



Aviation Training Center Mobile Wetland Design



Group Members:

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Background: USCG Aviation Training Center, Mobile, Alabama, has requested the design group investigate and recommend the best course of action for rehabilitating the current stormwater treatment system.

Problem Statement: ATC Mobile currently has several stormwater issues including: occasional flooding (system under capacity), Total Suspended Solid levels above permit limitations, algae blooms in the upper pond, excessive solids accumulation in the lower pond, and unprotected dredged material near outlet.

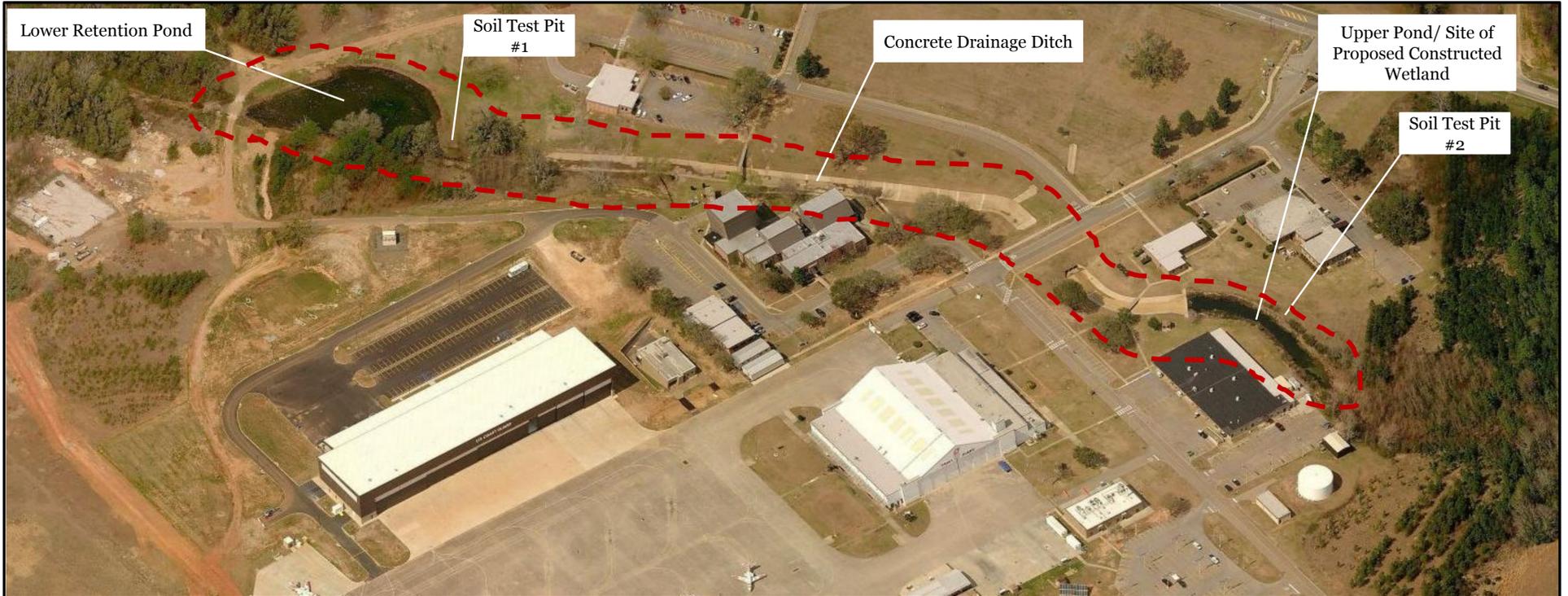


Figure 1: Aerial view of USCG Aviation Training Center, Mobile, Alabama.

Objectives

1. Research and analyze annual runoff in small urban/developed areas as well as basic runoff methods available given the area in addition to characterizing existing soil conditions at upper and lower pond.
2. Research and identify general storm water pollutants that could be found at the ATC Mobile site to date.
3. Research and analyze the best methods to abate storm water pollutants within retention ponds and consider adding constructed wetlands.
4. Research and identify the best design of a proposed constructed wetland for ATC Mobile.
5. Research and identify other improvements such as a spillway that could remedy stormwater overflow problem.

Project Results

Table 1: Wetland design volumes	Upper Pond	Lower Pond
Volume (ft ³)	~50,000	~325,000
Water Quality Volume (ft ³)	58,000 to 62,000	190,000 to 210,000
Retention Volume (ft ³)	144,000 to 230,000	400,000 to 775,000

Table 2: Estimated final Capacity	Upper Pond
Channel (ft ³)	29421
Low Marsh (ft ³)	1406

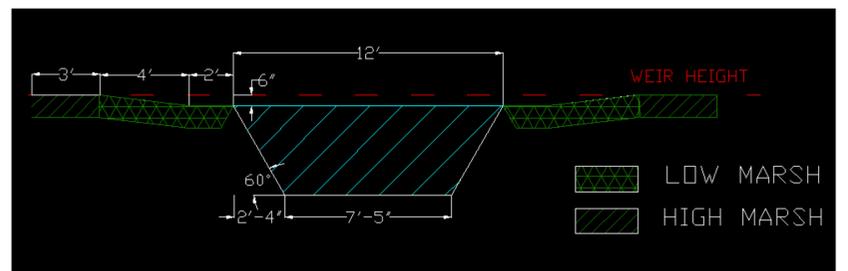


Figure 2: Elevation View of Constructed Wetland



Figure 3: Plan View of Constructed Wetland

Plant Selections

Low Marsh: **Canna Lily, Arrowhead**
Intermediate Section: **Giant Bulrush**
High Area: **Wax Myrtle**

Estimated Construction Cost

\$28,0000

Other Suggested Improvements

- Redesign Lower Pond Outlet
- Contain Silt Pile Erosion
- Adjust System to Prevent Overflowing
- Clean Algae off of Concrete Channel