

United States Coast Guard

Systems

Times

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Winter 2005

DEEPWATER



Training Center Strives for Environmental Excellence

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The Coast Guard Aviation Training Center (ATC) is a 221-acre facility, formerly used by the Air Force Reserve, located 12 miles west of Mobile, Alabama on the north side of the regional airport. The primary mission of the ATC is transition training of Coast Guard aviators. Other missions include search and rescue, law enforcement, maritime pollution prevention and polar operations.

In 1999, the ATC implemented beneficial landscaping to enhance the base environment. Beneficial landscaping is the term commonly used to describe an approach to landscaping which uses native plants and selected mowing to achieve the goals of reducing maintenance cost, managing harmful runoff and increasing wildlife habitat. According to ATC's former Executive Officer, CDR Paul Francis, "We want to be sure that the activities of the base are good, not only for Alabama, but also for all our Coast Guard customers. Most Coast Guard aviators begin their careers here, and all Coast Guard aviators come back here at least once a year. We want those experiences to be good ones."

To develop the environmental plan, the unit called a meeting of various environmental experts to help flesh out the options. These experts included unit and headquarters' environmental personnel, the local Alabama Cooperative Extension System agent, master gardeners, and a representative from the local U.S. Fish and Wildlife Service and USDA-Natural Resources Conservation Service. The group established goals for the unit including: reduced grounds maintenance costs by 25 percent in the next three years; improved landscaping appearance around the facility; efficient use of water; and reduced erosion and surface runoff.

Grading begins for the constructed wetland.

With an annual average rainfall of about 64 inches, erosion can be a significant factor in Mobile. Reducing sedimentation of local water bodies including streams, estuaries, and ultimately, the Mobile Bay is an identified objective of the Mobile Bay National Estuary Program. ATC Mobile is in the forefront of this initiative. In addition, pollution prevention in Mobile Bay has a direct impact on the Coast Guard mission. Mobile Bay is the training site for rescue swimmers and training can only be conducted when water quality is at a safe level for humans.

To improve the quality of storm water runoff through the Center, a constructed wetland was a part of the beneficial landscape plan. Wetlands are important for many reasons. They prevent flooding by holding water much like a sponge. Wetlands help keep river levels normal. Wetlands accept water during storms and whenever water levels are high. And, when water levels are low, wetlands slowly release the water. Wetlands directly improve other ecosystems by serving as a filter to cleanse the water by trapping sediment, nutrients and other water-born pollutants.

The drainage area for ATC is 460 acres. Because of the lay of the land, much of the water from surrounding properties, the runoff from roads, nearby commercial activities and adjacent airport property transits the Center's runoff system. The drainage route for the Center's storm water starts with Pierce Creek, to Big Creek, to Escatawpa River, to the Pascagoula River and eventually to the Mississippi Sound.

The Center knew what they needed in a wetland, but how could they meet this goal within the budgeted amount? They sought the assistance of the USDA-Natural Resources Conservation Service (NRCS). For approximately 80 years, NRCS has been helping private landowners control erosion while conserving and improving all natural resources. As a cooperating federal agency, NRCS engineers had the expertise to provide guidance for the constructed wetland. The Center had the capability to take those guidelines and complete the project. "Our facilities engineers do a great job. They have taken the engineering program at the Center to the next level -- they go beyond the normal," says LT Andrew Wright, Assistant Chief for Facilities Engineering Division.

The Coast Guard provided a very detailed topographic map of the site for use in sizing the wetland pond. NRCS surveyed cross sections at the water control structure site for use in setting the exact elevations for the structure. After reviewing the site data, NRCS provided options for constructing the wetland and water-control structure. The Coast Guard selected the option that met their objectives and best fit their budget, aesthetic requirements and maintenance operations program.

Due to the large drainage area, it was impractical to construct a water control structure large enough to convey the total runoff from large storms. A shallow weir structure was selected to control the water level at the desired elevation. This structure, and the associated low, vegetated dike, would withstand overtopping





The site is prepared for construction of the articulated block weir.

The wetland at full pool. The wetland is good for the environment as well as being aesthetically pleasing.



Installation of articulated concrete 6-inch blocks is preferred over solid concrete. Cracks between the blocks will be filled in with soil to promote vegetative growth and make the area appear more natural over time. The majority of the work was done in-house.



David Britain, Environmental Protection Specialist, Coast Guard; and Mac Nelson, Design Engineer, USDA-Natural Resources Conservation Service, inspect the flashboard inlet structure.



16,000 trees were planted on the base as a part of the beneficial landscaping plan.

flows of larger storms. Six-inch articulated concrete blocks were used in the construction. This material fits together like a jigsaw puzzle and holds soil between the blocks. Over time, vegetation will grow between the blocks giving the area a more natural appearance. Downstream from the weir, the structure was sloped and covered with riprap. A synthetic material known as geotextile was placed between the soil and the blocks and riprap to enhance water movement and to prevent soil erosion from underneath the structure. A small pipe with a flashboard inlet was installed to enable fluctuation of the water level in the pond, which would help with establishing and maintaining wetland plants. The bottom of the pond was contoured to have varying depths suitable to a variety of plants. The USDA-NRCS Plant Materials Center at Americus, Georgia, provided a planting plan.

Construction of the wetland took approximately six weeks. The majority of the work was done in-house with the contractor on base and sub-contractors. "Don't underestimate the groundwork that NRCS did. They provided the guidelines and we implemented the plan," said Evon Housen, Base Civil Engineer. Heavy winter rains have tested the structure. The structure has worked as planned.

"One of the keys to the success of ATC Mobile's beneficial landscaping project is the use of local expertise. By partnering with local, state and federal agency personnel, the unit benefits from reduced costs. In addition, we're working with personnel who understand the local ecosystem," says David Britain, the Environmental Protection Specialist at the ATC.

Since implementing the beneficial landscaping approach in 1999, ATC Mobile has implemented a number of environmental projects. The Center reduced high maintenance areas, which required weekly mowing, as well as irrigation, fertilizing and pesticides application, by designating over 50 acres of no-mow zones. To augment the no-mow zones, the Center has planted 16,000 native trees. Implementation of the natural areas has reduced ground maintenance costs by 30 percent.

The Coast Guard Aviation Training Center is well on the way to achieving their goals in beneficial landscaping. According to former Executive Officer CDR Francis, "This is the first station that I have been in that is so environmentally aggressive. The only word to describe this base is state-of-the-art."

In recognition of the environmental improvements, the Mobile ATC has won two awards: Coast Guard Environmental Award for Overall Environmental Excellence and the Department of Transportation Environmental Achievement Award for Model Facility Demonstration.

NRCS applauds the work of the Mobile Coast Guard unit. Conserving and improving our natural resources is our mission. We are grateful for the opportunity to have a small part in helping the Coast Guard Base achieve their environmental objectives. 

