

## Georgetown East Stormwater System Observation Report

On 4/28/2021 at 10:00am I met with several members of the Georgetown East Home-Owner Association (HOA) so that they could show me the existing condition of the sub-division's stormwater retention/detention system. I introduced myself and stated that I was not here to regulate, but to provide perspective and maintenance concepts.

The over-arching question or concern that I received was regarding the possible need to dredge the wet pond stormwater system.

The HOA and I visited a series of three pond facilities within the subject area. Below, is the summary of my observations on 4/28/2021:

### **Pond-1, Roxbury (A)**

The most upstream pond #1 supports a 36-inch wide band of emergent vegetation along the majority of the pond's toe of slope. The littoral planting looked vigorous and stable. The water depth beyond the toe of slope appeared to be "too deep" for any additional waterward spread of the "existing" emergent plant species.

- 1) Along the east bank of pond #1 we observed a possible in-flow pipe section separation and there was an associated narrow void at the soil surface.
- 2) There was no "boxed control structure" or skimmer for pond #1.
- 3) The water in the pond was very clear and showed no obvious signs of eutrophication (high nutrient state).
- 4) The pond banks appeared to be stable and there was no obvious active "mass wasting" or slumping.
- 5) This pond is in a tight land constraint with little room for bank expansion. This particular pond must not be allowed to broaden, as it could adversely impact the soil stability of the surrounding streets and adjacent homes.
- 6) Pond #1 is a wet detention/retention system. Outfall from the pond facility is controlled by the invert elevation of a RCP structure located in the southeast corner of the subject pond.
- 7) The subject pond includes a timed aerator device.

### **Pond-2, Dartmouth/Westborough (B)**

Pond #2 is the “middle pond” of the three ponds and it is down gradient of pond #1 and upgradient of pond #3.

- 1) Pond #2 does have areas of sediment deposition that could be the result of “internal erosion” or transported sediments coming into the pond from connected street pavement.
- 2) Pond#2 has no obvious littoral shelf with no emergent vegetation; as such it is purely open water feature.
- 3) Pond #2 has a “triple throated” permitted control structure with no permitted skimmer device.
- 4) A wooden ~2”x 8” has been placed across the face of the subject control structure.
- 5) Pond #2 has a timed water aerator device.
- 6) Pond #2 is a wet detention/retention pond.

### **Pond-3, Kensington, (C)**

Pond #3 is the lowest pond in the stormwater system gradient, and it is the last pond facility before the stormwater is released to the public conveyance system.

- 1) Pond #3 has a “broad triple throated” control structure.
- 2) Pond #3 is a wet detention/retention pond.
- 3) Pond #3 has no emergent vegetation and as a such, it is an open water facility.
- 4) Pond #3 has no skimmer device(s) at the control structure.

### **Conclusion and Suggestions:**

- 1) Pursue the permitting requirements for the installation of “control structure skimmers” on Pond #2 and Pond #3. At this time, Pond #1 will be difficult to adapt to the installation of a skimmer device without modifying the RCP outfall pipe.
- 2) Consider a “street sweeping” contract with the City of Safety Harbor or a private street sweeping firm. Focus on seasonal leaf drop and grass clippings. Regular street sweeping is cost effective and it can greatly extend the life of stormwater pond facilities.

- 3) Be sure to remind the contracted mowing service that all leaves and grass clippings must be blown back into the yard from which they came from, or they must be collected and removed.
- 4) Always adhere to the seasonal Pinellas County fertilizer restriction(s) and ban.
- 5) Conduct an accurate survey (bathymetry survey) of any pond you might consider for dredging. Compare your (survey/bathymetry) with the “signed and sealed” As-Built Survey.
- 6) Investigate the possible pipe section separation along the east top of bank of Pond #1.
- 7) **“Before consider the dredging of the pond facilities be sure you conduct an accurate survey of the three pond facilities. Do not steepen the existing pond banks beyond the permitted design.” Pond stability is essential to protect the surrounding properties and roadway infrastructures.**
- 8) If finances allow, please consider an inspection (by camera-robot) of the stormwater inflow and outflow pipe system. Voids observed in piped systems could mean (O-ring/joint) failure. “Generally, O-Ring failure precedes joint failure.” Joint failures can quickly break through to the land surface by transporting soils above the pipe “down gradient.”

## **Glossary of Terms**

### **Control Structure**

A “damming device” that controls stormwater outfall rates based on “Florida Administrative Code” for (flood and water quality purposes). The control structure is an engineered device that was designed by a professional engineer to control flooding (attenuate/detain) and treat (retain) stormwater runoff.

### **Eutrophication**

A state of high nutrient (nitrogen/phosphorus) content within a body of water that accelerates the (production/productivity and aging) of a pond or lake.

### **Littoral Shelf**

A littoral shelf is a shallow section of a pond that supports “sunlight penetration” to the pond substrate (soil). Generally, littoral shelves are about (18-24) inches deep relative to the seasonal high ground water elevation of the control structure. Littoral shelves can be planted with aquatic emergent vegetation that will help to support nutrient (phosphorus) assimilation, metabolism and sediment deposition.

**Seasonal High, Elevation (SH)**

The Seasonal High Elevation is the water table during the peak of the wet season (~September in most cases).

**Invert Elevation (I.E.)**

Invert elevation means the lowest elevation of an engineered fixed structure, such as the lowest elevation of a pipe or control structure feature.

**RCP**

Reinforced Concrete Pipe.

**Mass Wasting**

Downward movement of soils resulting only from the effects of gravity.

**As-Built Survey**

A field survey that shows the “constructed geometry” versus the “proposed design geometry.” In more simple terms, “this is how the pond it was built as of this date.” A professional engineer would have to decide if the “As-Built Condition” meets the “tolerances” of the proposed design he or she “signed and sealed.”

This document can be expanded if your ROA requests additional information. I have done my best to incorporate the concepts we discussed on 4/28/2021. If I have missed a “salient point” please let me know.

It was great to meet your HOA. We at the Pinellas County Extension Service are here to support your informational needs.

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