UNCERTAINTY: Uncertainty of measurement has been determined and is available upon request.

Laboratory Information
Date / Time Received: 08/10/22 11:30 AM
Date Results Sent: Thursday, August 11, 2022

This entire report was reviewed and approved for release.

Reviewed By: Laboratory Supervisor