Sommerville Owners Association Bathymetry and Sediment Report May, 2023

Data Collection By:
Jackson Minnich & Trent Batson

Report Created By:
Jackson Minnich

SŌLITUDE
LAKE MANAGEMENT
Restoring Balance. Enhancing Beauty.

The attached figures depict the results of the bathymetric study performed at the Sommerville Pond in May of 2023. The data were collected and modeled to provide a contour map, a 3-Dimensional depth representation map, and a sediment map. The data were used to provide an estimate of the current overall storage volume and amount of accumulated soft sediment in the Sommerville Pond.

The contour map for the waterbody shows the configuration and current depth contours of the pond. The 3-dimensional depth representation provides shaded gradations that are helpful for visualizing the contours. The darker the blue color the deeper the water is in that area of the waterbody. The sediment map shows the locations and magnitude of unconsolidated sediment depth measurements. The unconsolidated sediment layer consists of soil particles and organic materials that have accumulated on the bottom of the pond, which remain penetrable by a manual depth sampling instrument.

We collected data points to calculate the size and volume of the pond. The pond measures an area of 2.1 acres, has a maximum depth of 5.9 feet, and has an average depth of 3.1 feet. The current storage volume of the pond is about 6.7 acre-feet, or 2,195,235 gallons. The manual sediment probe measurements taken throughout the pond gave an estimated sediment volume of 4,501.6 cubic yards with an average thickness of 1.3 feet. Most of the pond has moderate accumulation with the thickest amount of sediment measured at 3.0 feet.

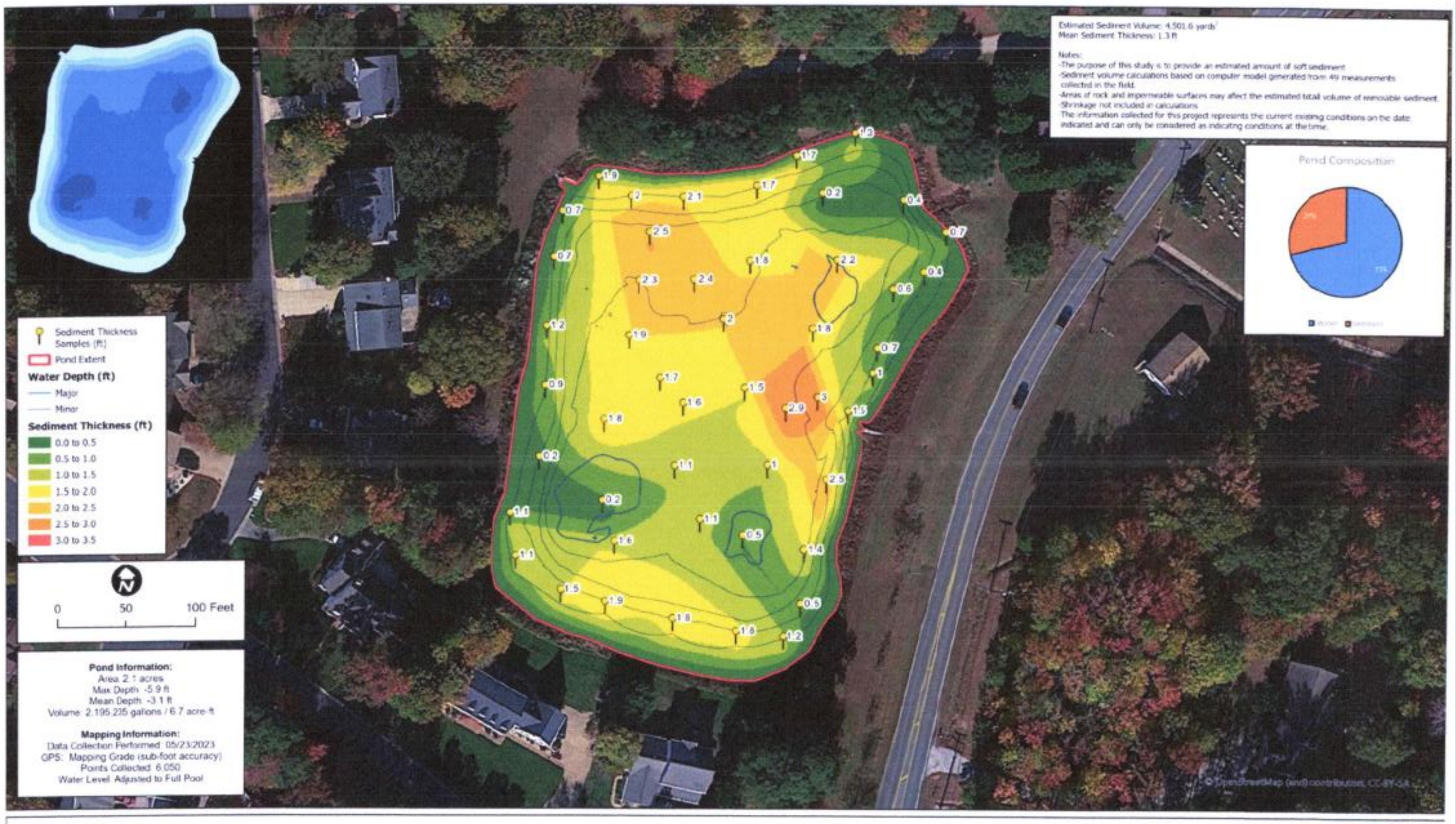
Unconsolidated sediment is susceptible to resuspension in the water column, and is easily mobilized to the deeper areas of a pond during high flow situations. Over time the accumulation of sediment throughout the pond will decrease the volume of the pond so much that the sediment will need to be removed through dredging. Sediment accumulation can be problematic both because the silt is a source of nutrients and because the shallower depths caused by sedimentation provide good habitat for nuisance vegetation and algae. When and whether or not to dredge a pond is a decision at the discretion of the pond owners.

The pond is in moderate condition from a bathymetric standpoint. The pond still has just over 70% of its volume capacity, and appears to be operating normally. Continued monitoring of the sediment and water volume should be done periodically to track the succession of the pond, as well as normal stormwater maintenance practices such as water quality monitoring, structural inspections, and nutrient remediation.

SOLITUDE LAKE MANAGEMENT

Sommerville

the MappingNetwork



Sommerville

SOLITUDE LAKE MANAGEMENT

the MappingNetwork