

3. **PRESENTATION(S)**

- f. Follow-up presentation by Sanibel golf courses regarding fertilizer utilization and lake management



October 13, 2008

The City of Sanibel
800 Dunlop Road
Sanibel Island, FL. 33957

City of Sanibel Council Members,

It is my pleasure to provide the following information to you on behalf of The Sanctuary Golf Club.

The included information is presented following the August 11, 2008 “Sanibel Golf Course Nutrient Management Recommendations” memorandum from the Department of Natural Resources as well as the previous recommendation from council to acquire the current management practices of Sanibel golf courses. I will be able to answer any questions at the upcoming council meeting on October 21st and hope that this information provides you with a good knowledge of The Sanctuary’s ongoing efforts.

In short, The Sanctuary is accomplishing many of the objectives of the recommendations. In some situations, the objectives that are not being met can do so with minor costs whereas other recommendations would be very costly to implement. The following is a quick breakdown of these items reflecting our current status.

Accomplishing Now

- 30% of littoral zone planting of golf course lakes.
- Golf course water quality monitoring including recommended test parameters.
- Limiting soluble nitrogen applications to ½ lb/1000 sq. ft.
- Equipment Wash down facilities have runoff properly treated.
- Maintain annual fertilizer and copper sulfate records.
- Quantify water use and differentiate between well and effluent water sources.

Implement with Minor Costs

- Educate employees in Best Management Practices, including water quality related issues and environmentally sensitive areas around the golf course.
- Report fish kills and algae blooms to Natural Resources Department
- Map environmentally sensitive areas and identify no fertilizer zones around waterbodies while mapping drainage.
- Require 25-foot native plant or unfertilized grass buffers around lakes and wetlands. 10 foot minimum when 25-foot cannot be met.
- Require grass buffers around lakes and wetlands be mowed 2” higher than other surrounding grass.

Implement with Major Costs

- Require that all reuse water be setback 25-feet from all waterbodies and that all irrigation heads using reuse water or fertigation be set back 25-feet from a waterbody. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.

The detail included in the supporting document will explain how our current Golf Course Maintenance Best Management Practices program is structured in relationship to the proposed recommendations.

Thank you,



Kyle D. Sweet, CGCS
Certified Golf Course Superintendent
The Sanctuary Golf Club

Proposed Sanibel Golf Course Nutrient Management Recommendations

*The Sanctuary Golf Club, Kyle D. Sweet, CGCS
October 14, 2008*

The following are the recommendations of the Natural Resources Department to include in a future Ordinance. The Sanctuary's current program is represented beneath each proposal.

Education

- *Require each superintendent to ensure that all course employees are trained in the Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses (FDEP 2007), including water quality related issues and environmentally sensitive areas around the golf course.*

This training can be accomplished for our entire staff as part of the job training for our golf course maintenance department. At this time we have (3) staff members, Kyle Sweet, G.C. Superintendent, Fred Fulford, Assistant Golf Course Superintendent and Dustin Free, I.P.M. Manager with Sanibel Fertilizer Endorsements on their Vegetation Licenses.

Lake Management

- *Within 5 years of Ordinance adoption, a minimum of 30% of the littoral zone of each golf course lake must be planted and maintained with submerged or emergent aquatic vegetation on a minimum of 3' centers.*

The Sanctuary has successfully planted spike rush, black rush and bulrush in all of the golf course lakes. We will continue to harvest plant material from our own lakes for transplanting into areas desired. 30% planting of the golf course lake littoral zones has been accomplished on nearly all golf course lakes, with some lakes well exceeding this quantity. Our current in-house harvesting of these plant materials has been very effective.



Photos above show the lake located between the 2nd and 3rd holes on the golf course. A Common Moorhen is nesting in emergent vegetation in the photo on the left and the photo to the right shows longer turf along shoreline and a variety of shoreline and emergent vegetation being successfully managed to improve water quality.

- *Require that golf courses monitor the water quality in their lakes 2x/year (wet season/dry season) and provide the data to the City's Natural Resources Department. Minimum parameters should include dissolved oxygen (DO), total nitrogen (TN), total phosphorus (TP), chlorophyll a (chl-a), and copper (Cu). If nutrient or heavy metal concentrations are excessive, City staff will meet with golf course management staff to review and determine a mitigation plan.*

The Sanctuary has begun to test golf course lakes following the recommendations provided by the Department of Natural Resources. The results of this new testing is available and will be shared with the Natural Resources Department bi-annually.

- *Require that all fish kills and algae blooms are reported to the City's Natural Resources Department.*

Reporting can be provided to the Department on Natural Resources from The Sanctuary Green and Grounds Department. Natural Resources Department is welcome to visit the golf course to observe lake conditions any time requested.

Fertilizer Management

- *Limit soluble nitrogen applications to ½ lb./1000 square ft.*

This is recommended by the Best Management Practices and is a current practice of our fertilizer program.

- *Identify and map environmentally sensitive areas within the golf course and identify no fertilizer buffer zones around all of the water bodies and map drainage patterns.*

We will be able to identify these areas surrounding golf course water bodies with the use of GIS mapping as well as golf course photography. Drainage patterns can be supplied by using the golf course construction as-builts. This mapping can be done alongside the Natural Resources Department staff so the information is clear and can be used as a comprehensive guide into the future of our course management.

- *Require 25-foot native plant or unfertilized grass buffers around environmentally sensitive areas such as lakes and wetlands, where practical. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.*

This is affected greatly by the current design of the golf course. The Sanctuary has been active in incorporating long grass areas that surround water bodies as well as planting native plant buffers that do not require fertilizer around existing water bodies. In many cases, unfertilized and unmowed turfgrass becomes weed and insect infested. This unkept turf can increase both herbicide and insecticide use in the managed turf areas due to it's close proximity.



The Sanctuary Golf Club Lake #4, prepared for planting and pine straw.

Previously long unmowed grass will now become native plants with pine straw mulch.



#14 planting established

#17, new planting of shore

Wetland perimeters surround the Sanctuary property and have either Seashore Paspalum or Bahiagrass maintained to the edge of the golf course, which is typically atop a “berm” course edge. In the rare circumstance, bulkheads abut the course edge to the edge of a wetland area. This area cannot be manipulated in maintenance from current practices.



One of two bulkhead areas on the course bordering a wetland edge.
Current practices maintain to the bulkhead edge.

- *Require that grass buffers around environmentally sensitive areas such as lakes and wetlands be mowed 2" higher than the other grass to slow and filter overland flow to water bodies.*

This can be accomplished in some areas, but must be reviewed with city staff for incorporation. Grass left to grow too tall without fertility becomes very weedy and difficult to maintain. In many cases this grass becomes ineffective as a filter due to thinner turf and less root density.

- *Require that all wash down facilities have runoff properly treated prior to discharge off of the site.*



Equipment Washwater Recycling System

The Sanctuary has a self contained, non-chemical recycling equipment wash water system that eliminates the opportunity of chemical and fertilizer contamination from the washing of golf course maintenance equipment. Washwater is collected in sump, pumped through filtration and treated with live microbes to clean the washwater for use.

- *Require periodic inspections of fertilizer storage areas and wash down facilities by DNR staff.*

We will be able to host a visit by Department of Natural Resources at any time.

- *Require that all golf courses on the island maintain annual fertilizer and copper sulfate logs and make them available to the City's Natural Resources Department.*

The Sanctuary currently keeps all of these records as part of our Audubon Certification and all of these records have been provided to the City of Sanibel for the past 4 years of operation. In addition to being able to provide this information, The Sanctuary has begun to look for alternatives to copper for the treatment of algae in golf course lakes. I will be able to review the alternatives currently under review with the Department of Natural Resources.

Irrigation and Fertigation

- *Require that all reuse water be setback 25-feet from all water bodies and that all irrigation heads using reuse water or fertigation (application of fertilizer through an irrigation system) be setback 25-feet from a water body. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.*

The Sanctuary has a complex computer controlled irrigation system that is constantly inspected and maintained for proper operation. The current design employs part-circle adjustable irrigation heads along wetland edges and lakebanks that eliminate watering into these areas. The current layout does create irrigation head locations closer to the water body than recommended, but this would be a very expensive and cumbersome situation to remedy. In lieu of the measurement requirement, proper system operation could be reviewed by the Natural Resources Department throughout the golf course.



Example of irrigation head approx. 10' from lake water edge on hole #17.



Example of part-circle adjustable irrigation heads watering fairway and rough area on the third hole. In this application, irrigation water does not go into the adjacent lake.

- *Require that golf courses quantify their water use and differentiate between reuse and potable water supplies. This information can be used to account for the nutrients in reuse water when making fertilizer calculations.*

The Sanctuary's water use is regulated by the South Florida Water Management District. We currently operate (4) wells in addition to utilizing effluent water from the City of Sanibel. We keep detailed records of use from both sources, well and effluent. Upon request, The Sanctuary can receive the testing information from The City of Sanibel Utility Department and does test the combined well & effluent water bi-annually to aid in proper nutrient management of the turfgrass.