

CHURCH POINT BATHYMETRY & SEDIMENTATION

The attached figures depict the results of the bathymetric study performed for the Church Point pond in March 2011. 1,232 data points were collected and modeled to provide a contour map, a 3-Dimensional depth representation, and a sedimentation map. The data were used to provide a bathymetrical map showing water depth and amount of sediment accumulated in the pond.

The pond layout (Church Point-Contour) depicts the general pond configuration and bottom depths. The pond is fairly shallow, with a maximum depth of 6.4 feet, and an average depth of only 2.7 feet. The current storage volume of the pond is about 0.84 acre feet or 282,700 gallons. There has been heavy sediment accumulation at the outfall of the inlet structure and to upper part of the pond.

The unconsolidated sediment map (Church Point-sediment) shows the locations and magnitude of unconsolidated sediment depth measurements. The unconsolidated sediment layer is comprised of soil particles and organic materials that have accumulated on the bottom of the pond, which remain penetrable by a manual depth sampling instrument. The average unconsolidated sediment depth is about 1.44 feet, with a maximum depth of 3 feet. The shallower sediment depth near the outflow end of the pond or unconsolidated sediment is susceptible to re-suspension in the water column, and is easily mobilized to the deeper areas of a pond during high flow situations.

Over time, unconsolidated sediment in a pond may become compacted, and is not easily distinguished from the original hard bottom of the pond with a manual depth sampling instrument. Therefore, it is more accurate to compare the current depth contours of a pond with the As-Built contours in order to determine the total amount of sediment accumulation from the time the pond was originally constructed.

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. When and whether or not to dredge a pond that was not constructed as a Best Management Practice (BMP) water quality facility is a decision based on the discretion of the pond owners.

