# Foster's Pond Annual Report
# 2023 Aquatic Management Program
### Andover, MA

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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*) in the Dug Pond basin and one copper algaecide treatment for cyanobacteria management. (Dug Pond, immediately adjacent to Foster's Pond and separated by only a narrow berm, is managed under the Foster's Pond Corporation's Order of Conditions as a basin of Foster's Pond.)

This season marked eight years since a whole-pond Sonar (fluridone) herbicide treatment program was conducted (2015) to control invasive fanwort. This season, no portion of Foster's Pond itself was treated. The Foster's Pond Corporation (FPC), as it has every year since 2019, contracted with divers to hand-pull fanwort in portions of Foster's Pond. The purpose of the 2023 survey was to determine the level of control from this year's and prior years' treatments and from diver hand-pulling, 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 FPC but contracted by individual homeowners. Diver hand-pulling was conducted by Sterling Aquatic LLC, under a contract with the FPC.

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 with the License to Apply Chemicals (#WM04-0001137) issued by the MA DEP – Office of Watershed Management.

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

## 2023 Program Chronology

| | |
|---|---|
| • MA DEP License to Apply Chemicals issued | 04/05/23 |
| • Initial fanwort treatment in Dug Pond | 05/15/23 |
| • Early season inspection | 06/01/23 |
| • Hydro-raking of shoreline areas commenced | 06/05/23 |
| • Hydro-raking completed | 06/16/23 |
| • Fanwort follow-up treatment in Dug Pond | 06/12/23 |
| • Algaecide Treatment | 08/02/23 |
| • Late-season vegetation survey | 08/09/23 |
| • Collection of water quality samples | 08/09/23 |
| • Additional FasTEST sample collection | 11/30/23 |

## 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 seventy-one (71) hours of hydro-raking services were provided between June 5th and June 16th. 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 seventh 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 been exhibited 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 and/or surface scum is observed, samples are collected and sent to Northeast Laboratories in Rocky Hill, CT, for quantitative analysis.

Samples were collected from the Main Pond, Outlet Cove, and Mill Reservoir in late July and analyzed by Northeast Laboratories. The lab results are attached to this report. The blue-green algae (cyanobacteria) levels in the Mill Reservoir, Outlet Cove, and Main Basin were counted at 1,400, 10,000, and 19,000 cells per mL of water, respectively. While these amounts were all well below the state's 70,000 cells/mL threshold of water body closure recommendations, hot

temperatures and rain events were forecasted and likely would have contributed to an increase in cyanobacteria cell counts. The counts in the Outlet Cove and the Main Basin were sufficiently elevated to warrant concern for a potentially hazardous bloom under these conditions. A copper sulfate treatment for both basins was therefore scheduled immediately following the receipt of the results. The treatment was successful, as cyanobacteria were not detected during the August sampling event in the Main Basin.

### Algaecide Treatment

The algaecide treatment this summer, based on visual observations and laboratory analysis, was conducted on August 2nd. On this occasion, half of the pond (60 acres) was treated with copper sulfate. The treatment area consisted of the Main Pond and Outlet Cove. Copper sulfate was applied at a rate of 0.6 pounds per acre foot which equates to 0.0625 ppm of active copper. A total of 150 pounds of copper sulfate was applied.

### Fanwort Herbicide Treatment

Based on 2022 survey data and observations by the divers, fanwort growth within the Dug Pond basin was targeted for treatment with Sonar (fluridone) herbicide this year. This area totaled approximately 4 acres and was treated with the liquid formulation of Sonar (fluridone).

Since the presence and density of fanwort in Dug Pond was well-documented at the end of last season, the initial treatment was scheduled prior to the early-season survey in order to get a "head start" on the fanwort management.

On June 1st, a SŌLitude biologist conducted the early-season survey to assess the effects of the chemical treatment on fanwort within the Dug Pond treatment area and the locations of fanwort within the untreated areas of Foster's Pond. Normally, at this time of year, fanwort plants are just beginning to grow within the water column, as well as other native species. However, this year's warm winter and lack of a deep freeze in many parts of New England gave fanwort an advantage that allowed it to grow sooner and more efficiently in many bodies of water, Foster's Pond included. Notwithstanding these conditions for favorable fanwort growth, the treated fanwort in Dug Pond, after just one Sonar application, was exhibiting chlorosis, the bleaching effect which eventually leads to the death of the target plants.

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 prior to treatment. The initial treatment was completed on May 15th, with a follow-up, booster treatment completed on June 12th; both treatments were applied to the predetermined Dug Pond basin by SŌLitude's licensed aquatic applicators in accordance with conditions of the DEP License to Apply Chemicals, the Sonar AS herbicide label, the OOC, and the program and protocol approved by the Conservation Commission. The herbicide was applied as a liquid diluted with pond water and evenly distributed using a small pump and submerged discharge hose.

The total amount of Sonar AS applied to the Pond through the course of the two treatments was 25 ppb. The target in-water concentration in the treatment area was 12-15 ppb.

Two water samples were collected and sent to SePRO for analysis of the presence and amount of fluridone, in order to measure the Sonar herbicide concentration. The first sample was collected on June 5th, and the analyzed results were 8.8 ppb of fluridone. On August 2nd (approximately 75 days after the initial application), another water sample was drawn from the treatment area to measure the Sonar concentration. That sample was analyzed and yielded a result of 8.5 ppb of fluridone. The laboratory reports from both sampling events are 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 2023, 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 9th, two SŌLitude biologists conducted the annual aquatic vegetation survey of Foster's Pond, observing the Main Pond, Outlet Cove, Azalea Drive, Mill Reservoir, the channels connecting these basins, and Dug Pond. The high water levels this season allowed the survey to be completed using a 10ft jon boat and two-person canoe in one day, unlike last year's drought conditions causing the need for two visits with two different boats. The jon boat with an outboard motor was able to be utilized for most of the survey. The canoe was used only for Dug Pond, as Dug Pond was overflowing with recent heavy rains into the Azalea Drive area of the main pond and the access point over the berm separating Dug Pond from Foster's Pond could not be used.

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: fourteen 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** below and also attached) illustrating the transect and data point locations is included below; the raw data collected is attached.

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 water lilies, slender naiad, bladderwort, and coontail 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.

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

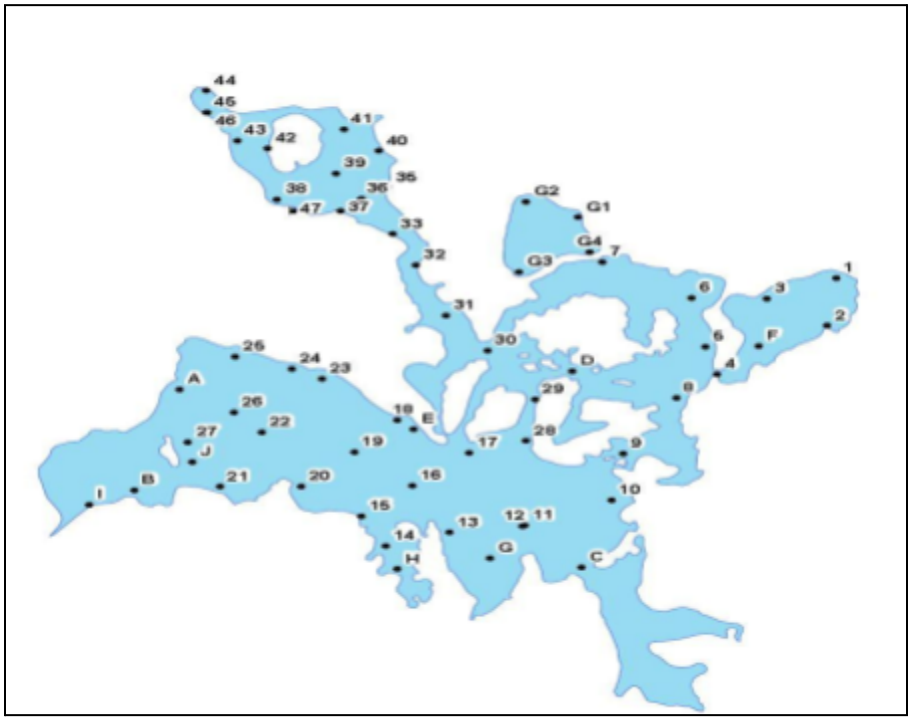


**Table 2**: Aquatic vegetation analysis summary.

| 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 |
| 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 |
| 2023[2] | 28.5 | 0.22 | 2.6 | 1.5 |

[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 decreased from 7.7% in 2022 to 0.22% in 2023 comparing only the 2016 point locations. The additional points A-J should not be used for past comparison, but rather documentation for future efforts. Previously, much of the fanwort at set survey points was located within Dug Pond, and it was successfully managed during this season's Sonar treatment. Of the A-J points surveyed in 2023, four supported fanwort growth, points A, B, E & I. Spiny naiad was again documented at few points throughout the water body (3.3% of points), however it was only found at sparse densities within the survey point areas.

Unfortunately, the set survey points were not generally located in areas of fanwort, which clearly makes the point data analysis inconsistent with overall observations throughout the pond. When considering only the point survey observations, the fanwort density and distribution seems to have decreased, but this appears to not be the case when looking at the visual survey results.

A map displays early 2023 fanwort observations and distinguishes between healthy and chemically-damaged fanwort (**Figure 2,** attached), and an additional map displays the treatment area for 2023 within Dug Pond (**Figure 3,** attached).

Two maps (**Figures 4 & 5,** attached) display additional observations of fanwort outside of the survey points, as many set points did not contain fanwort during the post-management survey. Figure 4 was a collection of SOLitude's observations, and Figure 5 included observations by the FPC during a subsequent, less formal survey. All of the observed fanwort was healthy and growing in various locations around the water body. No fanwort was observed within Dug Pond, due to the successful treatment within that part of the water body.

The shallow and cove areas support the majority of white and yellow water lilies. Other species observed include a variety of pondweeds (*Potamogeton spp*.), coontail (*Ceratophyllum demersum*), slender naiad (*Najas flexilis*), common waterweed (*Elodea canadensis)*, and bladderwort (*Utricularia spp.)*. Benthic and floating filamentous algae was also observed in many locations throughout the water body. Many large floating mats of bladderwort and naiad were observed mostly in the Outlet Cove area, which was expressed as a concern by residents and the FPC. At the time of the survey, these plants did not appear to pose a nuisance to boating or recreation, but could be considered for future treatments if their distribution range or density increases.

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 indicates observed vegetation or macroalgae. **Figure 6** (below) displays the water quality testing locations.

**Table 3** (below) catalogs the species observed over the past years during surveys, and this is helpful to track the observances of the documented 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 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Bidens beckii* | Water marigold | | | x | | | | | | | | | | | | |
| | *Cabomba caroliniana* | Fanwort | x | 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 | x |
| | *Chara sp.* | Muskgrass | | | x | 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 | x |
| | *Egeria densa* | Brazilian elodea | x | x | x | | | | | | | | | | | | |
| | *Elodea canadensis* | Common waterweed | | | x | | | | | | | 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 | | x |
| | *Najas guadalupensis* | Southern naiad | | | | | | | | | | x | | x | | | |
| | *Najas minor* | Spiny naiad | | | x | | | x | | x | x | x | x | x | x | x | x |
| | *Nitella sp.* | Stonewort | x | 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 pulcher* | Spotted pondweed | | | | | | | | | | | | | | | x |
| | *Potamogeton pusillus* | Thin-leaf pondweed | | | | | | x | | x | | x | x | x | x | x | |
| | *Potamogeton robbinsii* | Robbins' pondweed | | | | | | | | x | x | | x | | x | x | |
| Submersed | *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 | x |
| | *Vallisneria americana* | Tapegrass | | | x | | | | | | x | | | | | | |
| | *Brasenia schreberi* | Watershield | | x | x | | x | x | x | | x | | x | x | x | | |
| | *Lemna minor* | Lesser duckweed | | | x | | | | | | | | | | | | |
| Floating Leaf | *Nuphar variegata* | Yellow waterlily | x | 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 | x |
| | *Nymphoides cordata* | Little floating heart | | | | | | | | | | x | | | | | |
| | *Spirodela polyrhiza* | Big duckweed | | | x | | | | | | | | | | | | |
| | *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 | x |
| | *Peltandra virginica* | Arrow arum | | | x | | | | | | | x | x | | | | |
| | *Pontederia cordata* | Pickerelweed | x | x | x | x | x | | | | x | x | x | x | x | x | x |
| Emergent | *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 | x |
| | *Typha sp.* | Cattail | x | x | x | x | x | | x | x | x | x | x | x | x | x | x |

## Water Quality Monitoring

Water quality sampling was performed at Foster's Pond in 2023 consistent with prior year's efforts and locations. Surface grab water samples were collected from five locations, shown on **Figure 6** below, on August 9th. The day before the survey, approximately 5-6" of rain fell in the area, causing an increase in water levels and potentially affecting the water quality results. It is difficult to say how the water level affected each parameter, because there are many variables intertwined with the health of any water body. Therefore, more research is needed to determine the potential water chemistry effects of such weather events.

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 6:** Water quality sample locations.

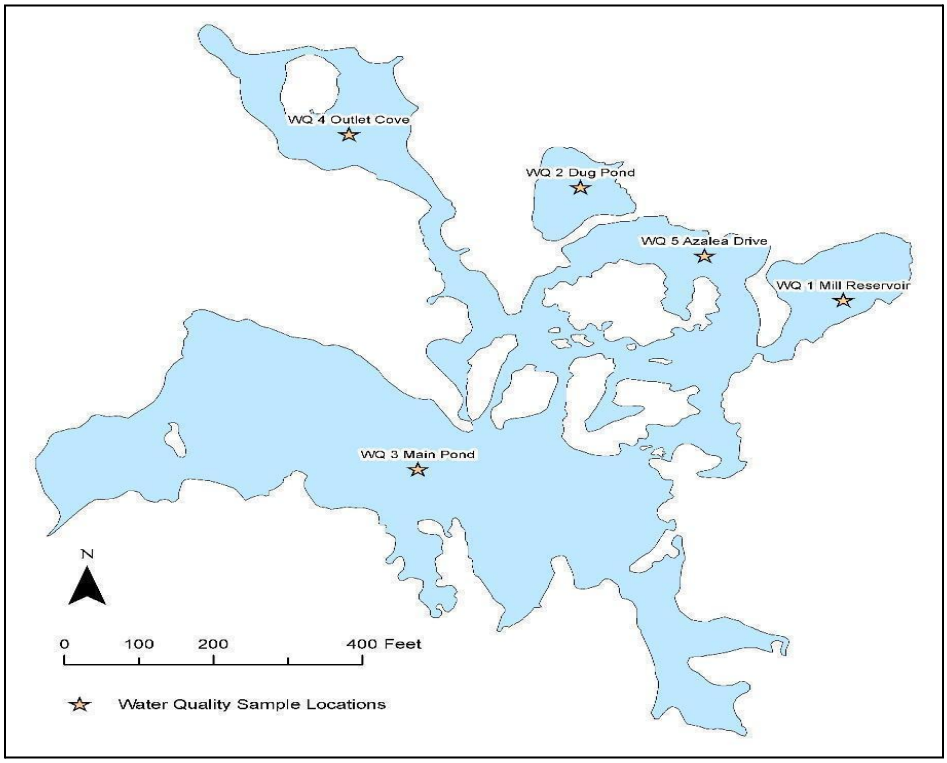


**Table 4:** Water quality results collected on August 9th, 2023.

| Parameter | Units | Desirable Thresholds | Mill Reservoir (WQ1) | Dug Pond (WQ2) | Main Basin (WQ3) | Outlet Cove (WQ4) | Azalea Drive (WQ5) |
|---|---|---|---|---|---|---|---|
| pH | S.U. | 6.0-8.0 | 6.37 | 6.90 | 6.74 | 6.47 | 6.83 |
| Alkalinity, Total | mg/L CaC03 | <50 | 20.6 | 13.4 | 23.8 | 24.0 | 23.6 |
| Phosphorus, Total | mg/L | 0.030 | 0.080 | 0.011 | 0.027 | 0.027 | 0.016 |
| True Color | Pt-Co | - | 100 | ND | 44 | 46 | 40 |
| Apparent Color | Pt-Co | - | 170 | 6.0 | 85 | 75 | 42 |
| Turbidity | NTU | - | 8.6 | 0.74 | 2.2 | 2.3 | 1.0 |
| Fecal Coliform | col/100mL | <235 | 5700 | 34 | 130 | 400 | 170 |
| Total Coliform | MPN/100mL | - | >242000 | 8088 | 11910 | 26025 | 7116 |

ND = None Detected

## Water Quality Explanations

Total 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 at each sampling location fell within the desirable threshold during the sample collection, with the exception of Mill Reservoir at 0.080mg/L. This was a particularly high amount of total phosphorus, and could certainly contribute to algae blooms. It is likely that the high amount of phosphorus resulted from pavement and soil flushing from the heavy rains from the day before the 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 Mill Reservoir was somewhat high, possibly indicative of water turnover due to the heavy rainfall the day before 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 exhibited higher total and fecal coliform counts than have been found in prior years, and two basins (the Mill Reservoir and the Outlet Cove) exceeded the acceptable level of fecal coliform for swimmable waters. Most notably, the Mill Reservoir exhibited extraordinarily high counts for total coliform (>262,000 MPN/100 mL, MPN being a standard quantifier for estimating coliforms in water samples) and for fecal coliform (5700 col/100mL,far above the 250 col/100mL ceiling for swimmable waters). These very high levels of coliform bacteria have been speculated to be caused by improper disposal of dog waste, increased waterfowl activity, as well as flushing of pavement due to heavy rains the day before the August sampling. When the additional sample was taken on November 30th due to concerns of these high levels, the fecal and total coliform amounts were measured at 230 and 2419.57 MPN/100mL, respectively. This seasonal decrease in amounts suggests more research is needed to determine the exact cause of the high counts of coliform bacteria and allow for remediation.***

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 and also showed an anoxic bottom of each of the sampling locations. 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.

The chemical treatment of Dug Pond was very successful this season. The timing of this treatment was ideal, and provided control all season, even with heavy and frequent rainfall throughout the season. While good fanwort control continues to be seen in areas treated over the last couple of years with Sonar (Outlet Cove, Azalea Cove, Dug Pond), the Main Basin and Mill Reservoir along with the areas connecting the two are now exhibiting substantial fanwort regrowth. We recommend herbicide treatment of these areas in 2024.

**Fanwort control:** We recommend to continue a balanced approach to managing fanwort: attempting with non-chemical controls where economically and logistically feasible and targeting with spot treatments of 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.

Based on the fanwort observations during the late summer, we recommend that the Main Basin, Mill Reservoir and the area between the two be treated with Sonar herbicide. The density and extent of growth in these areas is beyond the level that can be addressed with diver hand-pulling. We also recommend treating a section of the Channel and the area between Azalea Cove and Mill Reservoir as fanwort density is increasing there as well, and fragmentation would spread fanwort to recently treated areas. It is again 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.

**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 experience with all of these methods, having experimented with the use of hand harvesting, suction harvesting, and benthic barriers, and having utilized drawdowns and herbicides for many years. 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 165-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. 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 by divers** has yielded mixed results. The FPC has, at considerable expense, contracted for the deployment of divers every year from 2019 through 2023. Diving for fanwort in the conditions present in Foster's Pond has proved to be a very challenging assignment. In deep water (more than 5 or 6 feet) visibility is extremely limited due to tannins in the water, and divers must proceed by touch to find the roots of each plant. Regardless of depth, hand-pulling (like DASH) stirs up bottom sediments, rendering the water totally opaque and making it nearly impossible for the diver to distinguish between target and non-target plants – and to locate the roots. The divers must allow sediments to settle – requiring them to return to the same area repeatedly – in order to see plants they missed on earlier dives. Additionally, if fanwort is interspersed with lilies (which is the case in most areas of the Pond), the delicate fanwort stems entwine with the sturdier lilies, making it impossible to remove the fanwort root balls without fragmenting (and thereby spreading) the fanwort.

Much of the diving each year has been undertaken after the annual vegetation survey was conducted. This timing was not intentional, but resulted from weather conditions and the limited availability of the dive teams. The result has been that the effectiveness of hand-pulling has not been gauged by the survey year to year. Post-dive observations by the FPC have indicated that hand-pulling reduced but did not eliminate fanwort in targeted areas where the growth had not been very dense.

This year, dive teams deployed on the Pond three times between June 19 and the end of July. They targeted fanwort throughout the Pond in areas that had not been recently treated. Over the course of eight days, working in three- and four-man teams, the divers removed 154 bags of fanwort, each weighing an estimated 25 pounds (for an approximate total of 1.9 tons). This year, the diving concluded shortly before the survey was conducted, but the survey was constrained in its ability to evaluate the results, for three reasons: (1) heavy rains the day before the survey had raised the water level significantly, making observation of the bottom more difficult: (2) winds and overcast skies also diminished visibility of the bottom; and (3) the effects, if any, of fragmentation of the fanwort plants a few days earlier would not yet be apparent. Also, the annual vegetation survey focuses on pre-selected and consistent data points, in order to make meaningful comparisons from year to year; however, the survey does not quantify the growth or decline of vegetation occurring outside of the data points, particularly in deeper water where the bottom is invisible or along shorelines to which the jon boat cannot get close.

Subsequently, on September 6, the FPC undertook a less formal survey from a canoe, specifically looking for fanwort growing along the shoreline. That fanwort survey and Solitude's August 9 fanwort observations are combined on the map in **Figure 5** and yield a sharper picture of the presence of fanwort at the present time, after treatments and diving.

The FPC has indicated that it still regards the deployment of divers in Foster's Pond as an experiment. We concur, and recommend that the experiment be continued, but with due regard to potential problems and limitations. First, the FPC'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. Second, the widespread appearance of small fanwort plants growing by the shoreline throughout the Main Pond (where most of the dive work was conducted) suggests that hand-pulling large stands of fanwort likely produced fragmentation which resulted in new plants establishing themselves in shoreline shallows. We would recommend that any further diver hand-pulling, particularly if fanwort stands of more than a few plants are targeted, be conducted with surface barriers to contain and collect fragments, which are almost inevitable

Based on the MA DCR analysis, the FPC 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 FPC has experimented 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, treatment with granular or liquid Sonar remains the best alternative for controlling extensive regrowth. While it appears that a large area of the Pond now requires chemical treatment, we note that such an extensive treatment has not been necessary since 2015. Going forward, treating a limited number of acres on an ongoing basis will minimize the need for a whole-lake treatment for a number of years. 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 2023. It will be important to remain vigilant and see if spiny naiad expands its footprint. There were only a few areas in which spiny naiad and fanwort were observed together, so it is unlikely that much control of spiny naiad would be achieved from the fanwort treatments. Separate areas of spiny naiad treatment would be proposed if the amount of vegetation was deemed necessary for treatment.

As with past years, we again recommend that in 2024 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 water body 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 alum 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 2024.

**List of Attachments**

- Figure 1: Survey Data Points
- Figure 2: Early-season Fanwort Observations Map
- Figure 3: 2023 Fanwort Treatment Areas Map
- Figure 4: Fanwort and Brittle Naiad Observation Map (August 2023)
- Figure 5: Collection of Fanwort Observations by SOLitude and the FPC
- Aquatic Plant Survey Field Data Table
- Temperature and Dissolved Oxygen Readings Table
- Alpha and SePRO Water Quality Laboratory Reports
- Table of Coliform Readings from 2009-2023 in Mill Reservoir
- Northeast Laboratories Algae and Cyanobacteria Reports

# APPENDIX A:

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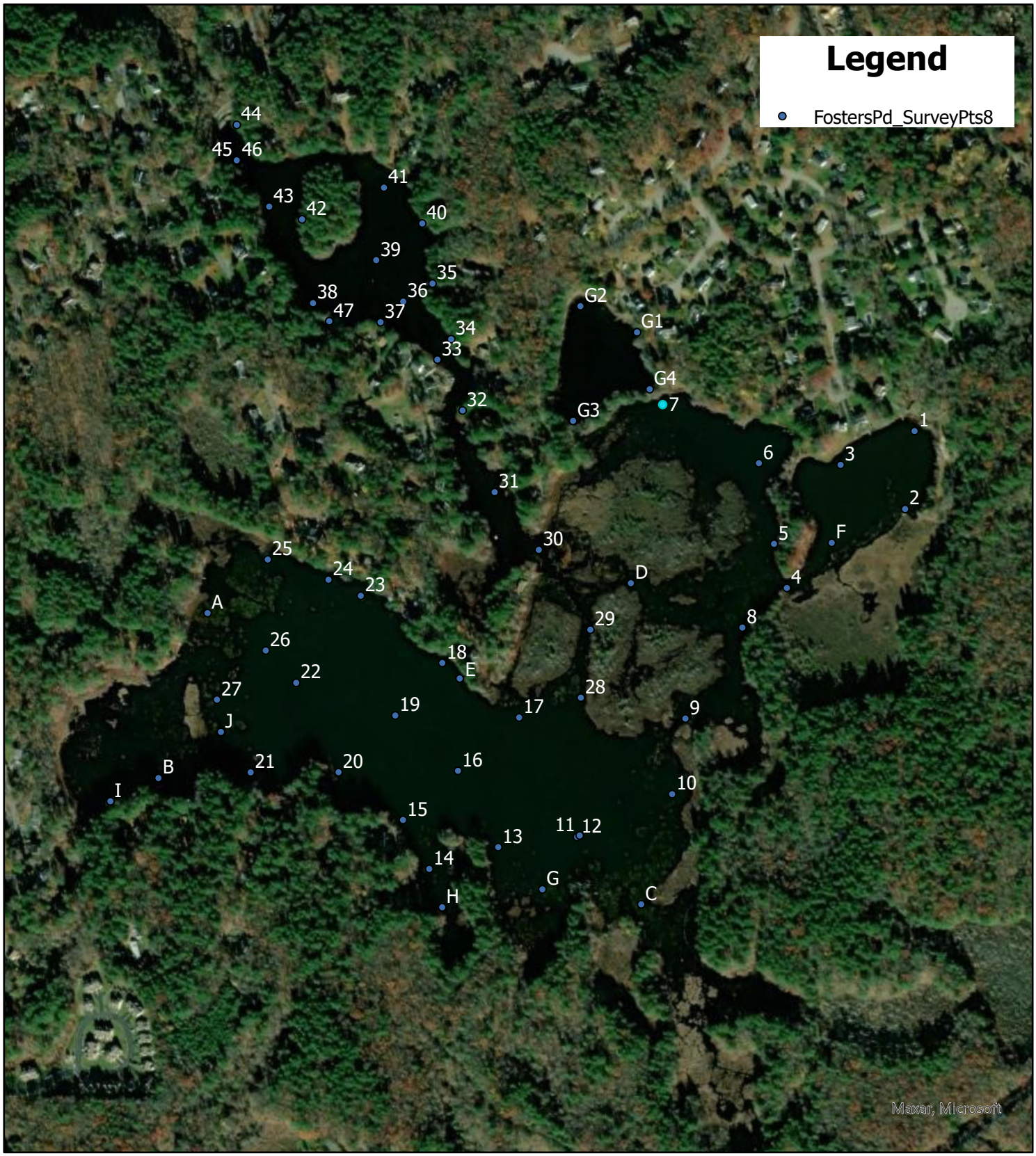
Point Survey Map

Treatment Map

Vegetation Distribution and Density Maps

# FIGURE 1: 2023 Annual Comprehensive Point Survey

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com




Foster's Pond
Andover, MA

**Foster's Pond**

1:7,014

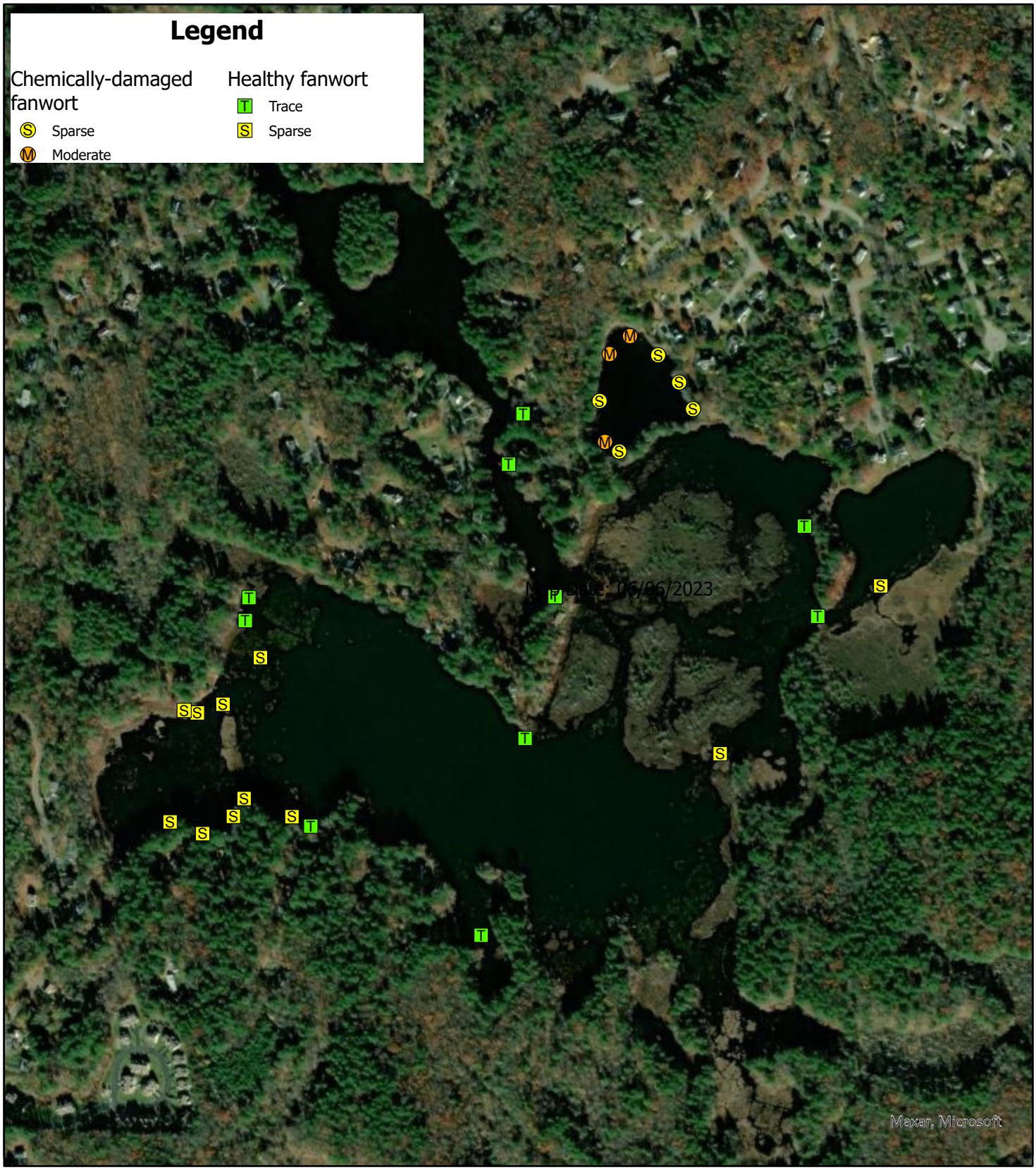
0 205 410 820 Feet

N

Map Date: 08/25/2023
Survey Date: 08/11/2023
Prepared by: KV
Office: SHREWSBURY, MA

# FIGURE 2: Foster's Pond Pre-Management Visual Survey - Density and Distribution of Fanwort

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com




**Foster's Pond**
Andover, MA

**Foster's Pond**

0 180 360 720
Feet

N

1:7,080

Survey Date: 06/01/2023
Map Date: 06/06/2023
Prepared by: KV
Office: Shrewsbury, MA

# FIGURE 3: Foster's Pond Treatment Areas

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com


**Foster's Pond**
Andover, MA

## Foster's Pond

0 180 360 720
Feet

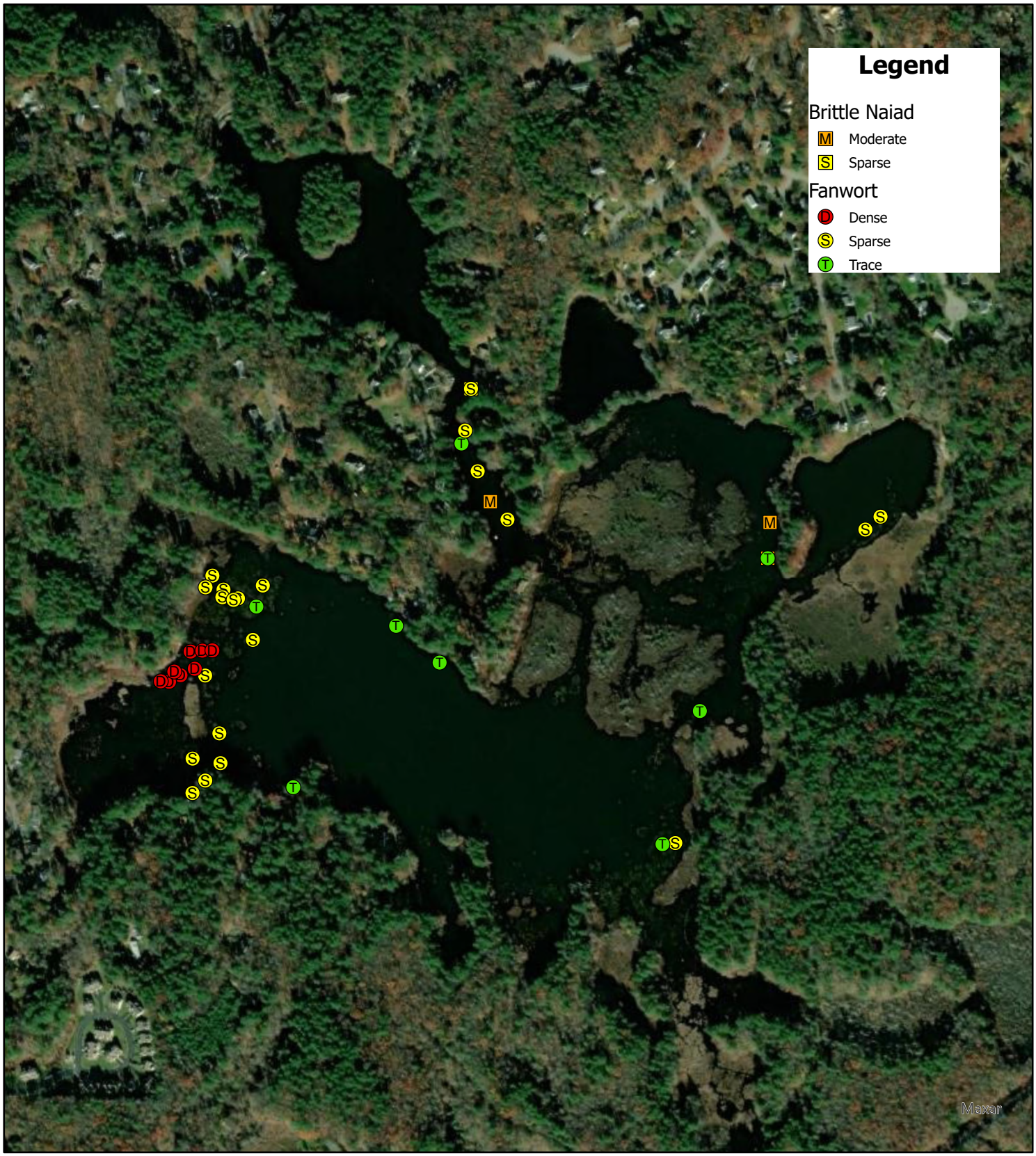
N

1:7,080

Survey Date: 06/01/2023
Map Date: 06/06/2023
Prepared by: KV
Office: Shrewsbury, MA

# FIGURE 4: 2023 Annual Comprehensive Visual Survey
# Density and Distribution of Invasive Vegetation

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com




Foster's Pond
Andover, MA

**Foster's Pond**

1:7,014

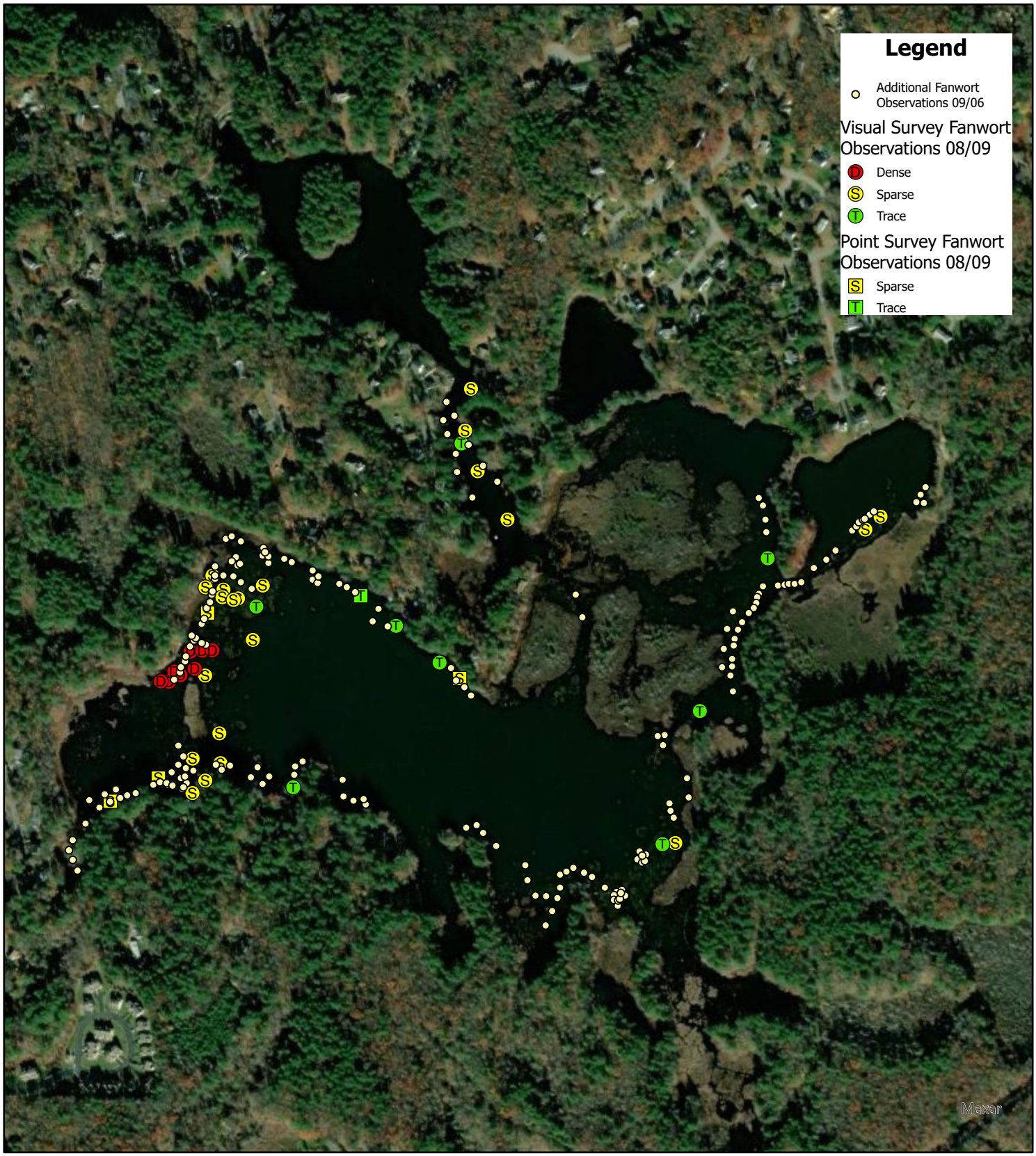
0 205 410 820 Feet

N

Map Date: 08/25/2023
Survey Date: 08/11/2023
Prepared by: KV
Office: SHREWSBURY, MA

# FIGURE 5: Collective Fanwort Observations
# August 9 and September 6, 2023

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com




Foster's Pond
Andover, MA

**Foster's Pond**

1:7,014

0 205 410 820 Feet

N

Map Date: 10/30/2023
Prepared by: KV
Office: SHREWSBURY, MA

# APPENDIX B:

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Raw Data Table

Temperature and Dissolved Oxygen Readings

Coliform Readings 2009-2023

Water Quality Reports

| Data Point | % Total Plant Cover | % Fanwort Cover | Biomass index | CC | NODO | NVAR | CDEM | USP | NMIN | SPAR | NFLEX | BFA | FA | MACRO | PPUS | ECAN | PPULCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 2 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 3 | 10 | 0 | 1 | | | | | | | | | | | T | | | |
| 4 | 25 | 0 | 4 | | S | | | | | | | | | | T | | |
| 5 | 35 | 0 | 4 | | M | T | | | | | | | | M | | | |
| 6 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 7 | 50 | 0 | 4 | | D | | | | | | | | | | | | |
| 8 | 35 | 0 | 1 | | | | | | S | | | S | | | | | |
| 9 | 20 | 0 | 4 | | S | | T | | | | | | | | | | |
| 10 | 20 | 0 | 4 | | S | | | | | | | S | | | | | |
| 11 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 12 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 13 | 10 | 0 | 1 | | | | | | | | | S | | | | | |
| 14 | 10 | 0 | 1 | | | | | | | | | S | | | | | |
| 15 | 10 | 0 | 1 | | | | | | | | | S | | | | | |
| 16 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 17 | 25 | 0 | 4 | | M | | | | | | | S | | | | | |
| 18 | 10 | 0 | 4 | | | | | | | | | S | | | | | |
| 19 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 20 | 10 | 0 | 1 | | | | | | | | | S | | | | | |
| 21 | 40 | 0 | 4 | | S | | S | | | | | | | | | | |
| 22 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 23 | 15 | 10 | 3 | T | | | | | | | | S | | | | | |
| 24 | 15 | 0 | 4 | | S | | | | | | | | | | | | |
| 25 | 5 | 0 | 4 | | T | | | | | | | | | | | | |
| 26 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 27 | 35 | 0 | 4 | | M | | | | | | | | | | | | |
| 28 | 35 | 0 | 4 | | M | | | | | | | | | | | | |
| 29 | 35 | 0 | 4 | | M | | | | | | | | | | | | |
| 30 | 85 | 0 | 4 | | M | | S | M | S | | | | | S | S | | |
| 31 | NA | | | | | | | | | | | | | | | | |
| 32 | 55 | 0 | 1 | | | | | T | | | M | | | | | | |
| 33 | 65 | 0 | 3 | | | | | M | | | M | | | | | | |
| 34 | 70 | 0 | 4 | | T | | S | T | | | M | | | | | | |
| 35 | 30 | 0 | 1 | | | | | | | | S | | | | | | |
| 36 | 20 | 0 | 4 | | S | | | | | | | | | | | | |
| 37 | 45 | 0 | 4 | | M | | S | S | | | M | | | | | | |
| 38 | 40 | 0 | 4 | | | | S | S | | | M | | | | | | |
| 39 | 0 | 0 | 0 | | | | | | | | | | | | | | |
| 40 | 55 | 0 | 4 | | | | | | | | M | | | | | | |
| 41 | 65 | 0 | 4 | | | | | | | | | | | | | | M |
| 42 | 60 | 0 | 4 | | | | S | S | | | M | | | | | | |

| Data Point | % Total Plant Cover | % Fanwort Cover | Biomass index | CC | NODO | NVAR | CDEM | USP | NMIN | SPAR | NFLEX | BFA | FA | MACRO | PPUS | ECAN | PPULCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 55 | 0 | 4 | | S | | | M | | | M | | | | | | |
| 44 | 30 | 0 | 4 | | | | | | | S | | | | | | | |
| 45 | 60 | 0 | 4 | | S | | | M | | | M | | | | | | |
| 46 | 65 | 0 | 4 | | S | | | M | | | M | | | | | | |
| 47 | 60 | 0 | 4 | | | | S | S | | | M | | | | | | |
| A | 40 | 30 | 4 | S | M | | | | | | | | | | | | |
| B | 40 | 35 | 4 | S | M | | | | | | | | | | | | |
| C | | | NA | | | | | | | | | | | | | | |
| D | | | NA | | | | | | | | | | | | | | |
| E | 45 | 35 | 4 | S | T | | | | | | | | | | | T | |
| F | 0 | 0 | 0 | | | | | | | | | | | | | | |
| G | 0 | 0 | 0 | | | | | | | | | | | | | | |
| H | 15 | 0 | 4 | | S | | | | | | | S | | | | | |
| I | 65 | 35 | 4 | S | D | | | | | | | | | | | | |
| J | 15 | 0 | 4 | | S | | | | | | | | | | | | |
| G1 | 35 | 0 | 4 | | S | | | | | T | | | | S | | | |
| G2 | 20 | 0 | 4 | | S | | | | | | | | | M | | | |
| G3 | 15 | 0 | 2 | | | | | | | | | | | S | | | |
| G4 | 0 | 0 | 0 | | | | | | | | | | | | | | |

| Azalea | | |
|---|---|---|
| Depth | Temp | DO |
| SW | 24.8 | 6.78 |
| 1 | 24.9 | 6.75 |
| 2 | 24.9 | 6.73 |
| 3 | 24.2 | 6.32 |
| 4 | 23.2 | 5.19 |
| 5 | 22.4 | 4.06 |
| 6 | 22.0 | 3.64 |
| 7 | 21.7 | 3.44 |
| 8 | 21.0 | 2.74 |
| 9 | 19.4 | 1.28 |
| 10 | 18.8 | 0.94 |
| 11 | 17.7 | 0.69 |
| 12 | 14.3 | 0.51 |
| 13 | 13.2 | 0.42 |
| 14 | 12.6 | 0.45 |
| Time: 2pm | Secchi: 5.8ft | |

| Outlet | | |
|---|---|---|
| Depth | Temp | DO |
| SW | 24.4 | 5.86 |
| 1 | 24.3 | 5.71 |
| 2 | 23.8 | 5.01 |
| 3 | 23.1 | 4.22 |
| 4 | 23.0 | 3.40 |
| 5 | 22.3 | 2.03 |
| 6 | 21.7 | 1.20 |
| 7 | 21.2 | 0.75 |
| Time: 1pm | Secchi: 5.37ft | |

| Mill Reservoir | | |
|---|---|---|
| Depth | Temp | DO |
| SW | 22.9 | 6.41 |
| 1 | 22.1 | 5.99 |
| 2 | 21.6 | 5.85 |
| 3 | 21.1 | 5.78 |
| 4 | 20.3 | 5.92 |
| 5 | 20.0 | 6.01 |
| 6 | 19.7 | 5.91 |
| 7 | 19.7 | 5.82 |
| 8 | 19.5 | 5.41 |
| 9 | 19.2 | 5.02 |
| 10 | 19.0 | 4.33 |
| 11 | 18.7 | 3.80 |
| 12 | 17.7 | 2.40 |
| 13 | 14.1 | 1.23 |
| 14 | 11.3 | 0.87 |
| 15 | 10.6 | 0.75 |
| Time: 1:45pm | Secchi: 2.2ft | |

| Dug Pond | | |
|---|---|---|
| Depth | Temp | DO |
| SW | 26.5 | 7.35 |
| 1 | 26.4 | 7.32 |
| 2 | 26.2 | 7.26 |
| 3 | 25.9 | 7.16 |
| 4 | 25.5 | 7.09 |
| 5 | 25.3 | 7.06 |
| 6 | 25.2 | 7.06 |
| 7 | 25.1 | 6.97 |
| 8 | 24.9 | 6.88 |
| 9 | 24.9 | 6.84 |
| 10 | 24.9 | 6.77 |
| 11 | 24.7 | 6.46 |
| 12 | 24.6 | 6.09 |
| 13 | 24.6 | 5.58 |
| 14 | 24.3 | 4.00 |
| 15 | 23.4 | 1.28 |
| Time: 4pm | Secchi: 11.10ft | |

| Main Basin | | |
|---|---|---|
| Depth | Temp | DO |
| SW | 23.6 | 6.49 |
| 1 | 23.7 | 6.40 |
| 2 | 23.7 | 6.45 |
| 3 | 23.7 | 6.48 |
| 4 | 23.6 | 6.40 |
| 5 | 23.2 | 5.40 |
| 6 | 23.2 | 5.24 |
| 7 | 22.6 | 4.10 |
| 8 | 22.1 | 3.31 |
| 9 | 21.8 | 1.30 |
| 10 | 20.7 | 0.60 |
| Time: 11:20am | Secchi: 4ft | |

| Sample Date | Fecal col/100mL | Total MPN/100mL | Prior Rainfall (inches) 1 day | 2 day | week | month |
|---|---|---|---|---|---|---|
| 11/30/23 | 230 | 2419.57 | | | | |
| 8/9/23 | 5700 | >242,000 | 5"-6" | | | |
| 8/4/22 | 15 | 1119.87 | | | | drought |
| 8/9/21 | 17 MPN | | | | | |
| 9/3/20 | 5 | 13,776 | | | | |
| 8/19/19 | 150 | 9,918 | | | | |
| 8/23/18 | 350 MPN | 7800 | | | | higher than normal |
| 9/11/17 | 11 | 2400 | | | | |
| 9/1/16 | 30 | | | 0.1 | 0.6 | 4.9 |
| 9/9/15 | 10 | | | 0.1 | 0.6 | 3.8 |
| 8/28/14 | <10 | | | 0.1 | 0.7 | 3.32 |
| 8/23/12 | ND | | | 0.1 | 0.9 | 5.5 |
| 8/27/09 | 14 | 34 col/100mL | | 0.3 | 1.9 | 6.2 |
| | | | | | | |

| 07/25 Main Basin Cyanobacteria | |
|---|---|
| Species | Cell Count |
| Anabaena | 13,000 |
| Snowella | 1,200 |
| Synechococcus/Related | 940 |
| Cuspidothrix | 3900 |
| TOTAL | 19,000/mL |

| 07/25 Outlet Cove Cyanobacteria | |
|---|---|
| Anabaena | 8400 |
| Snowella | 430 |
| Synechococcus/Related | 570 |
| Cuspidothrix | 720 |
| TOTAL | 10,000/mL |

| 07/25 Mill Reservoir Cyanobacteria | |
|---|---|
| Snowella | 120 |
| Synechococcus/Related | 240 |
| Pseudanabaena/Kromvophoron | 670 |
| Cuspidothrix | 340 |
| TOTAL | 1,400/mL |

| 08/09 Main Basin Cyanobacteria | |
|---|---|
| Species | Cell Count |
| **None** | **ND/mL** |

| 08/09 Main Basin Algae ID | |
|---|---|
| Species | Cell Count |
| Asterionella | 290 |
| Diatoma | 2700 |
| Tabellaria | 19 |
| Crucigenia | 77 |
| Monoraphidium | 350 |
| Staurastrum | 2300 |
| Staurodesmus | 19 |
| Xanthudium | 180 |
| Scenedesmus | 77 |
| Dinobryon | 410 |
| **TOTAL** | **6,400/mL** |

# ANALYTICAL REPORT

| | |
|---|---|
| Lab Number: | L2346183 |
| Client: | Solitude Lake Management, LLC<br>590 Lake Street<br>Shrewsbury, MA 01545 |
| ATTN: | Emily Vulgamore |
| Phone: | (508) 826-5137 |
| Project Name: | FOSTER'S POND |
| Project Number: | Not Specified |
| Report Date: | 08/23/23 |



Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

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:** L2346183
**Report Date:** 08/23/23

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|---|---|---|---|---|---|
| L2346183-01 | MILL RESERVOIR | WATER | ANDOVER, MA | 08/09/23 13:45 | 08/09/23 |
| L2346183-02 | OUTLET | WATER | ANDOVER, MA | 08/09/23 13:00 | 08/09/23 |
| L2346183-03 | MAIN BASIN | WATER | ANDOVER, MA | 08/09/23 11:20 | 08/09/23 |
| L2346183-04 | AZALEA | WATER | ANDOVER, MA | 08/09/23 14:00 | 08/09/23 |
| L2346183-05 | DUG POND | WATER | ANDOVER, MA | 08/09/23 16:00 | 08/09/23 |

| | | | |
|---|---|---|---|
| **Project Name:** | FOSTER'S POND | **Lab Number:** | L2346183 |
| **Project Number:** | Not Specified | **Report Date:** | 08/23/23 |

## 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:** | L2346183 |
| **Project Number:** | Not Specified | **Report Date:** | 08/23/23 |

**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, Total (MPN)

L2346183-01: The result is estimated due to the elevated concentration in the sample. Due to the expiration of the method required holding time, re-analysis could not be performed.

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: Kelly Stenstrom

Title: Technical Director/Representative Date: 08/23/23

# INORGANICS
# &
# MISCELLANEOUS

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

## SAMPLE RESULTS

Lab ID: L2346183-01
Client ID: MILL RESERVOIR
Sample Location: ANDOVER, MA

Date Collected: 08/09/23 13:45
Date Received: 08/09/23
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) | >242000 | | MPN/100ml | 100 | NA | 100 | - | 08/09/23 19:54 | 121,9223B | JAI |
| Coliform, Fecal (MF) | 5700 | | col/100ml | 100 | NA | 100 | - | 08/09/23 19:49 | 121,9222D | PLB |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Turbidity | 8.6 | | NTU | 0.20 | -- | 1 | - | 08/09/23 21:58 | 44,180.1 | AAS |
| Color, True | 100 | | A.P.C.U. | 25 | -- | 5 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Color, Apparent | 170 | | A.P.C.U. | 50 | -- | 10 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Alkalinity, Total | 20.6 | | mg CaCO3/L | 2.00 | NA | 1 | - | 08/18/23 11:35 | 121,2320B | MKT |
| pH (H) | 6.37 | | SU | - | NA | 1 | - | 08/10/23 17:56 | 121,4500H+-B | AAS |
| Phosphorus, Total | 0.080 | | mg/l | 0.050 | -- | 5 | 08/22/23 08:20 | 08/22/23 12:13 | 121,4500P-E | RDS |

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

## SAMPLE RESULTS

Lab ID: L2346183-02
Client ID: OUTLET
Sample Location: ANDOVER, MA

Date Collected: 08/09/23 13:00
Date Received: 08/09/23
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) | 26025 | | MPN/100ml | 100 | NA | 100 | - | 08/09/23 19:54 | 121,9223B | JAI |
| Coliform, Fecal (MF) | 400 | | col/100ml | 10 | NA | 10 | - | 08/09/23 19:49 | 121,9222D | PLB |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Turbidity | 2.3 | | NTU | 0.20 | -- | 1 | - | 08/09/23 21:58 | 44,180.1 | AAS |
| Color, True | 46 | | A.P.C.U. | 10 | -- | 2 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Color, Apparent | 75 | | A.P.C.U. | 25 | -- | 5 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Alkalinity, Total | 24.0 | | mg CaCO3/L | 2.00 | NA | 1 | - | 08/18/23 11:35 | 121,2320B | MKT |
| pH (H) | 6.47 | | SU | - | NA | 1 | - | 08/10/23 17:56 | 121,4500H+-B | AAS |
| Phosphorus, Total | 0.027 | | mg/l | 0.010 | -- | 1 | 08/23/23 06:02 | 08/23/23 11:28 | 121,4500P-E | EYA |

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

## SAMPLE RESULTS

Lab ID: L2346183-03
Client ID: MAIN BASIN
Sample Location: ANDOVER, MA

Date Collected: 08/09/23 11:20
Date Received: 08/09/23
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) | 11910 | | MPN/100ml | 100 | NA | 100 | - | 08/09/23 19:12 | 121,9223B | PLB |
| Coliform, Fecal (MF) | 130 | | col/100ml | 2.0 | NA | 2 | - | 08/09/23 19:02 | 121,9222D | PLB |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Turbidity | 2.2 | | NTU | 0.20 | -- | 1 | - | 08/09/23 21:58 | 44,180.1 | AAS |
| Color, True | 44 | | A.P.C.U. | 10 | -- | 2 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Color, Apparent | 85 | | A.P.C.U. | 25 | -- | 5 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Alkalinity, Total | 23.8 | | mg CaCO3/L | 2.00 | NA | 1 | - | 08/18/23 11:35 | 121,2320B | MKT |
| pH (H) | 6.74 | | SU | - | NA | 1 | - | 08/10/23 17:56 | 121,4500H+-B | AAS |
| Phosphorus, Total | 0.027 | | mg/l | 0.010 | -- | 1 | 08/22/23 08:20 | 08/22/23 12:14 | 121,4500P-E | RDS |

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

## SAMPLE RESULTS

Lab ID: L2346183-04
Client ID: AZALEA
Sample Location: ANDOVER, MA

Date Collected: 08/09/23 14:00
Date Received: 08/09/23
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) | 7116 | | MPN/100ml | 100 | NA | 100 | - | 08/09/23 19:54 | 121,9223B | JAI |
| Coliform, Fecal (MF) | 170 | | col/100ml | 2.0 | NA | 2 | - | 08/09/23 19:49 | 121,9222D | PLB |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Turbidity | 1.0 | | NTU | 0.20 | -- | 1 | - | 08/09/23 21:58 | 44,180.1 | AAS |
| Color, True | 40 | | A.P.C.U. | 10 | -- | 2 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Color, Apparent | 42 | | A.P.C.U. | 10 | -- | 2 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Alkalinity, Total | 23.6 | | mg CaCO3/L | 2.00 | NA | 1 | - | 08/18/23 11:35 | 121,2320B | MKT |
| pH (H) | 6.83 | | SU | - | NA | 1 | - | 08/10/23 17:56 | 121,4500H+-B | AAS |
| Phosphorus, Total | 0.016 | | mg/l | 0.010 | -- | 1 | 08/22/23 11:41 | 08/22/23 13:37 | 121,4500P-E | EYA |

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

## SAMPLE RESULTS

Lab ID: L2346183-05
Client ID: DUG POND
Sample Location: ANDOVER, MA

Date Collected: 08/09/23 16:00
Date Received: 08/09/23
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) | 8088 | | MPN/100ml | 100 | NA | 100 | - | 08/09/23 19:54 | 121,9223B | JAI |
| Coliform, Fecal (MF) | 34 | | col/100ml | 2.0 | NA | 2 | - | 08/09/23 19:49 | 121,9222D | PLB |
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Turbidity | 0.74 | | NTU | 0.20 | -- | 1 | - | 08/09/23 21:58 | 44,180.1 | AAS |
| Color, True | ND | | A.P.C.U. | 5.0 | -- | 1 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Color, Apparent | 6.0 | | A.P.C.U. | 5.0 | -- | 1 | - | 08/10/23 22:46 | 121,2120B | AAS |
| Alkalinity, Total | 13.4 | | mg CaCO3/L | 2.00 | NA | 1 | - | 08/18/23 11:35 | 121,2320B | MKT |
| pH (H) | 6.90 | | SU | - | NA | 1 | - | 08/10/23 17:56 | 121,4500H+-B | AAS |
| Phosphorus, Total | 0.011 | | mg/l | 0.010 | -- | 1 | 08/22/23 11:41 | 08/22/23 13:38 | 121,4500P-E | EYA |

**Project Name:** FOSTER'S POND
**Project Number:** Not Specified
**Lab Number:** L2346183
**Report Date:** 08/23/23

# Method Blank Analysis
## Batch Quality Control

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| General Chemistry - Westborough Lab for sample(s): 01-05 Batch: WG1813969-1 | | | | | | | | | | |
| Turbidity | ND | | NTU | 0.20 | -- | 1 | - | 08/09/23 21:58 | 44,180.1 | AAS |
| Microbiological Analysis - Westborough Lab for sample(s): 03 Batch: WG1814023-1 | | | | | | | | | | |
| Coliform, Fecal (MF) | ND | | col/100ml | 1.0 | NA | 1 | - | 08/09/23 19:02 | 121,9222D | PLB |
| Microbiological Analysis - Westborough Lab for sample(s): 01-02,04-05 Batch: WG1814025-1 | | | | | | | | | | |
| Coliform, Fecal (MF) | ND | | col/100ml | 1.0 | NA | 1 | - | 08/09/23 19:49 | 121,9222D | PLB |
| Microbiological Analysis - Westborough Lab for sample(s): 03 Batch: WG1814033-1 | | | | | | | | | | |
| Coliform, Total (MPN) | <1 | | MPN/100ml | 1 | NA | 1 | - | 08/09/23 19:12 | 121,9223B | PLB |
| Microbiological Analysis - Westborough Lab for sample(s): 01-02,04-05 Batch: WG1814034-1 | | | | | | | | | | |
| Coliform, Total (MPN) | <1 | | MPN/100ml | 1 | NA | 1 | - | 08/09/23 19:54 | 121,9223B | JAI |
| General Chemistry - Westborough Lab for sample(s): 01-05 Batch: WG1817591-1 | | | | | | | | | | |
| Alkalinity, Total | ND | | mg CaCO3/L | 2.00 | NA | 1 | - | 08/18/23 11:35 | 121,2320B | MKT |
| General Chemistry - Westborough Lab for sample(s): 01,03 Batch: WG1818558-1 | | | | | | | | | | |
| Phosphorus, Total | ND | | mg/l | 0.010 | -- | 1 | 08/22/23 08:20 | 08/22/23 11:47 | 121,4500P-E | RDS |
| General Chemistry - Westborough Lab for sample(s): 04-05 Batch: WG1818627-1 | | | | | | | | | | |
| Phosphorus, Total | ND | | mg/l | 0.010 | -- | 1 | 08/22/23 11:41 | 08/22/23 13:22 | 121,4500P-E | EYA |
| General Chemistry - Westborough Lab for sample(s): 02 Batch: WG1818801-1 | | | | | | | | | | |
| Phosphorus, Total | ND | | mg/l | 0.010 | -- | 1 | 08/23/23 06:02 | 08/23/23 11:17 | 121,4500P-E | EYA |

# Lab Control Sample Analysis

## Batch Quality Control

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|---|---|
| General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1813969-2 | | | | | | | | |
| Turbidity | 101 | | - | | 90-110 | - | | |
| General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1814515-1 | | | | | | | | |
| pH | 100 | | - | | 99-101 | - | | 5 |
| General Chemistry - Westborough Lab Associated sample(s): 01-05 Batch: WG1817591-2 | | | | | | | | |
| Alkalinity, Total | 102 | | - | | 90-110 | - | | 10 |
| General Chemistry - Westborough Lab Associated sample(s): 01,03 Batch: WG1818558-2 | | | | | | | | |
| Phosphorus, Total | 100 | | - | | 80-120 | - | | |
| General Chemistry - Westborough Lab Associated sample(s): 04-05 Batch: WG1818627-2 | | | | | | | | |
| Phosphorus, Total | 99 | | - | | 80-120 | - | | |
| General Chemistry - Westborough Lab Associated sample(s): 02 Batch: WG1818801-2 | | | | | | | | |
| Phosphorus, Total | 102 | | - | | 80-120 | - | | |

# Matrix Spike Analysis
## Batch Quality Control

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

| 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): 01-05 QC Batch ID: WG1817591-4 QC Sample: L2346227-01 Client ID: MS Sample | | | | | | | | | | | | |
| Alkalinity, Total | 39.4 | 100 | 144 | 105 | | - | - | | 86-116 | - | | 10 |
| General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1818558-4 QC Sample: L2345998-07 Client ID: MS Sample | | | | | | | | | | | | |
| Phosphorus, Total | 0.142 | 0.5 | 0.653 | 102 | | - | - | | 75-125 | - | | 20 |
| General Chemistry - Westborough Lab Associated sample(s): 04-05 QC Batch ID: WG1818627-4 QC Sample: L2345992-02 Client ID: MS Sample | | | | | | | | | | | | |
| Phosphorus, Total | 0.093 | 0.5 | 0.616 | 105 | | - | - | | 75-125 | - | | 20 |
| General Chemistry - Westborough Lab Associated sample(s): 02 QC Batch ID: WG1818801-4 QC Sample: L2346123-01 Client ID: MS Sample | | | | | | | | | | | | |
| Phosphorus, Total | 0.024 | 0.5 | 0.556 | 106 | | - | - | | 75-125 | - | | 20 |

# Lab Duplicate Analysis
*Batch Quality Control*

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

***Lab Number:*** L2346183
***Report Date:*** 08/23/23

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|
| General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1813969-3 QC Sample: L2345866-01 Client ID: DUP Sample | | | | | | |
| Turbidity | 0.29 | 0.31 | NTU | 7 | | 13 |
| General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1814515-2 QC Sample: L2345268-01 Client ID: DUP Sample | | | | | | |
| pH | 6.19 | 6.24 | SU | 1 | | 5 |
| General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1814570-1 QC Sample: L2346183-05 Client ID: DUG POND | | | | | | |
| Color, Apparent | 6.0 | 6.0 | A.P.C.U. | 0 | | |
| General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1814572-1 QC Sample: L2346183-05 Client ID: DUG POND | | | | | | |
| Color, True | ND | ND | A.P.C.U. | NC | | |
| General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1817591-3 QC Sample: L2346227-01 Client ID: DUP Sample | | | | | | |
| Alkalinity, Total | 39.4 | 40.2 | mg CaCO3/L | 2 | | 10 |
| General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1818558-3 QC Sample: L2345998-07 Client ID: DUP Sample | | | | | | |
| Phosphorus, Total | 0.142 | 0.135 | mg/l | 5 | | 20 |
| General Chemistry - Westborough Lab Associated sample(s): 04-05 QC Batch ID: WG1818627-3 QC Sample: L2345992-02 Client ID: DUP Sample | | | | | | |
| Phosphorus, Total | 0.093 | 0.092 | mg/l | 1 | | 20 |
| General Chemistry - Westborough Lab Associated sample(s): 02 QC Batch ID: WG1818801-3 QC Sample: L2346123-01 Client ID: DUP Sample | | | | | | |
| Phosphorus, Total | 0.024 | 0.024 | mg/l | 0 | | 20 |

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

## Sample Receipt and Container Information

Were project specific reporting limits specified? YES

### Cooler Information

| Cooler | Custody Seal |
|---|---|
| A | Absent |

### Container Information

| Container ID | Container Type | Cooler | Initial pH | Final pH | Temp deg C | Pres | Seal | Frozen Date/Time | Analysis(*) |
|---|---|---|---|---|---|---|---|---|---|
| L2346183-01A | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-01B | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-01C | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-01D | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-01E | Plastic 250ml unpreserved/No Headspace | A | NA | | 16.8 | Y | Absent | | ALK-T-2320(14) |
| L2346183-01F | Plastic 250ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | TURB-180(2),PH-4500(.01) |
| L2346183-01G | Plastic 250ml H2SO4 preserved | A | <2 | <2 | 16.8 | Y | Absent | | TPHOS-4500(28) |
| L2346183-01H | Amber 500ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | COLOR-T-2120(2),COLOR-A-2120(2) |
| L2346183-02A | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-02B | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-02C | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-02D | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-02E | Plastic 250ml unpreserved/No Headspace | A | NA | | 16.8 | Y | Absent | | ALK-T-2320(14) |
| L2346183-02F | Plastic 250ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | TURB-180(2),PH-4500(.01) |
| L2346183-02G | Amber 500ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | COLOR-T-2120(2),COLOR-A-2120(2) |
| L2346183-02H | Plastic 950ml H2SO4 preserved | A | <2 | <2 | 16.8 | Y | Absent | | TPHOS-4500(28) |
| L2346183-03A | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-03B | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-03C | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-03D | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-03E | Plastic 250ml unpreserved/No Headspace | A | NA | | 16.8 | Y | Absent | | ALK-T-2320(14) |
| L2346183-03F | Plastic 250ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | TURB-180(2),PH-4500(.01) |
| L2346183-03G | Plastic 250ml H2SO4 preserved | A | <2 | <2 | 16.8 | Y | Absent | | TPHOS-4500(28) |



*Values in parentheses indicate holding time in days

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

**Lab Number:** L2346183
**Report Date:** 08/23/23

## Container Information

| Container ID | Container Type | Cooler | Initial pH | Final pH | Temp deg C | Pres | Seal | Frozen Date/Time | Analysis(*) |
|---|---|---|---|---|---|---|---|---|---|
| L2346183-03H | Amber 500ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | COLOR-T-2120(2),COLOR-A-2120(2) |
| L2346183-04A | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-04B | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-04C | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-04D | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-04E | Plastic 250ml unpreserved/No Headspace | A | NA | | 16.8 | Y | Absent | | ALK-T-2320(14) |
| L2346183-04F | Plastic 250ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | TURB-180(2),PH-4500(.01) |
| L2346183-04G | Plastic 250ml H2SO4 preserved | A | <2 | <2 | 16.8 | Y | Absent | | TPHOS-4500(28) |
| L2346183-04H | Amber 500ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | COLOR-T-2120(2),COLOR-A-2120(2) |
| L2346183-05A | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-05B | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | F-COLI-MF(.33) |
| L2346183-05C | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-05D | Bacteria Cup Na2S2O3 preserved | A | NA | | 16.8 | Y | Absent | | T-COLI-QT(.33) |
| L2346183-05E | Plastic 250ml unpreserved/No Headspace | A | NA | | 16.8 | Y | Absent | | ALK-T-2320(14) |
| L2346183-05F | Plastic 250ml unpreserved | A | 7 | 7 | 16.8 | Y | Absent | | TURB-180(2),PH-4500(.01) |
| L2346183-05G | Plastic 250ml H2SO4 preserved | A | <2 | <2 | 16.8 | Y | Absent | | TPHOS-4500(28) |
| L2346183-05H | Amber 500ml unpreserved | A | 7 | 7 | 16.8 | 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:** | L2346183 |
| **Project Number:** | Not Specified | **Report Date:** | 08/23/23 |

## 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.)<br><br>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:** | L2346183 |
| **Project Number:** | Not Specified | **Report Date:** | 08/23/23 |

***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:** | L2346183 |
| **Project Number:** | Not Specified | **Report Date:** | 08/23/23 |

***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 | **Lab Number:** | L2346183 |
| **Project Number:** | Not Specified | **Report Date:** | 08/23/23 |

## 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 624.1:** m/p-xylene, o-xylene, Naphthalene
**EPA 625.1:** alpha-Terpineol
**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
**EPA 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 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 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).
**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 _____

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 8/9/23

ALPHA Job #: L2346183

**Client Information**

Client: SOLitude Lake Mgmt
Address: 590 Lake St
Shrewsbury, MA 01545
Phone: 508-865-1000
Fax:
Email: serena.bet@solitudelake.com
☐ These samples have been previously analyzed by Alpha

**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: Time:

**Report Information - Data Deliverables**

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

**Billing Information**

☐ Same as Client info PO #:

**Regulatory Requirements/Report Limits**

State /Fed Program | Criteria

**MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO**

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

| ALPHA Lab ID (Lab Use Only) | Sample ID | Collection Date | Collection Time | Sample Matrix | Sampler's Initials | T. Coli | F. coli | A. Color | T. Color | Alk. T | pH | Turb. | TPhos | Sample Specific Comments | TOTAL # BOTTLES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46183-01 | Mill Reservoir | 8/9/23 | 1:45 | SW | KV | X | X | X | X | X | | | X | | 8 |
| -02 | Outlet | 8/9/23 | 1:00 | SW | KV | X | X | X | X | X | | | X | | 8 |
| -03 | Main Basin | 8/9/23 | 11:20 | SW | KV | X | X | X | X | X | | | X | | 8 |
| -04 | Azalea | 8/9/23 | 2:00 | SW | KV | X | X | X | X | X | | | X | | 8 |
| -05 | Dug Pond | 8/9/23 | 4:00 | SW | KV | X | X | X | X | X | | | X | | 8 |

**SAMPLE HANDLING**

Filtration _____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type
Preservative

| Relinquished By: | Date/Time | Received By: | Date/Time |
|---|---|---|---|
| | 5:48 8/9/23 | | 8/9/23 17:30 |

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

# ANALYTICAL REPORT

| | |
|---|---|
| Lab Number: | L2370489 |
| Client: | Solitude Lake Management, LLC<br>590 Lake Street<br>Shrewsbury, MA 01545 |
| ATTN: | Dominic Meringolo |
| Phone: | (508) 865-1000 |
| Project Name: | FOSTER'S POND |
| Project Number: | Not Specified |
| Report Date: | 12/01/23 |



Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

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:** L2370489
**Report Date:** 12/01/23

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|---|---|---|---|---|---|
| L2370489-01 | MILL RESERVOIR | WATER | ANDOVER, MA | 11/30/23 10:10 | 11/30/23 |

| | | | |
|---|---|---|---|
| **Project Name:** | FOSTER'S POND | **Lab Number:** | L2370489 |
| **Project Number:** | Not Specified | **Report Date:** | 12/01/23 |

## 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.

---

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:  Caitlin Walukevich

Title: Technical Director/Representative Date: 12/01/23

# INORGANICS
# &
# MISCELLANEOUS

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

**Lab Number:** L2370489
**Report Date:** 12/01/23

## SAMPLE RESULTS

Lab ID: L2370489-01
Client ID: MILL RESERVOIR
Sample Location: ANDOVER, MA

Date Collected: 11/30/23 10:10
Date Received: 11/30/23
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) | 2419.57 | | MPN/100ml | 1 | NA | 1 | - | 11/30/23 13:51 | 121,9223B | MEF |
| Coliform, Fecal (MF) | 230 | | col/100ml | 10 | NA | 10 | - | 11/30/23 13:27 | 121,9222D | MEF |

**Project Name:** FOSTER'S POND
**Project Number:** Not Specified
**Lab Number:** L2370489
**Report Date:** 12/01/23

# 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 Batch: WG1858179-1 | | | | | | | | | | |
| Coliform, Fecal (MF) | ND | | col/100ml | 1.0 | NA | 1 | - | 11/30/23 13:27 | 121,9222D | MEF |
| Microbiological Analysis - Westborough Lab for sample(s): 01 Batch: WG1858199-1 | | | | | | | | | | |
| Coliform, Total (MPN) | <1 | | MPN/100ml | 1 | NA | 1 | - | 11/30/23 13:51 | 121,9223B | MEF |

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

**Lab Number:** L2370489
**Report Date:** 12/01/23

## Sample Receipt and Container Information

Were project specific reporting limits specified? YES

### Cooler Information

| Cooler | Custody Seal |
|---|---|
| A | Absent |

### Container Information

| Container ID | Container Type | Cooler | Initial pH | Final pH | Temp deg C | Pres | Seal | Frozen Date/Time | Analysis(*) |
|---|---|---|---|---|---|---|---|---|---|
| L2370489-01A | Bacteria Cup Na2S2O3 preserved | A | NA | | 4.3 | Y | Absent | | T-COLI-QT(.33) |
| L2370489-01B | Bacteria Cup Na2S2O3 preserved | A | NA | | 4.3 | Y | Absent | | T-COLI-QT(.33) |
| L2370489-01C | Bacteria Cup Na2S2O3 preserved | A | NA | | 4.3 | Y | Absent | | F-COLI-MF(.33) |
| L2370489-01D | Bacteria Cup Na2S2O3 preserved | A | NA | | 4.3 | Y | Absent | | F-COLI-MF(.33) |



*Values in parentheses indicate holding time in days

| | | | |
|---|---|---|---|
| **Project Name:** | FOSTER'S POND | **Lab Number:** | L2370489 |
| **Project Number:** | Not Specified | **Report Date:** | 12/01/23 |

## 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.)<br><br>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:** | L2370489 |
| **Project Number:** | Not Specified | **Report Date:** | 12/01/23 |

***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:** | L2370489 |
| **Project Number:** | Not Specified | **Report Date:** | 12/01/23 |

***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 | **Lab Number:** | L2370489 |
| **Project Number:** | Not Specified | **Report Date:** | 12/01/23 |

## REFERENCES

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 624.1:** m/p-xylene, o-xylene, Naphthalene
**EPA 625.1:** alpha-Terpineol
**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
**EPA 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 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 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).
**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: 11/30/23

ALPHA Job #: L2370489

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: dmeringolo@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: 12/1/23

**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:
cc report to
scotton@fosterspond.org

| ALPHA Lab ID (Lab Use Only) | Sample ID | Collection Date | Collection Time | Sample Matrix | Sampler Initials | 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 | T COLI | F COLI | SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do | Sample Comments | TOTAL # BOTTLES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70489-01 | MILL RESERVOIR | 11/30/23 | 10:10 AM | SW | HB | | | | | | | | | X | X | | | 4 |

| 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 |
|---|---|---|---|
| | 11/30 11:35 AM | AM | 11/30/23 1138 |

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

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

**Fosters Pond Corp.**
19 Pomeroy Road
Andover, MA 01810

Date Received: 07/27/2023
Laboratory ID#: N2390863-01
Date Tested: 07/27/2023
Report Date: 07/27/2023

## Algae Species Identification (Blue - Green)

Sample Description: Fosters Pond – Main Pond
Date and Time Collected: 07/25/2023 @ 10:35

| Cyanophyta: Unicellular & Colonial Forms | |
|---|---|
| Anabaena | 13,000 |
| Aphanocapsa | |
| Aphanothece | |
| Chroococcus | |
| Coelosphoerium | |
| Dactylococcopsis | |
| Gomphosphaeria | |
| Merismpedia | |
| Microcystis | |
| Snowella | 1,200 |
| Synechococcus/Related | 940 |
| 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 | 3,900 |
| Cylindrospermium | |
| Dolichospermium | |
| Gloeotrichia | |
| Hapalosiphon | |
| Nodularia | |
| Nostoc | |
| Raphidiopsis | |
| Sytonema | |
| Sphaerospermopsis | |
| Tolypothrix | |
| Other Filamentous Bluegreens (L) | |
| Other Filamentous Bluegreens (S) | |

**Total Cell Count: 19,000/mL**

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 07/27/2023

Approved by:
Alan C. Johnson, Laboratory Director

**Fosters Pond Corp.**
19 Pomeroy Road
Andover, MA 01810

Date Received: 07/27/2023
Laboratory ID#: N2390863-02
Date Tested: 07/27/2023
Report Date: 07/27/2023

## Algae Species Identification (Blue - Green)

Sample Description: Fosters Pond – Outlet Cove
Date and Time Collected: 07/25/2023 @ 09:45

| Cyanophyta: Unicellular & Colonial Forms | |
|---|---|
| Anabaena | 8,400 |
| Aphanocapsa | |
| Aphanothece | |
| Chroococcus | |
| Coelosphoerium | |
| Dactylococcopsis | |
| Gomphosphaeria | |
| Merismpedia | |
| Microcystis | |
| Snowella | 430 |
| Synechococcus/Related | 570 |
| 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 | 720 |
| Cylindrospermium | |
| Dolichospermium | |
| Gloeotrichia | |
| Hapalosiphon | |
| Nodularia | |
| Nostoc | |
| Raphidiopsis | |
| Sytonema | |
| Sphaerospermopsis | |
| Tolypothrix | |
| Other Filamentous Bluegreens (L) | |
| Other Filamentous Bluegreens (S) | |

**Total Cell Count: 10,000/mL**

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 07/27/2023

Approved by:
Alan C. Johnson, Laboratory Director

**Fosters Pond Corp.**
19 Pomeroy Road
Andover, MA 01810

Date Received: 07/27/2023
Laboratory ID#: N2390863-03
Date Tested: 07/27/2023
Report Date: 07/27/2023

## Algae Species Identification (Blue - Green)

Sample Description: Fosters Pond – Mill Reservoir
Date and Time Collected: 07/25/2023 @ 10:05

| Cyanophyta: Unicellular & Colonial Forms | |
|---|---|
| Anabaena | |
| Aphanocapsa | |
| Aphanothece | |
| Chroococcus | |
| Coelosphoerium | |
| Dactylococcopsis | |
| Gomphosphaeria | |
| Merismpedia | |
| Microcystis | |
| Snowella | 120 |
| Synechococcus/Related | 240 |
| Woronichinia | |
| Other Coccoid Blue Greens | |

| Filamentous Non-Nitrogen Fixers | |
|---|---|
| Arthrospira | |
| Limonothrix | |
| Lyngbya | |
| Limnoraphis | |
| Microseira/Plectonema | |
| Oscillatoria | |
| Phormidium | |
| Planktolyngbya | |
| Planktothrix | |
| Pseudanabaena/Kromvophoron | 670 |
| Spirulina | |
| Synechocystis | |

| Filamentous Nitrogen Fixers | |
|---|---|
| Anabaenopsis | |
| Aphanizomenon | |
| Calothrix/Rivularia | |
| Chrysosporxium | |
| Cuspidothrix | 340 |
| Cylindrospermium | |
| Dolichospermium | |
| Gloeotrichia | |
| Hapalosiphon | |
| Nodularia | |
| Nostoc | |
| Raphidiopsis | |
| Sytonema | |
| Sphaerospermopsis | |
| Tolypothrix | |
| Other Filamentous Bluegreens (L) | |
| Other Filamentous Bluegreens (S) | |

**Total Cell Count: 1,400/mL**

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 07/27/2023

Approved by:
Alan C. Johnson, Laboratory Director

NORTHEAST LABORATORIES

# CERTIFICATE OF ANALYSIS



**SOLitude Lake Management**
590 Lake St.
Shrewsbury, MA 01545

Date Received: 08/15/2023
Laboratory ID#: N2391027-01
Date Tested: 08/30/2023
Report Date: 08/31/2023

## Cyanobacteria

Sample Site: Surface Water @ Main Basin, Foster's Pond - Andover, MA
Date and Time Collected: 08/09/2023 11:20

| 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: ND/mL** |
|---|

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. on 08/15/2023.

Approved by:
Alan C. Johnson, Laboratory Director

NORTHEAST LABORATORIES

# CERTIFICATE OF ANALYSIS



**SOLitude Lake Management**
590 Lake St.
Shrewsbury, MA 01545

Date Received: 08/15/2023
Laboratory ID#: N2391027-01
Date Tested: 08/30/2023
Report Date: 08/31/2023

## Algae Species Identification (Expanded)

Sample Site: Surface Water @ Main Basin, Foster's Pond - Andover, MA
Date and Time Collected: 08/09/2023 11:20

| Diatoms: Centric Diatoms | |
|---|---|
| Acanthoceras | |
| Aulacoseira | |
| Cyclotella | |
| Melosira | |
| Stephanodiscus | |
| Other centric | |

| Araphid Pennate Diatoms | |
|---|---|
| Asterionella | 290 |
| Diatoma | 2,700 |
| Fragilaria | |
| Meridion | |
| Synedra | |
| Tabellaria | 19 |
| Other Araphid Pennates | |
| Monoraphid Pennate | |
| Achnanthidium | |
| Cocconeis | |

| Pyrrhophyta | |
|---|---|
| Ceratrium | |
| Gymnodinium | |
| Peridinium | |
| Other Dinofilagtes | |

| Euglenophtya | |
|---|---|
| Euglena | |
| Eutrepti | |
| Lepocinclis | |
| Phacus | |
| Trachelomonas | |
| Strombomonas | |
| Others | |

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

| Coccoid/Colonial Chlorophyta | |
|---|---|
| Actinastrum | |
| Ankistrodesmus | |
| Botryococcus | |
| Chlorella | |
| Chlorococcum | |
| Closteriopsis | |
| Coelastrum | |
| Crucigenia | 77 |
| Desmodesmus | |
| Dictyosphaerium | |
| Elakatothrix | |
| Golenkinia | |
| Kirchneriella | |
| Lagerheimia | |
| Micractinium | |
| Monoraphidium | 350 |

| 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 | |
| Surirella | |
| Other Biraphid Pennate | |

**SOLitude Lake Management**
590 Lake St.
Shrewsbury, MA 01545

Date Received: 08/15/2023
Laboratory ID#: N2391027-01
Date Tested: 08/30/2023
Report Date: 08/31/2023

## 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 (#) | 2,300 |
| Staurodesmus | 19 |
| Teilingia | |
| Xanthidium | 180 |
| Zygnema/Zygnemopsis | |
| Others | |

| Chlorophytes | |
|---|---|
| Oocystis | |
| Pediastrum (#) | |
| Paulschulzia | |
| Polyedriopsis | |
| Pseudopediastrum | |
| Quadrigula | |
| Scenedesmus | 77 |
| Schroederia/Ankyra | |
| Selenastrum | |
| Sphaerocystis | |
| Tetradesmus (#) | |
| Tetraedron | |
| Tetrastrum | |
| Treubaria | |
| Other Coccoid | |
| Other Elongate | |

| Flagellated Classic Chrysophytes | |
|---|---|
| Chromulina | |
| Chrysococcus | |
| Chrysosphaerella | |
| Dinobryon | 410 |
| Kephyrian/Pseudokephyrian | |
| Mallomonas | |
| Ochramonas | |
| Synura | |
| Uroglena | |
| Uroglenopsis | |
| Others | |
| Non Motiles | |
| Haptophytes | |

**Total Cell Count: 6,400/mL**

Comments:

- Results are based on the sample as received by Northeast Laboratories, Inc. 08/15/2023.

Approved by: Alan C. Johnson
Alan C. Johnson, Laboratory Director

SePRO Research & Technology Campus FasTEST*

**16013 Watson Seed Farm Road, Whitakers, NC 27891**

# Chain of Custody: COC15780 **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 |
|---|---|---|---|---|---|
| CTM43977-1 | Fosters Pond | Sonar/fluridone (ug/L) | FAST 10 | 8.8 | 06/05/2023 |

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: 06/08/23 11:00 AM
Date Results Sent: Friday, June 9, 2023



*This entire report was reviewed and approved for release.*

*Reviewed By: Laboratory Supervisor*

SePRO Research & Technology Campus FasTEST*

**16013 Watson Seed Farm Road, Whitakers, NC 27891**

# Chain of Custody: COC17339 **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 |
|---|---|---|---|---|---|
| CTM47678-1 | Dug Pond | Sonar/fluridone (ug/L) | FAST 10 | 8.5 | 08/02/2023 |

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: 09/01/23 12:00 PM
Date Results Sent: Tuesday, September 5, 2023



*This entire report was reviewed and approved for release.*

*Reviewed By: Laboratory Supervisor*