



Land and Lakes Management Departments

Standard Operating Procedures

Supersedes: Operating Standards Manual dated May 1994
(Section 10 Landscaping: 10 through 10.4.e and
Section 11 (Lakes/Mosquito Abatement: 11 through 11.3.j)

And

Kiawah Island Land and Lakes Guidelines
For Management and Maintenance
(Appendices: D, E and F)

Approved and adopted by the KICA Board of Directors on December 6, 2004.
Legal review conducted

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Introduction

It is the purpose of this document to identify a systematic approach to the maintenance of the Land and Lakes holdings that are the responsibility of the Kiawah Island Community Association in such a way that the natural environment is not only preserved but enhanced whenever possible. This document is designed to work in conjunction with the covenants, development agreement, ARB regulations (see Attachment A), and to complement the Landscape Management Guidelines for Association Members.

KICA generally assumes maintenance responsibility of rights-of-way and easements after they have been constructed and improved (roads, bridges, ponds, lakes, utilities, etc.) by the developer. They are then conveyed to the Community Association by deed or lease (see Attachment B-page 63).



Land Management Department Standard Operating Procedures

Land Management Mission Statement: The mission of the Kiawah Island Community Association Land Management Department is three-fold; 1) protect and preserve Kiawah Island's native plant species, 2) provide an aesthetically pleasing landscape for our members and guests and, 3) promote good stewardship of the land to maintain an environment that sustains the island's plant and wildlife populations.

I. Turfgrass Maintenance:

Goal: To maintain all grassed common properties based on Best Management Practices for horticulture so that turf appears dense and thriving.

A. Maintenance:

1. Kiawah Island Community Association Land Management Department maintains common area landscapes that lie within the rights-of-way of the majority of island roads. The exceptions are the areas along roads that are under condominium regime or homeowners' association management. (See Appendix 1-page 14) Easements are located on both sides of roads and vary in width depending on the location of the road within the right-of-way (normally 12 to 15 feet). Where turf is used in these easements, it is composed of Centipede grass (*Eremochloa ophiuroides*) or St. Augustine grass (*Stenotaphrum secundatum*), both warm season turf species. Kiawah Island Community Association maintains approximately 6,488,186 square feet of turf (149 acres). (See Appendix 2-pages 15-18) The Community Association also owns areas of land not currently under any maintenance operations. These areas come in the form of drainage easements, buffer areas and areas too small to be developed. (See Section X.D.-page 7)
2. KICA's Land Management Department is composed of two sections, the Ornamental section and the Turfgrass section. Turfgrass Maintenance is divided into two areas, Large Equipment and Small Equipment. The Large Equipment crew is responsible for road rights-of-way and major thoroughfares. The Small Equipment crew is responsible for smaller areas where large equipment is unable to mow, such as cul-de-sacs and medians with turfgrass. Not all rights-of-way are mowed by Land Management. After property is developed, quite often the Association Member will "adopt" the landscape out to the roadway and assume maintenance of that section of the Community Association's easement. Once recognized as a property being maintained by the Member, Land Management ceases maintenance of that property. Even though the Association may allow a Member of the adjoining land to install and maintain landscaping in this adopted area, the Association, as the owner or lessee of this land, always has the right at any time to alter or remove this landscaping. If a Member adopts an area, the Member should not do anything to

I. Turfgrass Maintenance (continued)

impede the drainage or change the topography. The Member can call and request that KICA resume maintenance of our easement if previously “adopted.” This is done with the understanding that the area will be maintained according to Land Management Standard Operating Procedures.

B. Mowing:

1. Mowing is scheduled so that no more than one-third of leaf area is removed at one time, based on the cutting height requirements for the turfgrass species. All turfgrass is mowed on a weekly basis. (See Appendix 3 & 4-pages 19 and 20)
2. Cutting heights are 1 – 2 inches for Centipede grass and 3 – 4 inches for St. Augustine grass.
3. Equipment used is of the rotary mower type. Mowing surfaces (blades) are kept sharp, balanced and in good condition at all times. Either mulching decks or a collection system are used in conjunction with mowing equipment.
4. Prior to mowing, areas are inspected for debris and trash that may cause damage to equipment, pedestrians, and other vehicles. Debris and trash are picked up and removed. Mowers will mow in a way such that debris and other materials being blown onto asphalt surfaces are kept to a minimum.
5. All asphalt surfaces are cleaned of grass cuttings, etc. on the same day as mowing.
6. All turf edges adjacent to curbs, paved areas, fixtures, and ornamental beds are mechanically trimmed as needed to maintain a crisp and neat appearance.

C. Cultivation:

1. Cultivation is the mechanical method of tilling an established grassed area without altering the sod’s integrity. Cultivation (sometimes called aeration) is used to reduce compaction in soils and reduce thatch build up.
2. Turfed areas are inspected annually in the spring by a turfgrass supervisor for compaction and thatch problems.
3. Cultivation is done as needed and only during times of active turfgrass growth (at least 30 days after turf green up has begun).
4. To resolve compaction, coring with 0.625 to .75 inch diameter tines is used. Soil penetration is 3 to 4 inches in depth. Tines are spaced 2 to 4 inches apart.
5. Earthen cores are mowed over and worked back into the soil profile.
6. Areas with an accumulation of 0.5 inches or more of thatch are considered for vertical mowing.
7. Blades on the vertical mower are spaced 0.75 to 1.0 inch apart.
8. De-thatching occurs in early spring, no less than 30 days after green up.
9. De-thatching debris is removed from the site.

D. Turfgrass Repair and Replacement:

1. Turfgrass that needs replacement is sodded if (1) the area was originally established with sod and (2) the area is under irrigation.
2. Other areas to receive turf repair are hydro-seeded.

E. Overseeding:

1. Kiawah Island Community Association does not overseed with winter rye due to transition competition in the spring. To provide the green color, a green vegetable dye is used.

II. Ornamental Plant Bed Maintenance:

Goal: To provide an aesthetically pleasing native landscape for KICA members and guests with healthy, well-cultivated plant material that provides consistent color and season-long interest in annual beds.

II. Ornamental Plant Bed Maintenance (continued)

- A. The Ornamental Division is committed to continued development of our natural areas and the conservation of the island's native species.
- B. Maintenance:
1. As of September 2004, the Land Management Department maintains 20 annual beds, 26 medians, 44 residential beds, 105 cul-de-sacs, and 33 specialty landscape areas. The total square footage is 1,322,272 sq. ft. (30 acres).
- C. Scheduling:
1. The island is sectioned into four zones. Each zone has a two-person crew responsible for all landscape maintenance in the zone. (See Appendices: 5a, 5b, 5c, and 5d-pages 21 through 27)
 2. Annual beds are worked on weekly; entrances to residential areas are worked on twice a month; and cul-de-sacs and medians are worked on monthly.
- D. Weed Control:
1. Ornamental beds are kept visually free of grassy and broadleaf weeds.
 2. Weeds are controlled by chemical means and by hand pulling; chemicals are applied and mixed in strict adherence with label directions.
- E. Mulch:
1. Mulch in ornamental beds is pinestraw or ground hardwood, depending on location of beds.
 2. Mulch is maintained at a depth of 3 to 4 inches.
 3. Mulch is reapplied annually in the fall and refreshed periodically to maintain depth in the spring and summer.
- F. Plant Health:
1. Annual plant beds are deadheaded weekly.
 2. All plant amendment applications are based on individual species requirements.
 4. Plants are pruned to maintain size, shape, and to remove dead material based on plant requirements.
 5. When needed, plants are replaced with those of the same variety and size.
 6. All plantings (new or replacement) are installed according to the American Horticultural Society Standards.
 7. All beds are treated with deer repellent as necessary.
- G. Fishing and Crabbing areas:
1. Land Management maintains 10 fishing and crabbing areas.
 2. Trash cans at fishing and crabbing docks, along leisure trails and at park/sitting areas are checked weekly. Trashcan liners are pulled and replaced when needed.
 3. Docks are kept clean of tall weeds and grasses.

III. String Trimming/Edging:

Goals: To edge areas of landscape beds and grassed areas to complement their bigger surroundings and create a sharp clean edge between the landscape or grass and its surroundings.

- A. Maintenance:
1. Tall grass and weeds around trees, signs, posts and utility structures are kept at ground level.
 2. Areas where turfgrass interfaces with concrete, curbing is kept edged to keep runner trimmed and neat.

III. String Trimming/Edging (continued)

3. Areas where mulched area interfaces with turfgrass are kept edged to keep turfgrass runner out of bed spaces.
4. In areas where mulch in bed lines interfaces with curbing or turf, mulch is tucked in place to present clean lines.

IV. Fertilizer/Pesticides:

Goal: To properly apply chemicals within the landscape using Integrated Pest Management techniques to protect and be sensitive to Kiawah Island's natural ecosystem. (See Attachment C – IPM Guidelines-page 64) KICA also makes all fertilizer applications based on soil test results.

A. Maintenance:

1. Fertilizer/amendment chemical applications come in the form of insecticide, fungicide, herbicide, and pre-emergents, as well as feeding operations.
2. All bed spaces are treated and fed with the appropriate applications based on IPM principles.
3. Currently, only St. Augustine turf under irrigation receives regular fertilizer and chemical applications to maximize the benefits from such operations.
4. All chemical/fertilizer applications are made in strict accordance with the label instructions for that particular product.
5. Pesticide applicators on staff are certified by the State of South Carolina in pesticide application category 3a (Turf and Ornamentals).
6. Kiawah Island Community Association follows OSHA and State regulations for pesticide use and handling.
7. Land Management, in accordance with state and federal regulations, keeps records of chemical and fertilizer applications.
8. Land Management also maintains MSDS Sheets and sample labels on all chemical and fertilizers used.

V. Water Delivery Management:

Goal: To provide proper water delivery systems for plant species in order to conserve KICA water assets whenever possible. KICA currently irrigates 20 acres of turfgrass and 24 acres of bed space.

A. Maintenance:

1. Land Management currently maintains 80 irrigation systems. (See Appendix 6-page 28)
2. Periodic preventive maintenance of irrigation systems ensures proper performance with corrective measures taken when warranted. (See Appendix 7-page 29)
3. Annual inspections of backflow devices are performed as required by Kiawah Island Utility Company. (See Appendix 8-pages 30 through 31)
4. A systematic check of rain switches is performed on irrigation systems.

VI. Woodland Edge and Brush Management:

Goals: To remove dead foliage, keep maintained areas free of obstacles for mowing and other equipment crews, and to ensure that leisure trails and beach accesses are safely navigable and provide clear lines of sight at intersections and along roadways.

A. Maintenance:

1. Land Management currently maintains approximately 100 miles of woodland edge along roadways and trails.
2. Leisure trails are scheduled for major pruning and clearing twice a year: April and September.
3. Beach accesses are checked weekly to remove overhanging vegetation.

VI. Woodland Edge and Brush Management (continued)

4. Woodland edges along roadways are pruned in winter with one-third of roadways being completed in a season and roads being completed in 3 years.
5. Areas are pruned by thinning back plants that present problems such as obstruction of line of sight and obstacles to landscape crews.
6. Removal of dangerous trees on common property is the responsibility of the Director of Land Management. A dangerous tree is defined as any tree threatening pedestrian or vehicular traffic or one that poses a threat to a residence or other structure.
7. For each tree that is removed on common property, three new ones are installed at an ARB approved common area location, selected by the LLMAC with staff input.
8. Limbs overhanging roads are maintained at a minimum height of 15 feet to allow access by emergency vehicles.
9. Plants at roadway intersections are maintained to allow for line of sight for vehicular traffic according to the Town's municipal code standards.
10. Brush is maintained at a 12-foot minimum height over the trail and a 5-foot minimum from edge of both sides of trails to allow for safe passage for pedestrians and bicyclists.

B. Tree Maintenance

1. Ornamental trees, oaks, magnolias, and crepe myrtles will periodically be fertilized as well as pruned to maintain size and shape, and to control deadwood.
2. Because of the size of some trees, insurance considerations, need for special equipment, and maintenance of the species, the work should be bid out to outside contractors.

VII. Roadway Appearance Maintenance:

Goal: To keep asphalt surfaces clear of debris and neat in appearance.

A. Maintenance:

1. Land Management currently maintains approximately 48.36 miles of roadways (131 roads) and 17 miles of leisure trails and paths. (See Appendices: 9 and 10-pages 32 through 36)
2. All roadways and trails are blown off or swept weekly.
3. Roadways with concrete curbing are edged four times a year.
4. Trails and roadways without curbing are edged annually.

VIII. Stewardship of the Land:

Goal: To educate and illustrate plans to utilize Kiawah Island environment as a place for human and wildlife cohabitation. (See Attachment D-page 65)

1. Provide seminars annually about native plants and their benefits to members.
2. Promote landscaping ideas that help provide cover and food for wildlife. There are two forums for this work: the annual Kiawah Earth Day festival and articles published in the *Digest*.
3. Utilize volunteers for plant rescues, native plant propagation, plantings, and litter pick-up, such as the Adopt-a-Trail program.

IX. Conservation Practices:

Goal: To utilize all assets available to conserve resources of materials so that Kiawah's natural assets are self-sustaining. (See Attachment E-pages 66 through 67)

1. Pruning debris is chipped and reused in landscape beds.
2. Native plants are rescued from construction sites for reuse in the landscape.

IX. Conservation Practices (continued)

3. Seeds collected from native plants are propagated in the Kiawah Island Community Association's greenhouse.
4. Turf and ornamental supervisors work in conjunction with irrigation staff to evaluate delivery systems for efficiency.
5. All irrigation systems are equipped with rain sensors to shut down during rainy periods.
6. Irrigation systems contain water-saving heads.
7. Irrigation systems are connected to a central administration computer to calculate best evapotranspiration and flow delivery rates.

X. Miscellaneous Services:

A. Contractual Work:

1. The Land Management Department is contracted to do maintenance by the Town of Kiawah and other entities. Land Management applies its maintenance standards to contractual work. (See Appendix 12-page 38)

B. Debris Control:

1. Land Management conducts a daily trash run (Monday to Friday) along major roadways to pick up debris.
2. Weekend debris is cleaned up on Saturday only out of season (October to May) and Saturday and Sunday in season (June to September)
3. Kiawah Island Community Association checks 76 trashcans along its leisure trails and crabbing/fishing docks weekly.

C. Storm Clean up:

1. Land Management is responsible for clean up of its common areas after storm events, including hurricanes.
2. Land Management works within Kiawah Island Community Association's emergency plan guidelines and in conjunction with the Town of Kiawah Island, the developer, and the regimes.

D. Island Mapping: Land Management works with Lakes and MR&R Departments to aid in the mapping of KICA assets to create a historic and reliable asset database. KICA will identify all common areas (maintained and non-maintained) in the GIS mapping system. The non-maintained areas can then be cataloged as to no-maintenance/conservation easement, wildlife habitat restoration or other categories as deemed necessary.

E. Staff Support to LLMAC: The Lakes and Land Directors are staff liaisons to the LLMAC. They provide background information as well as expert advice to the committee when needed as in mediation over land disputes. (See Attachment F-page 68)

F. Customer Service: The Land Management Department is dedicated to the idea of providing superior customer service to its members, guests, vendors, and all island entities. (See Attachments G and H-pages 69 through 70)



Lakes Management Department Standard Operating Procedures

Lakes Management Mission Statement: The mission of the Kiawah Island Community Association Lakes Management Department is to preserve a healthy, balanced aquatic ecosystem by maintaining good water quality, establishing buffer zones for biofiltration, and enhancing habitat for wildlife while maintaining the aesthetic qualities inherent to the island's natural state.

I. Water Quality

Goal: To collect baseline water quality information for the pond and lake system so changes in conditions can be detected and monitored over time.

A. Monitoring:

1. Monitoring of water quality (temperature, pH, salinity, dissolved oxygen, turbidity) in 16 routinely tested ponds and lakes is done weekly and testing of all 116 ponds and lakes is done twice per year. Testing involves Lakes Management staff lowering a water quality probe into the water column from the pond or lake bank, a bridge, dock, water control structure, or boat. The information is then recorded for eventual entry into a water quality database. On occasions of algae blooms and fish kills, water quality information is collected to determine possible causes for the event.
2. Testing of coliform levels is done biannually. Water samples are collected from all 116 ponds and lakes by staff and transported to a licensed laboratory for analysis. If any result is over 1000 colonies/milliliter, another sample from that pond or lake is collected and analyzed. If the problem persists, investigation of the possible source is conducted.
3. Department partners with the Town of Kiawah Island (TOKI) in annual analysis of fish tissue samples for pesticide and heavy metal contamination. Lakes Management staff and the TOKI wildlife biologist coordinate fishing efforts to collect species of game fish typically caught and consumed from the ponds and lakes. A licensed laboratory then analyzes these samples. If levels are elevated, an additional sample from that area will be collected and analyzed. If another elevated level is reported, "fish consumption advisory" will be posted.
4. Department contracts with the South Carolina Department of Natural Resources' (SCDNR) Algal Ecology Lab to conduct Harmful Algal Bloom (HAB) monitoring in 17 ponds and lakes. Samples are collected and analyzed twice monthly in the summer and once monthly in the winter.

I. Water Quality (continued)

5. For phytoplankton monitoring, samples are collected, information is recorded (time, temperature, and salinity), the samples are viewed using a microscope, organisms are identified and recorded, and the results are reported to the Southeast Phytoplankton Monitoring Network (SEPMN). This is a collaborative effort by NOAA and volunteer groups to monitor and document the occurrences of HAB's along the coast. The information is used to protect the public from any potential health dangers and to learn more about the factors that may cause HAB's to occur.

B. Management:

1. If a pond or lake consistently displays water quality problems, there may be a need for additional management measures. These may include the installation of aeration, checking for blockages in the drainage system, improvement of water circulation with additional drainage connections, installation of aquatic vegetation for nutrient reduction, or other appropriate solutions.

II. Pond and Lake Maintenance

Goal: To preserve and enhance habitat in and around the ponds and lakes while maintaining their functionality as storm water retention areas. This includes reserving designated areas for view windows and encouragement of buffer zones.

A. Maintenance:

1. The Department aims to preserve and promote sections of undisturbed growth around ponds and lakes.
2. Ensure that plants are not pruned or removed from pond and lake edges without the review by the Association's Lakes Management Department and the Architectural Review Board (ARB).
3. Plant and encourage growth of desirable native vegetation in and around each pond or lake. The combined upland and emergent areas of vegetation act as a buffer zone, trapping nutrient runoff and debris. The upland portion should be at least 3 feet in width and have a height of at least 6 inches. The emergent vegetation provides uptake of nutrients from the water and provides bank stabilization. Submerged aquatic vegetation also removes nutrients from the water column and provides oxygenation.
4. Prune and remove aquatic and/or terrestrial vegetation twice a year on KICA property designated as View Windows. Summer maintenance of weedy growth begins when avian nesting activity ceases. Vegetation species targeted include undesirable vines, grasses, herbaceous plants, or young woody vegetation. In the winter, maintenance activities focus on the removal of dead plant material and any major removal of woody vegetation. Procedure for this removal includes the use of hand operated equipment only, namely brush cutters, chain saws, handsaws, hard rakes and fan rakes.
5. Control nuisance floating, submerged, and emergent vegetation through biological, mechanical, or chemical means. Tilapia and triploid grass carp are stocked to consume aquatic vegetation and planktonic algae. Another option is mechanical removal of the undesirable vegetation by cutting, raking, or netting. Finally, herbicides may be used to suppress unwanted growth that does not respond to the other methods.
6. Limit amount of large woody vegetation that grows within the 3-foot border.
7. Communicate with Members who wish to prevent or mitigate eroded pond or lake banks by providing information on erosion control methods and beneficial vegetation.
8. Maintain natural interpretive areas including Kiawah Island Swamp Garden, Bufflehead Nature Area, and Rhett's Bluff Nature Trail. This involves maintenance of signage, mulching of trails, pruning of vegetation, removal of invasive and/or non-native plants, and planting of desirable native plants.

II. Pond and Lake Maintenance (continued)

9. Remove unwanted debris from ponds and lakes.
10. Remove dead fish resulting from fish kills.

III. Drainage

Goal: To maintain the island drainage system in an optimally functional state.

A. Inspections/Monitoring:

1. Water levels of lakes and ponds are managed to remain fairly constant at an elevation of 3.4 feet above mean sea level. Water level elevations at thirteen routinely surveyed ponds and lakes are recorded weekly and during rain events. Monitoring of these elevations allows the Lakes Management Department to determine how well water moves through the drainage system and alerts the Department of potential problems.
2. Inspection of the ponds and lakes, ditches, water control structures, and marsh outfalls is ongoing. A visual inspection of the nine major drainage structures (at ponds/lakes 001, 035, 056, 072, 073, 074, 075, 093, and 094) occurs on a weekly basis to ensure that they are functional and that no debris or aquatic vegetation is impairing drainage. The current 63 marsh outfalls are visually inspected biannually. Inspection records regarding the drainage system are relayed to the TOKI administrator for FEMA reporting requirements.
3. If any structures exhibit repeated problems, the Lakes Management Department will make arrangements to have repairs made.
4. Water levels fluctuate slightly due to influx of rain and tides. Tides greater than 5.3 feet flow into the system and about two-thirds of incoming tides in a month are of this amplitude. Under normal conditions, exterior gates at water control structures are left open allowing water inflow from the marsh, which promotes water exchange with the ponds and lakes. When tides are predicted to be 7.0' or over, tidal intake is inhibited due to the potential for water quality problems historically associated with these extremely high tides. During these high tide events, Lakes Management staff close exterior combination gates at WC-001 and WC-075 and close exterior flapgates at WC-035, WC-056, WC-072, WC-073, WC-093, WC-094, and WC-117. Gates are reopened when the high tide cycle ends.

B. Maintenance:

1. Threaded rods on major drainage structures will be greased and exercised on a biannual (or as needed) basis by the Lake Management Department.
2. Lakes Management staff will remove sediment, debris and aquatic or shoreline vegetation that impedes any water control structure's function.
3. The Lakes Management Department will determine the need for a pond or lake to be dredged. Dredging is contracted when sediment accumulation reduces the volume of water a pond or lake is able to hold, limiting the drainage system capabilities.

C. Storm Events:

1. If there is threat of a tropical storm or hurricane, the water level in lakes and ponds is lowered to reduce the possibility of island flooding. Three days are required to lower the pond and lake system approximately three feet, which is considered an appropriate level to accommodate large amounts of rainfall and potential tidal surge.
2. Preparation for major storm events begins with closing exterior combination gates and flapgates at water control structures to prevent additional tidal influx.
3. Next, interior canal gates, which are closed under normal conditions, are opened to release water contained in the pond and lake system.

III. Drainage (continued)

4. If an evacuation notice for the island is declared, the inside gates that lower the system remain open when staff leave the island.
5. Once the storm has passed, the gates are returned to their normal positions with the interior gates closed and exterior gates open.
6. Drainage structures are inspected and repaired as needed.

IV. Mosquito Abatement

Goal: To reduce mosquito populations to levels consistent with those used by Charleston County Mosquito Control.

The mosquito abatement procedures carried out by the Lakes Management Department follow South Carolina's state mosquito control policy. The Department's employees handling pesticides and spraying for mosquitoes are certified by the State of South Carolina and follow all safety regulations on pesticide use and storage.

A. Larval Mosquito Control:

1. Lakes Management staff identify possible mosquito breeding sites such as storm drains, previously mapped areas of standing water that do not support fish populations and areas that have the potential to hold water following a rain event.
2. Potential breeding areas are treated with a larvicide, which targets mosquitoes in their aquatic, larval stage of development. The Lakes Management Department applies a larvicide, which acts as growth regulator by interfering with normal larval development. This results in physiological changes that eventually lead to the death of the immature mosquitoes. This type of Insect Growth Regulator (IGR) only targets members of the mosquito family and does not adversely affect other organisms in the aquatic environment. Ground based distribution of larvicide in a solid tablet form is performed by Lakes Management staff applying tablets directly to storm drains and areas of standing water.
3. Designated areas of the island too large to treat by ground methods require an aerial application of granular larvicide. A licensed contractor conducts this three times per year.

B. Adult Mosquito Control:

1. Monitoring and management of adult mosquito populations typically begin in May. The island is divided into 30 zones and each zone is evaluated weekly using "landing rate" counts. The threshold indicating the need for adulticide application is a landing rate of fifteen mosquitoes during a three-minute period. Landing rate count results determine the zones to be treated.
2. Lakes Management staff apply adulticide using a ground-based, truck-mounted fogger. Weather conditions, such as temperature of at least 50 degrees Fahrenheit, wind speed less than 12 mph and no rain, must be met for the adulticide to be sprayed. Treatment of established zones begins at 4:00 am and ends at first light (unless otherwise determined). This time frame was chosen to minimize contact with the public. Additionally, no chemical is released within 150 feet of any water body to protect fragile aquatic resources.
3. When landing counts are elevated island-wide, aerial adulticiding may be considered. This is coordinated with Charleston County Mosquito Control.
4. The Lakes Management Department maintains a Chemical Sensitivity List of Members who wish to be notified when aerial and ground-based adulticide applications occur. These individuals are contacted the day prior to these activities being conducted. Members may be placed on this list by contacting the KICA Administrative Office. A notification will be placed in the *KICA Digest*

IV. Mosquito Abatement (continued)

once a year, prior to the commencement of mosquito control operations, notifying Members of this process.

V. Wildlife

Goal: To provide a balance between wildlife habitat and other Lakes Management Department responsibilities.

A. Monitoring:

The Department aims to:

1. Conduct waterfowl identification and population counts
2. Locate, record activity and map locations of alligator, eagle, osprey and other wildlife nesting sites
3. Maintain a record of species and location of dead animals removed from ponds and roadsides
4. Maintain an extensive database of wildlife activities, including birth, death, and everything in between.
5. Track alligator populations through an annual survey, documenting alligators removed through the SCDNR "nuisance removal" program.
6. Preserve and enhance fish habitat.

B. Maintenance:

The Department aims to:

1. Establish desirable native vegetation that provide habitat for wildlife in and along pond and lake banks. Where possible, encourage the growth of non-invasive, native
2. aquatic plants to provide 1) a food source for migratory waterfowl, 2) habitat for the base of the food chain, and 3) a refuge for small fish. Promote the growth of beneficial shoreline vegetation that supports wildlife with either food or cover. Also, where possible maintain some terrestrial woody vegetation in its natural state to provide nesting and roosting habitat for wading birds as well as a food source for migratory birds.
3. Remove invasive plants species that do not benefit wildlife.
4. Preserve known nesting areas.

C. Management:

1. Work in cooperation with TOKI wildlife biologists, KIR naturalists, and KICA Security in assisting with wildlife management issues and sharing of information
2. Capture and relocate animals that may pose a danger.
3. Capture and transport injured or sick wildlife to a veterinary hospital or rehabilitation center.
4. Educate public about activities that may be harmful to wildlife or themselves, i.e. feeding alligators.
5. Enforce policies regarding wildlife such as alligator harassment, fish size limits, etc.

VI. Departmental Information

A. The Department maintains databases of:

1. Pond information that includes physical data, water quality, fecal coliform, pond maintenance and observations, View Window maintenance, fisheries, and wildlife.
2. Mosquito information that includes chemical sensitivity list, mosquito counts, larviciding, and adulticiding.
3. Flood control structure information that includes physical data, structure components, and maintenance.

VI. Departmental Information (continued)

4. Signage information that includes physical data and maintenance.
 - B. Maintains records of daily activities.
 - C. Responds to service requests and meet with Members as requested.
 - D. Produces educational materials: articles and graphics for bulletin boards, text for nature placards, articles for various newsletters.
 - E. Maintains a departmental website as part of master KICA website.

VII. Mapping

The Department:

- A. Develops and maintains GIS referenced KICA Lakes' assets in a mapping program.
- B. Uses GIS maps to attain accurate geographic information for data entered into wildlife, pond maintenance, and other databases.
- C. Annually maps bottom contours for 20% of the ponds.

Appendix 1
Regime and Homeowner's Association Roads

ROAD NAME
Anhinga Court
Atlantic Beach Court
Baldpate Court
Bank Swallow Lane
Belmeade Hall
Bulrush Lane
Club Cottage Lane
Diodia Court
Duneside Road
Evening Bend Road
Fiddlers Reach
Flying Squirrel Court
Gallinule Court
Ocean Green Drive
Ocean Oaks Court
Peppervine
Pine Siskin Court
Scaup Court
Sea Lavender Court
Sea Rocket Court
Shoveler Curt
Silver Moss Circle
Summer Duck Way
Sundown Bend
Sunlet Bend
Tennis Club Lane
Terrapin Court
The Settlement
Thrasher Court
Vetch Court

Appendix 2
Right-of-Way Square Feet

ROAD NAME	Type of Grass	R-O-W sq. ft.	Irrigated	Partial Irrigation
Airy Hall	Centipede	42398	No	
Amaranth Rd.	Centipede	17004	No	
Angler Hall	Centipede	19689	No	
Arrowhead Hall	Centipede	19409	No	
Augusta National	Centipede	38769	No	
Avocet Ln.	Centipede	16189	No	
Bally Bunion Dr.	Centipede	31014	No	
Bass Creek Ln.	Centipede	27870	Yes	12210
Belted Kingfisher	Centipede	27850	No	
Berkshire Hall	Centipede	16436	No	
Bittern Ct.	Centipede	8851	No	
Black Duck Ct.	Centipede	7183	No	
Bluebill Ct.	Centipede	19899	No	
Blue Heron Pond	St. Augustine	82185	Yes	
Broomsedge Ln.	Centipede	38590	No	
Bufflehead Dr.	Centipede	215710	No	
Bull Thistle Ln.	St. Augustine	7044	Yes	
Burroughs Hall	Centipede	35970	No	
Catbriar Ct.	Centipede	8825	No	
Cedar Waxwing	Centipede	6630	Yes	1420
Chinaberry Ln.	St. Augustine	15233	Yes	
Clay Hall	Centipede	21632	No	
Conifer Ln.	Centipede	29497	No	
Cordgrass Ct.	Centipede	2550	No	
Cormorant Island	Centipede	16615	Yes	2911
Cotton Hall	Centipede	34944	No	
Crested Flycatcher	Centipede	14180	No	
Curlew Court	Centipede	13380	Yes	738
Doral Open	Centipede	32789	No	
Dungannon Hall	Centipede	21008	No	
Eagle Point Ln.	St. Augustine	41509	Yes	
Eugenia Avenue	Centipede	312608	No	
Falcon Point Rd.	Centipede	128774	Yes	32639
Fish Hawk Ln.	Centipede	53689	No	
Fletcher Hall	Centipede	25380	No	
Flyway Dr.	Centipede	303091	Yes	21028

Appendix 2 (continued)
Right-of-Way Square Feet

ROAD NAME	Type of Grass	R-O-W sq. ft.	Irrigated	Partial Irrigation
Forestay Ct.	Centipede	17520	No	
Friendfield Hall	Centipede	14474	No	
Gadwall Ln.	Centipede	21750	No	
Glen Abbey	Centipede	97650	No	
Glen Eagle	Centipede	22569	No	
Glossy Ibis Ln.	Centipede	173604	Yes	43451
Goldeneye Drive	Centipede	49095	No	
Goldenrod	Centipede	14639	No	
Governors Drive	Centipede/St. Augustine	348187	Yes	170375
Green Dolphin Way	Centipede	94286	Yes	378
Green Winged Teal	Centipede	47694	No	
Greensward Rd.	Centipede	85992	Yes	224
Grey Fox Den Ct.	St. Augustine	5687	Yes	
Grey Widgeon Ct.	St. Augustine	3780	Yes	
Hooded Merganser	Centipede	17348	No	
Horned Grebe	Centipede	13369	No	
Jackstay Ct.	Centipede	30500	No	
Kestrel Ct.	Centipede	32850	No	
Kiawah Beach Dr.	Centipede	118850	No	
Kiawah Island Parkway	St. Augustine	1046694	Yes	222156
Killdeer Ct.	Centipede	5462	No	
Kings Island Rd.	Centipede	21824	No	
Low Oak Wood	Centipede	54404	No	
Marsh Cove Rd.	Centipede	35842	Yes	1740
Marsh Edge Ln.	Centipede	29458	No	
Marsh Elder	Centipede	15524	No	
Marsh Hawk Ln.	Centipede	26088	No	
Marsh Island Dr.	Centipede	62593	No	
Marsh Wren Ct.	Centipede	6111	No	
Masters Ct.	Centipede	15949	No	
Muirfield Ln.	Centipede	14844	No	
Needlerush Ln.	Centipede	10082	No	
New Settlement Rd.	Centipede	25290	No	
Nicklaus Ln.	Centipede	17240	No	
Ocean Course Dr.	Centipede	324403	Yes	3016
Ocean Marsh Rd.	Centipede	23085	Yes	970

Appendix 2 (continued)
Right-of-Way Square Feet

ROAD NAME	Type of Grass	R-O-W sq. ft.	Irrigated	Partial Irrigation
Old Dock Rd.	Centipede	31928	No	
Osprey Cottage Ln.	Centipede	4713	No	
Osprey Point Ln.	Centipede	14071	No	
Otter Island Rd.	Centipede	59460	Yes	12390
Oyster Rake Rd.	Centipede	86865	No	
Oyster Shell Rd.	Centipede	42430	No	
Painted Bunting Ln.	Centipede	6774	No	
Palm Warbler Rd.	Centipede	37839	No	
Parklake Dr.	St. Augustine	4980	Yes	2490
Persimmon Ct.	Centipede	16865	No	
Piping Plover Ln.	Centipede	23844	Yes	1535
Pleasant Valley	Centipede	43776	No	
Red Bay Rd.	Centipede	19648	No	
Red Cedar Ln.	Centipede	21914	No	
Rhett's Bluff Rd.	Centipede	197326	No	
River Marsh Ln.	Centipede	37454	Yes	1430
Royal Beach Dr.	St. Augustine	15344	Yes	
Ruddy Duck Rd.	Centipede	9289	No	
Ruddy Turnstone	Centipede	27340	No	
Ryder Cup	Centipede	13704	No	
Saltgrass Ct.	Centipede	7497	No	
Salt Cedar Ln.	Centipede	100433	Yes	31055
Salt Meadow Cove	Centipede	23968	No	
Sanderling Ct	Centipede	11791	No	
Sand Fiddler Ct.	Centipede	18954	Yes	1450
Sandwedge Ct.	Centipede	15810	No	
Savanna Point	Centipede	13570	Yes	540
Sawgrass	Centipede	9342	No	
Sea Forest Dr.	Centipede	56329	Yes	23070
Sea Marsh Dr.	Centipede	109800	No	
Sea Myrtle Ct.	Centipede	7837	No	
Shell Creek Landing	St. Augustine	8252	Yes	
Shipwatch Rd.	St. Augustine	14390	Yes	9000
Shoolbred Ct.	Centipede	15714	No	
Skimmer Ct.	Centipede	4391	No	
Snowy Egret Ln.	Centipede	56909	Yes	28500

Appendix 2 (continued)
Right-of-Way Square Feet

ROAD NAME	Type of Grass	R-O-W sq. ft.	Irrigated	Partial Irrigation
Sora Rail Rd.	Centipede	27820	No	
Sparrow Hawk Rd.	Centipede	24490	No	
Spartina Ct.	Centipede	26247	No	
Spotted Sandpiper	Centipede	9478	No	
Summer Islands Ln.	Centipede	500	Yes	2460
Summer Tanager	Centipede	11303	No	
Surfscooter Ln.	Centipede	32695	No	
Surfsong Rd.	Centipede	230100	No	
Surfwatch Dr.	Centipede	49091	No	
Sweetgrass Ln.	Centipede	20585	No	
Sweetgum Ln.	Centipede	7257	No	
Tallow Tree Ln.	Centipede	22579	No	
Treeduck Ct.	Centipede	8321	No	
Trumpet Creeper Ln.	Centipede	19750	No	
Turnberry Ln.	Centipede	21608	No	
Turtle Beach Ln.	Centipede	46359	Yes	3200
Virginia Rail Rd.	Centipede	35137	Yes	9800
Walker Cup Ln.	Centipede	8509	No	865
Wax Myrtle Ct.	Centipede	23412	No	
Whimbrel Rd.	Centipede	28055	No	1287
Winged Foot	Centipede	9242	No	
Woodcock Ct.	Centipede	4426	No	
Yellowthroat Ln.	Centipede	34833	No	
Total		6591479		642328

Appendix 3
Large Equipment Mowing

Monday	Tuesday	Wednesday	Thursday and Friday
Ocean Course Dr.	Tallow Tree	Governors Drive	Street and trail blowers both days.
Bass Creek	Leisure trail to Whimbrel	Fletcher Hall	
Otter Island	Governors Drive	Friendfield Hall	
Savannah Pt.	Persimmon Ct.	Cotton Hall	
Ocean Marsh	Goldenrod Ct.	Dungannon Hall	
Sand Fiddler	Trumpet Creeper	Clay Hall	
2nd Flyaway	Sweet grass	Burroughs Hall	
	Marsh Edge Lane	Berkshire	
Osprey Point Lane	Yellow Throat	Airy Hall	
Leisure trail to Bufflehead	Leisure trail to Goldeneye	Glen Eagle	
Avocet Lane	Fish Hawk Lane	Angler Hall	
Piping Plover	Leisure trail to Piping Plover	Arrowhead Hall	
Whimbrel	Killdeer	Rhett's Bluff Rd	
Ruddy Duck	Belted Kingfisher	Parkway Phase 2	
Black Duck	Horned Grebe	Vanderhorst Gate	
Skimmer	Sanderling	Green Dolphin Way	
Club Cottage	Bufflehead	Muirfield	
Glossy Ibis	Gadwall	Turtle Beach Lane	
Curlew Ct.	Hooded Merganser	Sea Forest	
Virginia Rail	Treeduck	2nd Sea Marsh	
Falcon Point	Flyway	Summer Tananger	
Salt Cedar	Forestay		
Marsh Wren	Jackstay		
Governors Drive	Bluebill		
Sweet Gum	Pleasant Valley		
Marsh Island	Turnberry		
Snowy Egret	Glen Abbey		
Governors Drive	Walker Cup		
Sawgrass	Kings Island		
Red Cedar Lane	Augusta National		
Spartina Ct.	Ryder Cup		
Marsh Cove Rd.	Master's Court		
Marsh Elder	Winged Foot		
Wax Myrtle	Doral Open		

Appendix 4
Small Equipment Mowing Schedule

Monday	Sandcastle Kiawah River Bridge Bohicket Entrance East Beach Green Dolphin Way Turtle Lane New Settlement Road Governor's Drive Medians Bass Pond Causeway (every other week)
Tuesday	Finish Governor's Drive Preserve Cul-de-sac Otter Island Savannah Point Ocean Course Medians Summer Island Cormorant Island V-Gate
Wednesday	Salt Cedar Falcon Point Glossy Ibis Curlew Court Virginia Rail (right & left) Whimbrel Piping Plover Royal Beach Osprey Beach Walker Cup Marsh Cove
Thursday	Flag Pole Island Main Gate Medians Ocean Marsh Sand Fiddler Court Club Cottage Canvasback Shell Creek Snowy Egret Flyway Medians
Friday	Line trim: Roadside rails Stop signs Beach Accesses

Appendix 5a
ZONE 1 Responsibilities

Entrance to Kiawah to Green Dolphin Way (including: Green Dolphin Way and all side streets)

Annual Beds	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Triangle Median									
Bohicket Median									
Inbound Bed									
Town Sign									
Flagpole									
Main Gate									
Kiawah Beach Drive									
Greensward									
Oyster Rake									
Surfwatch/ Sea Marsh									
Night Heron Park									
Turtle Point									
Vanderhorst Gate									
Residentials	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Kiawah Beach Drive									
Oyster Rake									
Greensward/Surfwatch									
Green Winged Teal									
Sea Marsh/Sora Rail									
East Beach									
Turtle Beach									
Medians	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Kiawah Island Parkway									
Large Median									
Small Median									
Turtle Point									
Shipwatch Parking Lot									
Night Heron @ Windswept									
Main Gate									
Turtle Beach									
Cul-de-Sacs	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Sparrow Road									
Muirfield Lane									
Greenslake									
Conifer Lane									
Painted Bunting									
Surfwatch Dr.									
Palm Warbler 1									
Palm Warbler 2									
Spotted Sandpiper									
Bittern Court									

Appendix 5a (continued)
ZONE 1 Responsibilities

Cul de Sacs	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Surfscoter									
Red Bay									
Catbrier									
Low Oak Woods									
Amaranth									
Needlerush									
Sea Myrtle									
Sparrow Hawk									
Saltgrass									
Cord Grass									
Old Dock (Left)									
Old Dock (Right)									
Ruddy Turnstone									
Woodcock									
Salt Meadow Cove									
Summer Tanager									
Miscellaneous	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
1 st Overpass									
2 nd Overpass									
3 rd Overpass									
Beachwalker Drive									
Side Bed @ E. Beach Tennis									
Beds along Green Dolphin Way									
Turtle Beach Bike Parking									
Surfwatch Side Beds									
Surfwatch/Eugenia corners									
Eugenia/Low Oak Woods corners									
Side Beds @ Greensward									
Kiawah Beach Dr./Shipwatch									
Conifer Lane									
Kiawah Beach Dr./golf course									
Kestrel Boat Stg.									
Maintenance Boat Stg.									

Appendix 5b
ZONE 2 Responsibilities
V-Gate to 1st Flyway, east of the 1st Flyway to Surfsong Road

Annual Beds	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Rhett's Bluff Median									
Residentials	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Walker Cup									
Airy Hall									
Burroughs Hall									
Berkshire Hall									
Cotton Hall									
Clay Hall									
Fletcher Hall									
Friendfield Hall									
Dungannon Hall									
Yellow Throat									
Tallow Tree									
Marsh Cove									
Sweet Gun									
Saw Grass									
Spartina									
Marsh Elder									
Wax Myrtle									
Persimmon									
Goldenrod									
Trumpet Creeper									
Surfsong									
Medians	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Rhett's Bluff									
Governor's Drive									
Cul de Sacs	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Rhett's Bluff									
Shoolbred Court									
River Marsh (Left)									
River Marsh (Right)									
Airy Hall (Left)									
Berkshire Hall									
Clay Hall									
Cotton Hall (Left)									
Cotton Hall (Right)									
Dungannon Hall									
Fletcher Hall									
Bluebill Court									
Pleasant Valley									
Turnberry Road									
Walker Cup									
Kings Island									

Appendix 5b (continued)
ZONE 2 Responsibilities

Cul de Sacs	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Augusta National									
Ryder Cup									
Masters Court									
Doral Open									
Angler Hall									
Arrowhead Hall									
Glen Eagle									
Winged Foot									
Sweet Grass Lane									
Marsh Edge Lane (Left)									
Marsh Edge Lane (Right)									
Fish Hawk Lane									
Yellow Throat Lane									
Horned Grebe Court									
Sanderling Court									
Tallow Tree Lane									
Marsh Cove Road									
Snowy Egret (Left)									
Snowy Egret (Right)									
Miscellaneous	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Side beds: Governors & Flyway									
Corner of Governors & 1 st Flyway									

**Appendix 5c
Zone 3 Responsibilities**

Annual Beds	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Glossy Ibis									
Osprey Beach									
Royal Beach									
Residentials	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Falcon Point Road									
Salt Cedar Lane									
Cormorant Island									
Shell Creek Landing									
Bufflehead									
2 nd Flyway									
Beach Parking									
Sand Fiddler									
Ocean Marsh									
Otter Island									
Bass Creek Lane									
Medians	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Glossy Ibis									
Summer Island									
Flyway									
Ocean Course Drive									
Cul de Sacs	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Virginia Rail (Right)									
Virginia Rail (Left)									
Curlew Court									
Marsh Wren Court									
Salt Cedar Lane									
Falcon Point Road									
Summer Island									
Cormorant Island (Right)									
Cormorant Island (Left)									
Shell Creek Landing									
Skimmer Court									
Black Duck									
Ruddy Duck									
Whimbrel Court									
Piping Plover									
Avocet									
Goldeneye									
Hooded Merganser (Right)									
Hooded Merganser (Left)									
Treeduck									
Marsh Cottage									
Ballybunion									
Osprey Point Lane									

Appendix 5c (continued)
Zone 3 Responsibilities

Cul de Sacs	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Royal Beach									
Otter Island (Left)									
Otter Island (Right)									
Savanna Point									
Bass Creek Lane									
Miscellaneous	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Governor's Drive - inbound									
Glossy Ibis - Park									
Virginia Rail - Side bed									
Falcon Point - Side beds									
Canvasback - Side bed									
Ocean Course - Side bed									

Appendix 5d
Zone 4 Responsibilities

Annual Beds	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Rhett's Bluff Boat Launch									
Residential	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Blue Heron Pond Road									
Grey Fox Den Court									
Bull Thistle Lane									
Chinaberry Lane									
Entrance to Sandcastle									
Medians	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Blue Heron Pond Road (Left)									
Cul de Sacs	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Shipwatch Lane									
Grey Fox Den Court									
Cedar Waxwing									
Blue Heron Pond Road									
Bull Thistle Lane									
Chinaberry Lane									
Miscellaneous	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Cinder Creek Pavilion/Boathouse									
Parking Area @ Cinder Creek									
The Sandcastle									
Pots									
Parking Lots									
Pool Deck									
Back Deck									
Rhett's Bluff Boat Launch									
The Preserve	Weeds	Deadhead	Fertilize	Ant Treat	Prune	Straw	Chemicals	Other	Date
Rt. Side from Cinder Ck to the back									
Blue Heron Pond Rd. - inbound									
Blue Heron Pond Rd. - outbound									
Chinaberry Ln. to the cul-de-sac									
Eagle Pt. Lane - inbound									
Eagle Pt. Lane - outbound									
Blue Heron to bridge at E. Pt. (Left)									
Bull Thistle Lane - inbound									
Bull Thistle Lane - outbound									
Cinder Creek Pavilion Beds									
Left side of the Preserve:									
Blue Heron to last cul-de-sac									

Appendix 6
Irrigation Systems

Irrigation Valves and Heads

Main Gate-Parkway-Governor's Drive

157 Valves
66 Drip Valves
2650 4" pop ups
425 Rotors
69,000 Drip Tubing

Preserve Area

250 Valves
25 Drip Valves
19 Drip valves/Easy Rain-rpv's 9v battery
3052-4" pop ups
186 Rotors
24,750 Drip Tubing
12 Control Clocks – Rainbird/Hunter

All other Rainbird Clock areas

230 Valves
23 Drip Valves
1375 – 4" pop ups
380 Rotors
23,000 Drip Tubing
26 Rainbird Clocks

9 volt Operated Valves – RPV

22 Valves
143 pop ups
16 Rotors
14 Drip Valves
2,000' Drip Tubing

Appendix 7
Irrigation Preventive Maintenance

1. Biweekly inspections of every controller and actuator on the entire island. Submit checklist to supervisor when complete.
2. Inspections include but not limited to:
 - a. Check to make sure time, date, and day on clock is current.
 - b. Manually run through each station and confirm that signal is going out and water is up and running.
 - c. Check each station for misaligned and/or broken heads.
 - d. Confirm good pressure for system.
 - e. Make sure all heads are going back down and out of the way of vehicles and equipment.
 - f. Edge valve boxes and heads that propose a problem for coverage.
 - g. Make sure box closes so rain cannot penetrate.
 - h. Clean out rain gauge.
 - i. Occasionally fill rain gauge with water manually, run through clock to see if gauge is working and empty when complete.
 - j. Check electric valves and look for corrosion or disconnected wires. If soil is back flowed into box, remove until top half of valve is visible
3. All inspections should be completed outside of the vehicle. Vehicle must be parked out of main flow of traffic.
4. Within 72 hours, all reasonable repairs should be complete and flags/cones removed.

Appendix 8
Backflow Locations

Location	Cycle #	KIU Acct. #	Meter #	Meter Size	Backflow Size	Make	Model #	Backflow #
Boardwalk #10 Shower	1	CA 9031						
Boardwalk #12 Shower	1	CA 9032						
Green Winged Teal	1	EM 9103						
Parkway at Security #1	1	KP 9109						
Shipwatch Rd. Parking Area	1	KP 9132						
Shipwatch Rd. Right Side	1	KP 9133						
Shipwatch Rd. Left Side	1	KP 9134						
Oyster Rake	1	OR 9101						
Showers #1	1	SS 9301						
Greensward Rd.	1	WM 9102						
K.I.C.A. Maintenance Area	1	UT 6						
Night Heron Entrance	2	CA 9114						
Pkwy @ Night Heron	2	KP 9106						
Pkwy @ Fire Station	2	KP 9121						
Pkwy @ Green Dolphin	2	KP 9122						
Pkwy @ Irrig. Sanctuary	2	KP 9123						
Showers #2 (Mariners Watch)	2	MW 9302						
Causeway Irrigation	2	RB 9102						
End of Rhett's Bluff Rd.	2	RB 9104						
Rhett's Bluff (median)	2	RB 9105						
River Marsh Ln. (Cul-de- Sac)	2	RM 9101						
Turtle Beach Showers	2	TB 9032						
Turtle Beach (Entrance)	2	TB 9101						
Windswept Villas (Entrance)	2	WI 9101						
Doral Open (Cul-de-Sac)	3	CA 9102						
Augusta National (Cul-de-Sac)	3	CA 9104						
Ryder Cup (Cul-de-Sac)	3	CA 9112						
Royal Beach	3	FD 9102						
Surfsong/Governors Dr.-Left	3	KP 9113						
Surfsong/Governors Dr.-Right	3	KP 9114						
Governors @ Berkshire	3	KP 9115						
Governors/Dungannon- Right	3	KP 9117						
Governors/Fletcher Hall	3	KP 9118						
Governors Dr. @ Sweet Gum Ln.	3	KP 9124						
Governors Dr. @ Marsh Elder Ct.	3	KP 9125						
Governors Dr. @ Goldenrod Ct.	3	KP 9126						
Governors Dr. @ Sawgrass Ln.	3	KP 9128						
Governors Dr. @ Spartina Ct.	3	KP 9129						
Governors Dr. @ Wax Myrtle Ln.	3	KP 9130						
Entrance @ Preserve	3	PR 9101						
Bridge @ Preserve	3	PR 9102						
Blue Heron Pond Rd. (corner)	3	PR 9103						
Blue Heron Pond Rd. (Park Area)	3	PR 9104						
Cedar Waxwing Ct.	3	PR 9105						

Appendix 8 (continued)
Backflow Locations

Location	Cycle #	KIU Acct. #	Meter #	Meter Size	Backflow Size	Make	Model #	Backflow #
115-A Blue Heron Pond Rd.	3	PR 9107						
113-A Blue Heron Pond Rd.	3	PR 9108						
139-A Blue Heron Pond Rd.	3	PR 9109						
139-B Blue Heron Pond Rd.	3	PR 9110						
Walker Cup Ln.	3	PR 9106						
Blue Heron Pond Rd.	3	PR 9112						
Bull Thistle Rd.	3	PR 9113						
Eagle Point Landing (Dock)	3	PR 9114						
Eagle Point Landing	3	PR 9115						
Chinaberry Ln. (Cul-de-Sac)	3	PR 9116						
76-A Blue Heron Pond Rd.	3	PR 9117						
Boardwalk #40	4	CA 9030						
Club Cottage Entrance	4	CA 9102						
Glossy Ibis Ln.	4	EP 9102						
Glossy Ibis Ln. (Park)	4	EP 9103						
Whimbrel Ct. (Cul-de-Sac)	4	EP 9106						
Piping Plover (Cul-de-Sac)	4	EP 9107						
Falcon Point/ Governors Dr.	4	FP 9101						
Falcon Point/summer Islands	4	FP 9102						
Salt Cedar #1	4	FP 9103						
Salt Cedar Ln.	4	FP 9104						
Salt Cedar Ln. #3	4	FP 9105						
Glossy Ibis #3	4	GI 9101						
Glossy Ibis #4	4	GI 9102						
Glossy Ibis #5	4	GI 9103						
Snowy Egret/ Governors Dr.	4	KP 9108						
Governors Dr./ Flyway Dr.	4	KP 9110						
Governors Dr. @ Bufflehead Dr.	4	KP 9127						
Governors Dr. @ Yellow Throat Dr.	4	KP 9131						
Marsh Cove Rd.	4	MC 9101						
Marsh Cove Rd.	4	MC 9102						
Osprey Beach Entrance	4	OB 9101						
K.I.C.A. Park	4	OI 9102						
Ocean Course Dr. (median)	4	OI 9103						
Bass Creek Ln.	4	OI 9106						
Savanna Point (Cul-de-Sac)	4	OI 9107						
Otter Island Rd. (Cul-de-Sac) Left	4	OI 9108						
Otter Island Rd. (Cul-de-Sac) Right	4	OI 9109						
Otter Island Rd. (entrance)	4	OI 9110						
Ocean Marsh Dr.	4	OM 9104						
Shell Creek Landing	4	SC 9101						
Summer Islands Ln.	4	SI 9104						
Summer Islands (Cul-de-Sac) Right	4	SI 9105						
Summer Islands (Cul-de-Sac) Left	4	SI 9106						
Summer Islands (Cul-de-Sac) Right	4	SI 9107						

**Appendix 9
Roadway List**

ROAD NAME	Curbing	Road Length	Curbed	Non-Curbed
Airy Hall	No	1481.00		1481.00
Amaranth Rd.	No	668.00		668.00
Angler Hall	No	738.00		738.00
Arrowhead Hall	No	745.00		745.00
Augusta National	No	1414.00		1414.00
Avocet Ln.	Yes	1044.00	1044.00	
Bally Bunion Dr.	Yes	741.00	741.00	
Bass Creek Ln.	No	1560.00		1560.00
Belted Kingfisher	No	1033.00		1033.00
Berkshire Hall	No	783.00		783.00
Bittern Ct.	No	393.00		393.00
Black Duck Ct.	Yes	314.00	314.00	
Bluebill Ct.	No	790.00		790.00
Blue Heron Pond	No	11115.00		11115.00
Broomsedge Ln.	No	1378.00		1378.00
Bufflehead Dr.	Yes	8587.00	8587.00	
Bull Thistle Ln.	No	2175.00		2175.00
Burroughs Hall	No	1220.00		1220.00
Catbriar Ct.	No	415.00		415.00
Cedar Waxwing	No	296.00		296.00
Chinaberry Ln.	No	1320.00		1320.00
Clay Hall	No	925.00		925.00
Conifer Ln.	No	1196.00		1196.00
Cordgrass Ct.	Yes	234.00	234.00	
Cormorant Island	No	774.00		774.00
Cotton Hall	No	1323.00		1323.00
Crested Flycatcher	No	488.00		488.00
Curlew Court	Yes	591.00	591.00	
Doral Open	No	1183.00		1183.00
Dungannon Hall	No	846.00		846.00
Eagle Point Ln.	No	3530.00		3530.00
Eugenia Avenue	Yes	3640.00	3640.00	
Falcon Point Rd.	No	4624.00		4624.00
Fish Hawk Ln.	No	1355.00		1355.00
Fletcher Hall	No	939.00		939.00
Flyway Dr.	Yes	13511.00	13511.00	
Forestay Ct.	No	892.00		892.00
Friendfield Hall	No	468.00		468.00
Gadwall Ln.	No	810.00		810.00
Glen Abbey	Yes	3922.00	3922.00	
Glen Eagle	No	1616.00		1616.00
Glossy Ibis Ln.	Yes	3880.00	3880.00	
Goldeneye Ln.	No	1737.00		1737.00
Goldenrod	No	716.00		716.00
Governors Drive	Yes	24631.00	24631.00	

Appendix 9 (continued)
Roadway List

ROAD NAME	Curbing	Road Length	Curbed	Non-Curbed
Grey Widgeon Ct.	No	126.00		126.00
Grey Fox Den Ct.	No	344.00		344.00
Green Dolphin Way	Yes	3834.00	3834.00	
Green Winged Teal	Yes	2310.00	2310.00	
Greensward Rd.	Yes	3374.00	3374.00	
Hooded Merganser	No	678.00		678.00
Horned Grebe	No	585.00		585.00
Jackstay Ct.	No	1124.00		1124.00
Kestrel Ct.	No	1645.00		1645.00
Kiawah Beach Dr.	Yes	3688.00	3688.00	
Kiawah Island Parkway	Yes	16535.00	15535.00	
Killdeer Ct.	No	303.00		303.00
Kings Island Rd.	No	852.00		852.00
Low Oak Wood	Yes	3031.00	3031.00	
Marsh Cove Rd.	No	1477.00		1477.00
Marsh Edge Ln.	No	1132.00		1132.00
Marsh Elder	No	657.00		657.00
Marsh Hawk Ln.	No	1285.00		1285.00
Marsh Island Dr.	No	2258.00		2258.00
Marsh Wren Ct.	No	415.00		415.00
Masters Ct.	No	640.00		640.00
Muirfield Ln.	Yes	625.00	625.00	
Needlerush Ln.	No	399.00		399.00
New Settlement Rd.	No	945.00		945.00
Nicklaus Ln.	Yes	629.00	629.00	
Ocean Course Dr.	Yes	12022.00	12022.00	
Ocean Marsh Rd.	Yes	646.00	646.00	
Old Dock Rd.	No	1269.00		1269.00
Osprey Cottage Ln.	No	452.00		452.00
Osprey Point Ln.	Yes	698.00	698.00	
Otter Island Rd.	Yes	2628.00	380.00	2248.00
Oyster Rake Rd.	Yes	3002.00	3002.00	
Oyster Shell Rd.	No	1343.00		1343.00
Painted Bunting Ln.	No	337.00		337.00
Palm Warbler Rd.	No	1380.00		1380.00
Parklake Dr.	Yes	778.00	778.00	
Persimmon Ct.	No	694.00		694.00
Piping Plover Ln.	Yes	1066.00	1066.00	
Pleasant Valley	No	1539.00		1539.00
Red Bay Rd.	No	769.00		769.00
Red Cedar Ln.	No	916.00		916.00
Rhett's Bluff Rd.	Yes	4055.00	1607.00	2448.00
River Marsh Ln.	No	1549.00		1549.00
Royal Beach Dr.	Yes	761.00	761.00	
Ruddy Duck Rd.	Yes	316.00	316.00	

Appendix 9 (continued)
Roadway List

ROAD NAME	Curbing	Road Length	Curbed	Non-Curbed
Ruddy Turnstone	No	981.00		981.00
Ryder Cup	No	554.00		554.00
Saltgrass Ct.	No	366.00		366.00
Salt Cedar Ln.	No	3435.00		3435.00
Salt Meadow Cove	No	915.00		915.00
Sanderling Ct	No	377.00		377.00
Sand Fiddler Ct.	Yes	748.00	748.00	
Sandwedge Ct.	No	547.00		547.00
Savanna Point	No	783.00		783.00
Sawgrass	No	484.00		484.00
Sea Forest Dr.	Yes	5473.00	5473.00	
Sea Marsh Dr.	Yes	4438.00	4438.00	
Sea Myrtle Ct.	No	353.00		353.00
Shell Creek Landing	No	667.00		667.00
Shipwatch Rd.	Yes	1787.00	1787.00	
Shoolbred Ct.	No	549.00		549.00
Skimmer Ct.	Yes	248.00	248.00	
Snowy Egret Ln.	Yes	2515.00	2515.00	
Sora Rail Rd.	No	1391.00		1391.00
Sparrow Hawk Rd.	Yes	866.00	866.00	
Spartina Ct.	No	1023.00		1023.00
Spotted Sandpiper	No	415.00		415.00
Summer Islands Ln.	No	3510.00		3510.00
Summer Tanager	No	469.00		469.00
Surfscoter Ln.	No	1207.00		1207.00
Surfsong Rd.	Yes	9155.00	9155.00	
Surfwatch Dr.	Yes	2607.00	2607.00	
Sweetgrass Ln.	No	776.00		776.00
Sweetgum Ln.	No	342.00		342.00
Tallow Tree Ln.	No	986.00		986.00
Treeduck Ct.	No	363.00		363.00
Trumpet Creeper Ln.	Yes	871.00	871.00	
Turnberry Ln.	No	842.00		842.00
Turtle Beach Ln.	Yes	1979.00	1979.00	
Virginia Rail Rd.	Yes	1377.00	1377.00	
Walker Cup Ln.	No	486.00		486.00
Wax Myrtle Ct.	No	949.00		949.00
Whimbrel Rd.	Yes	1240.00	1240.00	
Winged Foot	No	387.00		387.00
Woodcock Ct.	No	269.00		269.00
Yellowthroat Ln.	No	1462.00		1462.00
TOTALS	SQ.FT.	255344.00	148701.00	105643.00
TOTALS	ACRES	48.36	28.16	20.01

Appendix 10
Trail List

TRAIL LOCATION	LENGTH ft.	Area sq. ft.	ROW sq. ft.	Type	Mowed
General Store to Cart path on Cougar Pt.	534.00	4272.00	5340.00	Main	yes
Kiawah Beach Drive to Surfwatch Dr.	3249.00	25992.00	32490.00	Main	yes
Surfwatch Dr. to Green Winged Teal	1956.00	15648.00	19560.00	Main	yes
Green Winged Teal to Sora Rail Rd.	829.00	6632.00	8290.00	Main	yes
Sora Rail to Sea Forest Dr.	1686.00	13488.00	16860.00	Main	yes
Sea Forest Dr. (O) to Sea Forest Dr. (N)	2025.00	16200.00	20250.00	Main	yes
Sea Forest Dr. (N) to Sanctuary Beach Dr.	798.00	6384.00	7980.00	Main	yes
Sanctuary Beach Dr. to Green Dolphin Way	1315.00	10520.00	13150.00	Main	yes
Green Dolphin Way to Surfsong Rd.	2936.00	23488.00	29360.00	Main	yes
Surfsong Rd. to Berkshire Hall	990.00	7920.00	9900.00	Main	yes
Berkshire Hall to Cotton Hall	1006.00	8048.00	10060.00	Main	yes
Cotton Hall to Fletcher Hall	922.00	7376.00	9220.00	Main	yes
Fletcher Hall to Yellow Throat Rd.	2336.00	18688.00	23360.00	Main	yes
Yellow Throat Rd. to Tallow Tree Ln.	2144.00	17152.00	21440.00	Main	yes
Tallow Tree Ln. to Marsh Cove Rd.	545.00	4360.00	5450.00	Main	yes
Marsh Cove Rd. to Snowy Egret Ln.	2482.00	19856.00	24820.00	Main	yes
Snowy Egret Ln. to Cinder Creek Bridge	1320.00	10560.00	13200.00	Main	yes
Cinder Creek Bridge to Glossy Ibis	267.00	2136.00	2670.00	Main	yes
Glossy Ibis to Bufflehead Dr.	1133.00	9064.00	11330.00	Main	yes
Bufflehead Dr. to Osprey Pt. Golf	1316.00	10528.00	13160.00	Main	yes
Osprey Pt. Golf to Osprey Cottage Ln.	213.00	1704.00	2130.00	Main	yes
Osprey Cottage Ln. to Flyway Dr.	646.00	5168.00	6460.00	Main	yes
Flyway Dr. to Sand Fiddler Ct.	835.00	6680.00	8350.00	Main	yes
Sand Fiddler Ct. to Ocean Marsh Dr.	315.00	2520.00	3150.00	Main	yes
Ocean Marsh Dr. to Ocean Course Golf	9777.00	78216.00	97770.00	Main	yes
Low Oak Woods to Green Winged Teal	2408.00	19264.00	24080.00	Side	yes
Beachwalker Dr. to Pool	2504.00	20032.00	25040.00	Side	yes
Oyster Rake Leisure Trail System	1551.00	12408.00	15510.00	Side	yes
Kiawah Beach Drive (Asphalt only)	968.00	7744.00	9680.00	Side	yes
Shipwatch Rd., BRC, CP#17,#3	3611.00	28888.00	36110.00	Side	yes
Broomsedge to Marsh Hawk	1130.00	9040.00	11300.00	Side	yes
Main Trail to Palm Warbler	192.00	1536.00	1920.00	Side	yes
Main Trail to Low Oak Woods	210.00	1680.00	2100.00	Side	yes
Sea Forest Dr. to Mariners Watch	3620.00	28960.00	36200.00	Side	yes
Sea Forest Dr. to Beach Access #16	700.00	5600.00	7000.00	Side	yes
Trail left of Eugenia	404.00	3232.00	4040.00	Side	yes
Trail bordering Oceanwoods to BA #16	724.00	5792.00	7240.00	Side	yes
Sea Forest to Green Dolphin Way (EBTC)	786.00	6288.00	7860.00	Side	yes
Green Dolphin Way to Surfsong Rd.	1290.00	10320.00	12900.00	Side	yes
Yellow Throat Rd. to Goldeneye Rd.	714.00	5712.00	7140.00	Side	yes
Bufflehead Dr. to Osprey Pt. Ln.	489.00	3912.00	4890.00	Side	yes
Allee of Oaks	2998.00	23984.00	29980.00	Side	yes
End of Fish Hawk Lane	222.00	1776.00	2220.00	Side	yes
End of Tallow Tree Lane	492.00	3936.00	4920.00	Side	yes

Appendix 10 (continued)

Trail List

TRAIL LOCATION	LENGTH ft.	Area sq. ft.	ROW sq. ft.	Type	Mowed
End of Surfscoter Lane	266.00	2128.00	2660.00	Side	yes
Otter Island Rd. to Bass Creek Lane	278.00	2224.00	2780.00	Side	yes
End Of River Marsh Lane	284.00	2272.00	2840.00	Side	no
Along Rhett's Bluff Rd.	928.00	7424.00	9280.00	Side	no
Along river in Rhett's Bluff Subdivision	986.00	7888.00	9860.00	Side	no
Glen Abbey to Surfson Rd.	636.00	5088.00	6360.00	Side	yes
Preserve (Tower Trail)	2747.00	21976.00	27470.00	Side	no
Preserve (Killdeer Pond Trail)	1705.00	13640.00	17050.00	Side	no
Preserve (New Site Trail)	738.00	5904.00	7380.00	Side	no
Marsh Island Park Trail	1130.00	6780.00	0.00	Side	no
Totals	76286.00	Square Ft.			
	14.45	Miles			

Appendix 11
Beach Access Locations

Beach Access Location	Number	Length	Area sq. ft.	Mowed	R-O-W sq. ft.	Boardwalk
Duneside Villas	1	0	0	no	0	294
Seascape Villas	7	119	952	no	714	244
Property Owners Pool	8	0	0	no	0	177
Between #7 & #8 Eugenia Ave.	9	277	2216	no	1662	307
Between #21 & #23 Eugenia Ave.	10	244	1952	no	1464	46
Between #29 & #31 Eugenia Ave.	11	379	3032	no	2274	113
Between #41 & #43a Eugenia Ave.	12	215	1720	no	1290	139
Between #51 7 #53 Eugenia Ave.	13	203	1624	no	1218	134
Between #61b & #63a Eugenia Ave.	14	189	1512	no	1134	132
Between #69 & #71 Eugenia Ave.	15	188	1504	no	1128	194
End of Eugenia Ave/ Mariners Watch	16	258	2064	no	1548	117
Windswept Villas (last two areas)	22	454	3632	no	2724	273
Off Green Dolphin Way	27	610	4880	no	3660	458
Off Turtle Beach Lane	28	0	0	no	0	312
West End of Nicklaus Lane	29	230	1840	no	1380	462
East End of Nicklaus Lane	30	263	2104	no	1578	215
Between #341 & #342 Surfson Rd.	31	316	2528	no	1896	262
Between #54 & #57 Surfson Rd.	32	339	2712	yes	2034	310
Between #63 & #64 Surfson Rd.	33	595	4760	yes	3570	385
Between #75 Forestay & #88 Jackstay	34	375	3000	yes	2250	416
East Side of Royal Beach	35	352	2816	yes	2112	390
Between # 114 & #120 Flyway Dr.	38	661	5288	yes	3966	385
Between #157 & #162 Flyway Dr.	39	519	4152	yes	3114	466
East End Of Sand Fiddler	40	474	3792	yes	2844	475
Ocean Marsh Road	41	402	3216	no	2412	0
Between #14 & #15 Ocean Course Dr.	42	378	3024	yes	2268	0
	TOTALS	8040	64320		48240	6706

Appendix 12
Contract Work Sites

Work Done For.	Turf (sq. ft.)	Annuals (sq. ft.)	Other Beds (sq. ft.)	Road (ft.)	Trail (ft.)
Sandcastle Community Center	2025	0	20055	0	0
Town of Kiawah					
1). Outside Parkway	226512	6133	0	9425	0
2). Beachwalker Dr.	147449	0	9249	3270	2504
Vanderhorst Gate	2000	9702	0	0	0
TOTALS	377986	15835	29304	12695	2504
TOTALS	8.68	0.36	0.67	2.40	0.47

Appendix 13
Pond Locations

- #001 Located at the Beachwalker Drive outfall and stretching behind Greenslake Cottages and Beachwalker Office Park.
- #002 Located near the Kiawah Inn behind Sparrow Pond Cottages.
- #003 Located just inside the Main Security Gate on the south side of Kiawah Island Parkway and stretching west to Kiawah Beach Drive.
- #004 This pond is located on the western side of Kiawah Beach Drive, midway between Kiawah Island Parkway and Sparrow Road.
- #005 Located immediately south of the 5th fairway on Cougar Point Golf Course.
- #006 Located northeast of the intersection of Conifer Lane and Greensward Road.
- #007 Located along Kiawah Beach Drive between Greensward Road and Fairway Oaks Villas.
- #008 Located along Kiawah Beach Drive between Fairway Oaks Villas and the West Beach Racquet Club, This pond extends east to Courtside Villas.
- #009 This pond is located along the Leisure Trail directly past the first overpass and Crested Flycatcher.
- #010 This pond is located just south of Kiawah Island Parkway and the 3rd hole of Cougar Point Golf Course.
- #011 Located west of Greensward between Crested Flycatcher and Painted Bunting and east of Cougar Points 3rd Fairway.
- #012 Located west of Greensward, south of Painted Bunting and east of Cougar Point's 3rd Fairway.
- #013 Located south of Greensward between Kiawah Beach Drive and Sandwedge Court, on the 17th fairway of Cougar Point.
- #014 Located north of Broomsedge Lane and west of the 7th green of Cougar Point.
- #015 Located on the northwest corner of Broomsedge Lane and Sea Marsh Drive.
- #016 Located west of Surfwatch Drive, east of Cougar Point's 15th tee.
- #017 Located between Greensward Road, Sandwedge Court, and Surfwatch Drive.
- #018 Located on the west side of Surfwatch Drive and surrounding Sandpiper Court.
- #019 Located at the corner of Surfwatch Drive and Eugenia Avenue.
- #020 Located near the corner of Kiawah Island Parkway and Sea Marsh Drive and extending north along Sea Marsh Drive and Needlerush Court.
- #021 Located to the left of the 8th fairway on Cougar Point Golf Course.
- #022 Located near the corner of Kiawah Island Parkway and Sea Marsh Drive and extending east along Kiawah Island Parkway.
- #023 Located along the east side of Surfwatch Drive and extending from Kiawah Island Parkway to Palm Warbler Road.
- #024 Located along the east side of Surfwatch Drive between Palm Warbler Road and Eugenia and extending east towards Low Oak Woods.
- #025 Located on the east side of Kiawah Island Parkway near the second overpass, it is bounded by the 9th and 10th holes of Cougar Point.
- #026 This pond is located west of Green Winged Teal across from the intersection with Amaranth Road.
- #027 Located east of Green Winged Teal near the intersection with Amaranth Road and extending east behind Oceanwood Homes to Fiddler's Reach Road.
- #028 Located north of Kiawah Island Parkway between Salt Meadow Cove and Ruddy Turnstone.
- #029 Located between the first Fire Station and Night Heron Park Cottages.

Appendix 13 (continued)
Pond Locations

- #030 Located north of Kiawah Island Parkway near the first intersection of Sea Forest Drive
- #031 Located near the 17th tee of Turtle Point behind Turtle Point Villas.
- #032 Located between Turtle Beach Lane and Muirfield Lane.
- #033 Located on Sea Forest Drive between Summer Duck Way and Mariner's Watch Villas.
- #034 Located between Parkside Villas and Windswept Lake Townhouses on Sea Forest Drive.
- #035 (Bass Pond) Located on the west side of the Rhett's Bluff Road causeway just past the Vanderhorst Gate.
- #036 This pond is located between Duneside Road and Beachwalker Drive.
- #037 Located on Sea Forest Drive behind Town Center.
- #038 Located between Kiawah Island Parkway, Green Dolphin Way, and Tennis Club Lane.
- #039 Located between Tennis Club Lane, Green Dolphin Way and Sea Forest Drive
- #040 Located at the 9th hole on Turtle Point Golf Course.
- #041 Located between Green Dolphin Way and the 18th fairway of Turtle Point Golf Course.
- #042 This pond is located between Sea Forest Drive and Park Lake Drive.
- #043 Located between Governor's Drive, Surfsong Road, and Arrowhead Hall.
- #044 Located between Berkshire Hall and Turtle Point's 8th fairway.
- #045 Located midway between Berkshire Hall and Cotton Hall.
- #046 Located midway between Doral Open Road and Masters Court.
- #047 Located between Masters Court and Augusta National.
- #048 This pond is located between Sea Forest Drive and Town Center.
- #049 This pond is located between Turtle Point's 12th tee, Glen Abbey and Augusta National.
- #050 Located between Glen Abbey, Surfsong, and Flyway Drive.
- #051 Located between Cotton Hall and Pleasant Valley, This pond spans the western half of the 6th fairway on Turtle Point.
- #052 Located between Pleasant Valley and Augusta National, This pond sits just south of Turtle Point's 2nd hole.

- #053 Located between Fletcher Hall and Pleasant Valley, This pond extends west from the 6th tee of Turtle Point to the backside of 107 Pleasant Valley.
- #054 Located between Fletcher Hall and Pleasant Valley along Flyway Drive.
- #055 Located between Augusta National and Flyway Drive.
- #056 Located to the west of Trumpet Creeper between Sweetgrass Lane and Marsh Edge Lane.
- #057 Located between Gadwall Lane, Bufflehead Drive, and the 15th hole of Osprey Point Golf Course.
- #058 Located between Goldeneye Drive and Bufflehead Drive.
- #059 Located between Bufflehead Drive and Flyway Drive.
- #060 This pond is located between the 13th fairway of Osprey Golf Course and Governor's Drive.
- #061 Located between Trumpet Creeper Lane, Governor's Drive, and Goldenrod Court.
- #063 Located between Whimbrel Road and Osprey Point's 6th fairway.
- #064 Located between Governor's Drive and Salt Cedar Lane, along Falcon Point Road.
- #065 Located between Falcon Point Road and Salt Cedar Lane.
- #067 Located between Tallow Tree Lane, Marsh Cove Road and Osprey Point's 5th fairway.
- #069 (Killdeer Pond) Located behind Blue Heron Pond Road lots 115, 117, 119, 121,123, 125, 127, 135, and 137.

- #070 Located between Sawgrass Lane, Governor's Drive, Marsh Island Drive, and Sweetgum.

Appendix 13 (continued)

Pond Locations

- #071 Located between Governor's Drive and Snowy Egret Lane, this is the middle pond in the Snowy Egret system.
- #072 Located between Snowy Egret Lane, Governor's Drive and opposite the entrance to the Preserve.
- #073 (Egret Pond) Located between Glossy Ibis Lane, Virginia Rail Road, Bufflehead Drive, and Governor's Drive.
- #074 (Pintail Pond) Located between Bufflehead Drive, Governor's Drive, and Osprey Point Clubhouse.
- #075 (Canvasback Pond) Located between Governor's Drive, Flyway Drive, Bufflehead Drive, and Avocet Lane.
- #076 Located between Bufflehead Drive, Goldeneye Drive, Belted Kingfisher Road, Flyway Drive and Hooded Merganser.
- #077 (Bufflehead Pond) Located between Piping Plover Lane, Bufflehead Drive, and Goldeneye Drive.
- #078 Located along Flyway Drive between lots 105 and 106.
- #079 Located along Flyway Drive between lots 110 and 115.
- #080 Located along Flyway Drive between lots 114 and 120.
- #081 Located along Flyway Drive between lots 124 and 125.
- #082 Located along Flyway Drive between lots 123 and 126.
- #083 Located along Flyway Drive between lots 135 and 138.
- #084 Located along Flyway Drive between lots 142 and 143.
- #085 Located along Flyway Drive between lots 141 and 144.
- #086 This pond is located along Flyway Drive between lots 154 and 155.
- #087 This pond is located along Flyway Drive between lots 153 and 157.
- #088 Located along Flyway Drive between lots 165 and 168.
- #089 Located along Flyway Drive between lots 167 and 173.
- #090 This pond is located along Flyway Drive immediately southwest of the intersection of Ballybunion Drive and Flyway Drive.
- #091 Located along Flyway Drive just east of the intersection of Ballybunion Drive and Flyway Drive.
- #092 Located between Osprey Point Clubhouse and Osprey Cottage Lane.
- #093 (Ibis Pond) Located along Ocean Course Drive just north of the Kiawah Beach Club and the 13th hole of the Ocean Course.
- #094 (Willet Pond) Located along the north side of Ocean Course Drive between Bass Creek Lane and the Ocean Course entrance.
- #095 Located at the end of Ballybunion Drive stretching around to Ocean Course Drive.
- #096 (Blue Heron Pond) Located between the two fingers of Blue Heron Pond Road.
- #097 Located between Otter Island Road and Ocean Course Drive.
- #098 Located between Otter Island Road and Ocean Course Drive.
- #099 Located between the two sections of Ocean Oaks Court.
- #100 Located on the River Course between the 15th hole and the 16th tee.
- #101 Located on the River Course between Kiawah Island Parkway and Kiawah Island Club Drive.
- #102 This pond is located between Salthouse Lane, Kiawah Island Club Drive, and the River Course's 13th fairway.
- #103 This pond is located between Kiawah Island Club Drive, the River Course's 14th fairway, and 10th fairway.
- #104 This pond is located between The River Course's practice fairway, 11th fairway, and 1st hole.

Appendix 13 (continued)

Pond Locations

- #105 Located between the River Course's 1st fairway, Green Meadow Lane and Kiawah Island Club Drive.
- #106 This pond is located between the River Course's 2nd fairway and Green Meadow Lane.
- #107 This pond is located on the River Course between the Vanderhorst Gate and the east end of Green Meadow Lane.
- #108 This pond is located between Kiawah Island Parkway, Green Dolphin Way, and the River Course's 5th fairway.
- #109 This pond is located between Kiawah Island Parkway, Governor's Drive, and Green Dolphin Way.
- #110 This pond is located between Bass Pond parking and Airy Hall.
- #111 Located in the Preserve between Oyster Shell Road, Blue Heron Pond Road, and Governor's Drive.
- #112 This pond is located in the Preserve at the intersection of Oyster Shell Road and Blue Heron Pond Road (on both sides of bridge when crossing Blue Heron Pond Road).
- #113 This pond is located in the Preserve to the west of 9 Blue Heron Pond Road.
- #114 This pond is located in the Preserve between Blue Heron Pond Road and 10 and 12.
- #115 This pond is located in the Preserve on Blue Heron Pond Road and behind lots 17 and 19.
- #116 This pond is located in the Preserve between Blue Heron Pond Road and lots 21 and 23.
- #117 This pond is located in the Preserve between Blue Heron Pond Road and lots 25, 3, and 1.
- #118 This pond is located in the Preserve behind Blue Heron Road lots 102, 104, 106, and 108.
- #119 This pond is located in the Preserve behind Blue Heron Road lots 110, 112, 114, and 116.
- KSG Natural area located at the end of Turtle Beach Lane.

Appendix 14
Pond Physical Data

Pond Number	Acreage	Max Depth (ft)	Avg. Depth (ft)	Volume (gal)	Shoreline (ft)
Totals	341.99			54,554,751.71	252,189.60
#001	3.36	10.00	5.06	740270	3862.0
#002	2.20	5.68	3.27	313182	2729.0
#003	2.17	6.45	3.27	308781	2415.0
#004	0.54	7.57	3.71	87258	815.7
#005	0.78	7.19	4.19	141971	1077.0
#006	0.41	5.59	2.98	52559	657.5
#007	0.48	7.40	3.65	76926	543.4
#008	1.18	6.10	3.26	167882	2378.0
#009	0.12	5.40	2.79	14403	307.3
#010	0.68	5.49	3.26	95874	992.8
#011	0.60	6.09	3.52	92600	922.7
#012	0.39	6.48	2.41	40914	880.3
#013	3.20	6.69	3.62	504329	2973.0
#014	0.17	4.40	2.42	17991	393.3
#015	0.25	5.99	3.07	33971	522.4
#016	0.60	5.90	3.28	85520	893.4
#017	2.13	7.09	4.16	385985	2016.0
#018	2.80	7.50	3.46	422725	3759.0
#019	0.45	7.48	3.23	63386	1249.0
#020	0.75	5.29	3.19	104501	1280.0
#021	0.32	7.09	4.15	58011	480.7
#022	0.38	5.90	2.16	36101	899.6
#023	2.19	6.10	3.15	288369	2900.0
#024	4.01	6.80	3.14	547965	5324.0
#025	3.21	7.20	3.50	490046	3408.0
#026	0.28	6.20	3.93	47826	441.8
#027	2.94	6.90	3.47	444062	3757.0
#028	0.42	4.19	2.48	44982	874.0
#029	2.64	7.50	2.65	305212	5274.0
#030	0.40	7.70	2.88	50188	972.8
#031	0.88	11.55	7.19	276680	790.1
#032	2.67	3.50	1.30	150947	2033.0
#033	0.71	5.90	3.12	95966	1062.0
#034	7.41	7.22	4.40	1420016	4628.0
#035	32.61	5.54	3.23	4583022	5631.0
#036	0.27				598.7
#037	2.02	7.59	4.01	352756	2466.0
#038	3.89	8.49	4.90	829821	3710.0
#039	3.99	6.90	4.39	762385	3928.0
#040	1.56	5.70	3.89	263372	1136.0

Appendix 14 (continued)
Pond Physical Data

Pond Number	Acreage	Max Depth (ft)	Avg. Depth (ft)	Volume (gal)	Shoreline (ft)
#041	7.41	8.30	5.04	1625410	6350.0
#042	1.17				936.7
#043	0.75	5.50	3.44	112889	1036.0
#044	0.75	7.30	4.53	148695	822.0
#045	0.71	6.70	2.93	90505	1065.0
#046	1.26	6.40	4.11	225538	1274.0
#047	1.86	8.39	4.21	341971	2176.0
#048	0.96				1029.0
#049	0.45	5.19	2.85	55896	750.8
#050	12.89	6.82	4.39	2462487	10270.0
#051	0.81	5.90	3.48	122866	925.3
#052	0.97	7.00	4.65	196419	812.6
#053	0.38	4.20	2.23	36983	604.7
#054	0.12	4.15	1.88	9714	269.9
#055	2.33	6.69	3.44	348603	2954.0
#056	0.77	7.09	4.52	151408	950.4
#057	1.66	7.59	5.71	413202	1311.0
#058	0.64	7.89	5.26	145590	698.0
#059	7.59	8.52	4.65	1533869	6879.0
#060	0.61	7.10	4.62	114865	840.7
#061	2.90	8.10	5.49	692743	1718.0
#063	1.79	6.40	4.57	355760	1801.0
#064	0.78	9.38	4.25	144035	984.2
#065	2.32	11.38	5.11	515164	2857.0
#067	2.26	7.20	5.52	543185	1557.0
#069	6.05				4408.0
#070	2.89	8.92	5.91	742700	2045.0
#071	2.71	7.50	5.44	641019	2598.0
#072	1.97	8.40	5.25	449645	1580.0
#073	16.37	13.63	6.39	4555155	7979.0
#074	24.49	11.92	5.40	5752144	13380.0
#075	22.26	10.67	5.64	5468426	8599.0
#076	9.70	7.00	4.66	1969634	7206.0
#077	8.32	8.83	2.30	833099	3842.0
#078	0.25	6.40	3.16	34396	426.6
#079	0.29	5.90	2.99	37531	517.9
#080	0.16	4.75	2.50	17662	425.1
#081	0.19	7.39	3.16	26345	441.8

Appendix 14 (continued)
Pond Physical Data

Pond Number	Acreage	Max Depth (ft)	Avg. Depth (ft)	Volume (gal)	Shoreline (ft)
#082	0.20	4.40	2.42	20912	404.4
#083	0.13	5.20	2.55	14375	294.2
#084	0.13	5.68	2.39	13136	320.6
#085	0.10	4.40	1.84	8226	273.1
#086	0.18	6.89	3.52	26960	342.7
#087	0.09	4.84	2.75	11006	265.2
#088	0.23	5.00	3.06	30766	433.1
#089	0.22	5.28	3.17	29837	463.3
#090	0.34	5.30	3.38	49348	479.0
#091	0.37	6.20	3.95	63243	542.5
#092	1.91	7.29	4.69	386378	1909.0
#093	13.12				11290.0
#094	24.84				6840.0
#095	0.32	5.80	3.19	43732	593.3
#096	22.33				8506.0
#097	1.25	10.40	5.45	296569	1376.0
#098	0.84	8.60	3.38	124218	1791.0
#099	0.48	5.40	3.23	68089	720.3
#100	1.88	13.14	7.57	620291	1504.0
#101	5.75	14.09	6.34	1587358	5886.0
#102	0.83	16.38	6.15	220943	928.9
#103	3.71	13.14	5.85	944096	4139.0
#104	0.69	12.14	5.40	162991	831.5
#105	2.03	14.14	7.58	670491	1604.0
#106	1.73	14.14	5.99	451134	1722.0
#107	1.83	16.21	8.79	701109	1350.0
#108	0.97	10.15	5.32	223921	1062.0
#109	2.87	14.14	7.25	906040	2166.0
#110					
#111	0.42	6.39	3.26	59514	550.6
#112	1.96	6.90	3.66	311881	1849.0
#113	0.47	5.44	3.63	73483	723.0
#114	0.54	6.37	3.73	87861	921.5
#115	0.25	5.99	3.07	33971	522.4
#116	0.52	7.34	4.00	91097	745.5
#117	0.60	7.36	4.48	116117	764.3
#118	1.37	7.36	4.20	250751	1709.0
#119	0.68	9.65	4.72	140600	1065.0

Appendix 15
View Windows

<u>Window Name</u>	<u>Linear Feet</u>	<u>Window Name</u>	<u>Linear Feet</u>	<u>Window Name</u>	<u>Linear Feet</u>	<u>Window Name</u>	<u>Linear Feet</u>
VW001-01	114	VW029-01	173	VW064-01	511	VW092-01	47
VW002-01	74	VW029-02	428	VW065-01	61	VW093-01	278
VW002-02	26	VW029-03	75	VW065-02	42	VW094-01	468
VW003-01	65	VW030-01	39	VW065-03	75	VW095-01	67
VW004-01	813	VW032-01	506	VW065-04	378	VW095-02	20
VW006-01	109	VW032-02	85	VW067-01	68	VW097-01	50
VW007-01	76	VW032-03	57	VW070-01	180	VW098-01	100
VW008-01	110	VW032-04	33	VW070-02	30	VW099-01	163
VW008-02	16	VW032-05	8	VW071-01	42	VW101-01	62
VW009-01	202	VW032-06	10	VW071-02	175	VW103-02	34
VW011-01	34	VW032-07	12	VW072-01	94	VW111-01	28
VW012-01	81	VW033-01	565	VW073-01	183	VW111-02	37
VW012-02	27	VW034-01	779	VW073-02	282	VW111-03	119
VW013-01	53	VW035-01	689	VW074-01	228	VW112-01	96
VW014-01	462	VW038-01	39	VW074-02	279	VW112-02	422
VW014-01	30	VW038-02	81	VW074-03	74	VW112-03	287
VW015-01	147	VW038-03	201	VW075-01	95	VW112-04	269
VW015-01	106	VW039-01	66	VW075-02	51	VW113-01	136
VW016-01	26	VW039-02	116	VW076-01	216	VW113-02	240
VW016-02	246	VW041-01	47	VW076-02	97	VW116-01	60
VW017-01	72	VW041-02	131	VW077-01	216	VW116-02	54
VW018-01	434	VW043-01	375	VW077-02	428	VW116-03	23
VW018-02	219	VW043-02	357	VW078-01	148	VW117-01	58
VW019-01	93	VW043-03	29	VW079-01	278	VW117-02	38
VW019-02	50	VW045-01	73	VW080-01	99	VW117-03	11
VW020-01	63	VW049-01	22	VW081-01	236	<u>VW118-01</u>	<u>368</u>
VW020-02	275	VW050-01	55	VW082-01	130	Total	21373
VW020-03	32	VW050-02	59	VW083-01	83		
VW022-01	18	VW050-03	229	VW084-01	122		
VW023-01	114	VW050-04	69	VW085-01	86		
VW023-02	50	VW050-05	77	VW086-01	137		
VW023-03	30	VW051-01	181	VW087-01	114		
VW024-01	53	VW056-01	127	VW088-01	157		
VW024-02	165	VW059-01	618	VW089-01	254		
VW025-01	89	VW059-02	405	VW090-01	215		
VW026-01	57	VW061-01	115	VW091-01	84		
VW027-01	43	VW061-02	104	VW091-02	181		

Appendix 16
Pond Bank Maintenance Questions and Answers

Q: *Who is responsible for the maintenance of pond edges on Kiawah?*

A: There are 47 linear miles of lake banks on the Kiawah Island. Many of these edges are either owned or leased by the Kiawah Island Community Association. Exceptions include most golf course edges and some individual association member properties. The association permits members to carry out maintenance on these portions of association's property provided this maintenance is conducted in accordance with the Kiawah Island Land and Lakes Guidelines for Maintenance and Management. This means that written permission must be obtained from the association and the ARB before any work is carried out along this edge. Routine maintenance activities that have been previously approved by these two entities do not need approval for each occurrence but if changes other than routine trimming or pruning are desired, approval must be obtained. And because there is no definitive way, other than survey, to predetermine whether a particular lake edge has a section of association property in front of it or not, it is best to always check with the association's Lakes Management Department, (843) 768-2315, before conducting any work other than pre-approved routine maintenance. Work carried out in this area is similar to the adoption of maintenance of common property that occurs when individual members or regimes maintain the road rights-of-way in front of their homes or regimes.

Lake edges are best kept in a natural state that encourages the growth and establishment of aquatic plants and terrestrial grasses and minimizes larger woody vegetation. Trees and large shrubs should be kept 10-15 feet from the lake edge, wherever possible, so they will not shade out the shoreline grasses and plants. Ideally, these shoreline grasses and plants would be allowed to grow to form a buffer area at least 3 feet in width. A buffer area of this type is important in the stabilization of the bank as well as providing interception of water runoff from yards into the lakes.

The association's Lakes Management Department carries out its own bank maintenance on areas designated as "view windows." These are established views from leisure trails and roadways, looking across association common property into lakes.

All properties at Kiawah Island, including common properties, are subject to the Kiawah Island Land and Lakes Guidelines for Maintenance and Management, which specifies an unmowed buffer of three feet between the lawn and the lake, and also allow for the so-called view windows, which can include areas that can be mowed to the lake edge.

Q: *Who is responsible for the cost of repairing erosion?*

A: It is important to remember that most properties are not eroding. But, in those unusual instances where this could be occurring, the member who owns property adjacent to the common-property bank edge would pay for the cost of the erosion control measures the member may want to implement. As examples, 1) the golf courses have installed bulkheads and plantings as erosion control measures. They did this at their expense. 2) Some members have already conducted erosion repair on association common property adjacent to their property, and 3) in the case where there are no adjacent members' properties, the association is repairing areas of common-property bank edge. Proposed erosion control measures on property owned or leased by the association shall not be implemented until written approval is obtained from the association and from the ARB.

Appendix 16 (continued)
Pond Bank Maintenance Questions and Answers

Q: Who has the authority to work on the pond banks owned or leased by KICA?

A: With written approval from the association and the ARB, members and their contractors then have the authority to do the work, including routine maintenance on pond banks owned or leased by the association. The association Lakes Management staff is glad to meet with members and contractors who are interested in doing this work and provide the association's requirements and expectations. The Lakes Management Department continues to be in touch with the members after approval to help them and their contractors with questions they may have about the approval, the installation or their routine maintenance.

Q: Who is responsible to determine what should be done if pond banks erode?

A: The member of adjoining property should inform the association of potential erosion. The member would be responsible for determining what should be done. The proposed remediation measures must be submitted in writing to the association and the ARB for review and written approval. The association's Lake Management Department visits sites, provides information about potential resources, gives initial approval on behalf of the association, and turns the matter over to the ARB for their approval. The Department also provides post-completion inspections to verify work done.

Q: Who is responsible if banks erode and threaten private property?

A: Although the Association may monitor and maintain some lake edges, it does not do so to protect Members' properties, and the Association has no legal obligation to maintain them in a manner that prevents the natural forces of erosion. The member whose property adjoins the association's common-property bank edge that is eroding is responsible for erosion repairs and for following the procedures described earlier for implementing any repair or remediation, should he/she believe that this erosion is significant and could threaten his/her property.

Appendix 17
Water Quality Testing Procedures

Hydrolab Operation Procedures

Testing:

- Collect weekly water quality information from the established set of 16 ponds with easily accessible structures.
- Collect water quality information from the boat for all 116 ponds and lakes two times per year.
- Additional instances to collect water quality information include algae blooms and fish kills.
- Information may be collected from the pond/lake bank, from a bridge, dock, weir, or other such structure, or from a boat.

Hydrolab Setup:

- Hydrolab H2O multiprobe sonde and Surveyor 4a display unit are located in the Lakes Management department storage cabinet.
- Remove water cup protecting probes on the sonde and screw stirrer on to the sonde.
- Remove dummy plugs from the cables on the sonde and on the stirrer and plug the stirrer into the sonde.
- Attach connector cable from sonde to display unit.
- Place Hydrolab system in a secured bucket of water for transport.

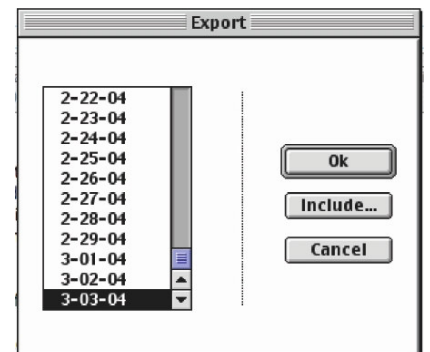
Collecting Water Quality Data at Site:

- Turn on display unit; water quality parameters are shown on the screen.
- Lower sonde into water to a depth of one foot.
- Allow readings to stabilize then record information on the water quality data collection form or save the information in the display unit (select: “Store”, followed by appropriate pond number, ex: #002, followed by “Select”; display will then return to showing parameters).
- For weekly monitoring, record stabilized readings at depths of one foot, three foot, six foot... record final reading at the bottom depth.
- For biannual testing, begin at a depth of one foot and record stabilized readings at one-foot intervals; record final reading at the bottom depth.

Appendix 18 Weather Download Procedure

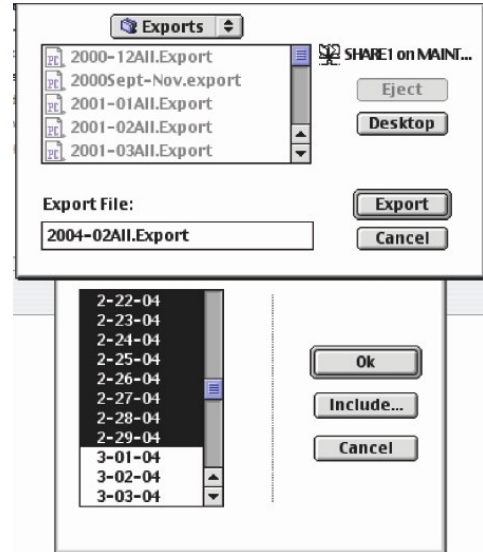
WeatherLink Data Download Procedure

1. From the weather station, plug the cable into the Keyspan adapter (from the middle desk drawer).
2. On the Mac G4, plug the Keyspan adapter into the USB port on the keyboard. Make sure you have already connected to the Lakes SNAP. If not, double click on the icon on the desktop.
3. From the Apple side menu, click on WeatherLink (towards bottom). This will start the OS 9 system software.
4. A dialog box will appear and from here navigate to the “Kiawah Island” WeatherLink station. The path is Desktop > Lakes SNAP > Technical Data > Weather Info > WeatherLink > Kiawah Island. Then, in the Kiawah Island folder, click on the Kiawah Island station icon and click Open. When you Open this last item, the dialog box disappears and you are now ready to download.
5. From the Menu Bar go to Commands and select Download.
6. A dialog box appears that says, “Please insert your data disk”. Click Ok.
7. Now another dialog box shows up. At the top, in Data Folder..., make sure that the “Kiawah Island” folder on “Share1 on SNAP191445” is the location selected. If not, navigate to it. When it is selected, click the “Download” button. You’ll see the download process progress with blocks being transferred.
8. Yet another dialog box pops up that asks “Write data to your data folder?”. Click “Yes”. And then another dialog box appears that asks, “Do you want to reset your archive?”. (If asked, “Skip writing duplicate records?” Click “Yes”) Click “Yes”. The data is then written to the SNAP drive. This can sometimes take several minutes. The download is now complete.
9. Next quit “WeatherLink”, unplug the weather station, and disconnect the Keyspan adapter.
10. From the Apple side menu, open WeatherLink Plot (it should be just below WeatherLink).
11. A dialog box appears, similar to in Step 4, which wants you to navigate to the Kiawah Island station on the SNAP drive. The path again should be Desktop > Lakes SNAP > Technical Data > Weather Info > WeatherLink > Kiawah Island. Navigate there and open the station in WeatherLink Plot.
12. From the Menu Bar go to File and then Export.
13. A dialog box appears for selection of the range of dates you want to export. Select the date range by highlighting the last date wanted, then, **while holding down the Shift key**, use the Up Arrow key to select the dates to the beginning of the month.
14. Click on the “Include” button and check all the buttons except the “Archive Interval”.



Appendix 18 (continued)
Weather Download Procedure

15. Click OK and a dialog box appears asking where to put the exported file. Navigate to and open the “Exports” folder (it should be just up one level in the WeatherLink folder). The Exports folder is on Desktop > Lakes SNAP > Technical Data > Weather Info > WeatherLink. Make sure that the “Exports” folder is selected and name the file to be exported in the format “yyyy-mmAll.Export”, (i.e. 2004-01All.Export). Once this is done click on the “Export” button.
16. Now quit WeatherLink Plot by going to File > Quit.
17. From the Apple side menu, open “Excel” and open the “yyyy-mmAll.Export” file you just exported. Use the File > Open command rather double-clicking on the file. This should take you to the “Text Import Wizard”. In the import process, you’ll be guided through several steps. In Steps 1 and 2 simply select “Next”. In Step 3 of the Text Import Wizard, make sure the Date is imported using the “Date MDY” radio button. The select “Finish”.
18. From the File menu choose Save As... and navigate to the correct year’s Weather folder. These are located on SNAP19455 > Share1 > Lakes Department > Technical Data > Weather Info. Save the file in the format “yyyy-mm.xls” as a Microsoft Excel 2001 workbook. Select “Save”.
19. Now open “200XWeather.xls” in the same “200X Weather” folder.
20. From the “monthly” file select the data, excluding the headers, copy it and paste it into the “200XWeather.xls” file by selecting the first cell after the last entry. Save the “200XWeather.xls” file.
21. In the Averages, copy the formulas from the previous month and paste them in current month. Change the cell ranges in the formulas to correspond with the new, pasted data. Make sure the cell formatting is correct and “Save”.



Appendix 19
Garmin GPS MapInfo Import Procedure

Downloading and Importing GPS Locations from Garmin to MapInfo

1. Plug in GPS to computer using PC Interface cable. (the one with the round end for Garmin and DB 15 for PC). Turn the GPS on.
2. Open MapSource and go the “Open from GPS” icon in the toolbar.
3. Click on this and an “Open from GPS” dialog box will appear. From here select the types of things you want to import. This will normally be Waypoints. Click OK. You will get another dialog box as you view the percent progress as the points are downloaded. If you encounter difficulties at this point, make sure on the Garmin is configured correctly for data transfer. Go to Main Menu > Setup > Interface and here set it to GARMIN and Host.
4. On the GPS unit hit Enter to acknowledge that data transfer is complete. You can turn the GPS off at this point.
5. Now in MapSource, from the File menu, select Export. A Save As dialog box appears. Choose your location and name and save as Text (Tab delimited) (*.txt).
6. You can now close MapSource and open Excel. Open the file you just saved in Excel. From “Files of type” at the bottom, be sure to select “All Files (*.*)”.
7. You now get the Text Import Wizard dialog box. Make sure that the Delimited radio button is selected and click Next.
8. Make sure the Tab *and* the Space boxes are checked and click Next.
9. From Step 3 change any of the fields necessary for you type of data using the radio buttons such Date format, etc. and skipping any unneeded columns. The second column with waypoint Name should be formatted as Text. Then click Finish.
10. Your file should open. At this point make a note of the Datum format from Row 2. This will be important when importing into MapInfo.
11. Now you will need to clean up the spreadsheet to import it into MapInfo. There should be no headers on the data and you should only have the minimum amount of information needed for your procedure. Columns including text like Waypoint, Symbol, Crtd can be deleted. Leaving only the waypoint name, latitude and longitude and possibly date and time.
12. Now you need to remove the N and W from the latitude and longitude. Select the latitude column, go to the Edit menu, and select Replace. In the Replace dialog box, replace “N3” with “3”. Then do the same with longitude and replace W8 with “-8”.
13. Now select both the latitude and longitude columns, go to the Format menu, and format the cells as a number with 5 decimal places.
14. Now save this as an Excel (.xls) file.

Appendix 20 **Basics of Lake Bottom Mapping**

The hardware used is a Model 455 depth sounder from Innerspace Technologies for depth readings and a Trimble Ag 132 GPS receiver for position readings. ITI Datalog was the software used to log the data on the computer in the boat. A Gateway laptop with a 233 MHz processor and 128 MB of RAM was used as the interface between the devices. The GIS software used in the office to process the data was MapInfo version 5.5 with an add-on program, Vertical Mapper 2.5 to process the 3-D images.

Once set up in the boat, the equipment draws quite a bit of power. Two 180 amp-hour, deep-cycle, gel batteries should be in the boat during mapping and there is still a need for 2 solar panels to be used to offset the power consumption.

The procedure for the mapping in the field was fairly straightforward.



1. Once the boat has been launched, the depth sounder and GPS are powered up first and then the computer. The recognition of these peripherals can be a problem if not powered up before the computer.
2. Then, the logging software, ITI Datalog is launched and a logging file is set up on the computer. Ensure that the computer is receiving the info from the equipment and start the survey. It is usually best to make a first pass that followed the outline of the edge and then, depending on the shape of the lake, roughly carry out transects. A definite pattern is not necessary but a fairly comprehensive coverage of the water body is required. Gaps between passes of more than about 50 feet tended to cause a problem. Once the survey is completed you simply exit the ITI Datalog program and that's it. Logging times averaged about 30 minutes per acre while out in the boat. Launching and retrieval times and travel times were not calculated. The maximum speed that we could achieve during the logging process without complications was 6 mph. Innerspace Technologies believes that more rapid speeds are possible, but that was not the case with our setup and the physical conditions of our water bodies.

Processing of the data is not quite as straightforward of a process.

1. Briefly stated, the data are imported into MapInfo from its stored location on the hard drive.
2. Once imported the data was saved in a MapInfo format. These data are points that represent the contours of the bottom of the pond. To this you needed to add the pond outline, which tells the program where the water surface is.
3. Once you've done this you can have Vertical Mapper interpolate the data and create the 3-D image. After this you can proof the data, because there will potentially be some bad data points. These will show up rather obviously as steep pyramids off the bottom. These points were excised from the file and then all you had to do is set your color preferences and you're done.

Appendix 21 MapInfo Editing Procedure

MapInfo Editing View Windows

1. Open MapInfo. Open the lakes workspace, **Lakes2002.wor** (opening this workspace opens the **Pond Edges** layer and **ViewWindows** layer).
2. Select **Pond Edges** from **Editing** on the bottom toolbar.
3. Using the arrow tool, click on the chosen pond to select it (pond will highlight).
4. From the top tool bar, choose the **Reshape**  button. This turns on the **Nodes**, points that define the pond edge.
5. Choose a node and click to highlight it.
6. Choose a node to stop on and while holding down the shift key, click on the node to highlight a short line. To highlight a long line, hold down the control key and click on the node. A segment of pond edge points is now highlighted.
7. Select **Copy**.
8. Return to **Editing** on the bottom toolbar and select **ViewWindows**.
9. Select **Paste**. The highlighted line segment will automatically paste at the correct pond location in the new layer being edited.
10. The segment needs to be given a style, color, and size.
11. Double click on the newly pasted segment. The **Polyline Object** box will appear. In this box, click **Style**. A new **Line Style** box appears in which the style, color, and size of the line can be designated. Choose features and click **O.K.** to close.
12. The **Polyline Object** box is again visible. From this box, remember/write down the total length of the line segment, do not include decimals. Click **O.K.** to close.
13. The new View Window line segment needs to be named. From the top tool bar, choose the **Info**  tool. Click once on the view window line segment. The **Info Tool** box will appear. The box will have a spot to fill for both **Window_Name** and **Linear_Feet**. The view window number is determined by starting at the most northern central point of the pond and numbering the view windows of the pond in a clockwise manner. Name the window in the format: **VWpond#-window#; example: VW002-01**
14. The length of window also needs entered in this information section. Enter the number remembered/written down from the **Polyline Object** box for the **Linear_Feet**.
15. Save, making sure to select only the ViewWindows table.

Appendix 22
Aquatic Herbicide Treatment

Lakes Department SOP for Herbicide Treatments

Objective: Use of herbicides in and around Kiawah lakes and ponds are part of an integrated vegetation management program, which also includes mechanical removal, pruning, and planting. Chemical control methods are applied to plant species that are either non-native or invasive native species. The objective of this approach is to promote desirable native species, encourage a diverse habitat while maintaining the Kiawah aesthetic.

50-gallon Herbicide Sprayer

- The 50-gallon sprayer is used when large areas of vegetation are to be treated.
- It can be mounted in the back of a truck or in a boat.
- Always carry copies of specimen labels and MSDS sheets for all chemicals in herbicide formulations.

Operating Procedures

1. Check oil level before using.
2. Fill with “straight” gas.
3. Attach spray hose to sprayer and nozzle to hose.
4. Make sure all hose valves are closed (vertical position) before starting.
5. Switch to ON position.
6. Turn on choke.
7. Pull cord to start and turn off choke at first sound of engine “turn-over” or after engine starts.
8. Be sure to start sprayer and keep running after mixing chemical formulation in the tank to keep it agitated.
9. To spray: be sure nozzle trigger is off and turn the 2 hose valve to the ON position (horizontal).
10. Clamp down pressure lever to get the desired force of spray. Do not over pressurize. Most spraying is done in the # 1-3 positions.
11. Use the throttle lever to increase engine RPM’s while spraying and throttle down when not spraying.
12. Clean spray tank after use. After the tank is empty of any herbicide formulations fill with about 15-20 gallon of clean water and spray it out through the nozzle.
13. Clean spray filter on pump after every use, if it is clogged it can burn up the pump.
14. Have engine oil changed annually and sprayer serviced at the beginning and end of the summer spray season.
15. Drain water from pump before winter storage.

Backpack Sprayer

- Backpack sprayer is used when treating a small amount of vegetation or when selectively treating plants that may be in close proximity.
- Always carry copies of specimen labels and MSDS sheets for all chemicals in herbicide formulations.

Operating Procedures

1. Fill only up to the #3 line because chemical can leak out vent hole onto applicator if over-filled.
2. After mixing formulation attach lid tightly before lifting unto back.
3. Use the pump lever to pressurize chemical to desired pressure.
4. Adjust nozzle for desired spray pattern.
5. Clean thoroughly after each use by rinsing empty tank with about 1-2 gallon of water and spraying some out nozzle to be sure it is functioning properly.
6. Take off and clean nozzle and screen after each use.

Appendix 22 (continued)
Aquatic Herbicide Treatment

Herbicide Formulations:

Large treatments of cattails with the 50-gallon herbicide sprayer at a 2% rate:

1. Mix 1 gallon of glyphosate (i.e. Rodeo, Aquaneat).
2. 1 quart of activator adjuvant (i.e. Cide Kick).
3. 2-4 ounces sinker or sticker adjuvant (i.e. Promate) to minimize spray drift and over-spray damage.
4. Fill with water to 50-gallon line.

Treatment of Chinese Tallow Trees with 3-gallon backpack sprayer at 20% rate when greater than 6" diameter:

1. Mix 2 quarts of Garlon 4.
2. Fill sprayer with horticultural oil (i.e. Impel Red or Basal seed oil) up to #3 line.

Treatment of Chinese Tallow Trees with 3-gallon backpack sprayer at 5% rate when less than 6" diameter:

1. Mix 18 ounces of Garlon 4.
2. Mix 1 ounce of penetrant (Cide Kick 2).
3. Fill sprayer with horticultural oil (i.e. Impel Red or Basal seed oil) up to 3-gallon line.

Treatment of Giant Reed (*Phragmites australis*):

Treatment of Floating Plants (i.e. duckweed):

1. Mix 1 quart of Diquat (i.e. Reward).
2. 1 pint Cide Kick 2.
3. 1 pint Promate Sinker.

Small selective treatments of cattails and other weeds (dog fennel, blackberries, etc.) using 3-gallon backpack sprayer at a 2% rate.

1. Mix 6 ounces of glyphosate (i.e. Rodeo, Aquaneat).
2. Add 2 ounces of adjuvant (Cide Kick).
3. Fill to #3 line with water.

Spray Procedures:

- Do not spray when it is windy or raining.
- Do not spray into the wind.
- Always follow product label instructions.
- Try to keep the spray treatment on targeted areas to minimize damage to non-target plants and turf.
- Wear proper personal protection as specified on chemical label (i.e. gloves, respirators, Tyvek suits, etc.).

Pond Kleen Application

- May be used when water temperature is above 50° F but optimum bacterial growth occurs between 60°-100° F.
- Application rate: 1 lb of Pond Kleen per 100,000 gallons of water, at monthly intervals (initial applications at double or triple the regular rate may be used to accelerate process).
- Apply Pond Kleen by either of two methods: 1) mix granules with water and pour into pond (3 lbs of material in 5 gallons of water); 2) hand broadcast material into pond, broadcasting out from the shoreline as far as possible.
- Pond volumes are located in "Pond_Info.fp5".

Appendix 23
Mosquito Larvicide Procedures

Mosquito Larvicide SOP

Storm Drain Treatment

- April-May: each street and parking area storm drain island-wide is treated with one appropriately shaped Altosid XR Extended Residual Briquette (active for 150 days).
- Altosid XR-“cork”: applied to storm drain curb inlets.
- Altosid XR-“ingot”: applied to storm drain grates.
- An application of Altosid 30-Day Briquettes to storm drains may be necessary during September-October dependent on rainfall and mosquito population numbers.
- Storm drains are treated by dispensing larvicide from the truck.
- Document larvicide application on the “Monthly Mosquito Larvicide Report” followed by entering the information into the FileMaker database- Mosquitoes.fp5.
- Always carry copies of specimen labels and MSDS sheets for all chemicals in larvicide formulations.

Standing Water Treatment

- Following periods of extensive rainfall during mosquito season, areas of standing water are located and the need for a larvicide application is determined.
- Locations of known areas of standing water are drawn on maps and can be found in the Larvicide Notebook; new locations of standing water areas are also to be drawn on the maps located in the notebook.
- Areas may be treated from truck or by walking to location and dispensing larvicide.
- As areas of standing water are treated with larvicide, the amount and date are written with grease pencil on the map in the Larvicide Notebook; larvicide application is also documented in the “Monthly Mosquito Larvicide Report” followed by entering the information into the FileMaker database- Mosquitoes.fp5.
- Standing water areas may be treated with Altosid 30-Day Briquettes, Agnique MMF, or Teknar.
- In large low lying areas, including the Preserve wetlands, Bass Creek/Little Otter wetland, Glossy Ibis wetland, and Marsh Island Drive wetland, aerial application of larvicide may be contracted.
- Always carry copies of specimen labels and MSDS sheets for all chemicals in larvicide formulations.

Types of Larvicide

- Altosid, Teknar, Agnique

Appendix 24
Mosquito Monitoring Procedures

Conducting “Landing Rate” Counts

- Typically begin in April/May and are conducted weekly during the mosquito season, typically ending in October/November.
- Lakes Management Department staff stands in a designated area in each of the currently established mosquito zones and count the number of mosquitoes that alight on the counter during a three-minute period.
- Landing rate numbers are recorded in the mosquito abatement notebook followed by entry into the FileMaker database, “Mosquitoes.fp5.”
- Mosquito numbers of 15 or greater indicate the need for adulticide application in a particular zone.
- Elevated island-wide counts may indicate the need for an aerial application of adulticide, which is coordinated with Charleston County Mosquito Control.

Appendix 25
Mosquito Adulticide Procedures

Adult Mosquito Control SOP

Fogger Operations

Before Starting:

1. Check oil.
2. Fill gas tanks in fogger and in truck.
3. Fill chemical tank.
4. In mosquito control notebook, record the date, chemical being applied, starting fogger engine hour (from meter), temperature, barometric pressure, humidity, and wind speed.

Starting:

1. Put earplugs in.
2. Go to rear of truck and turn fogger on.
3. Record engine hour start time.
4. Push choke lever to on position.
5. Engage the fogger ignition switch key until the fogger starts.
6. Adjust choke until it can be completely turned off. You can now enter the truck.

Preparing to spray:

1. Turn Monitor logger on. (It should be plugged in, but if not, do so).
2. Begin a “new trip” by selecting the ACT button and then 1: START NEW TRIP.
3. Enter the zone, operator, and product information in logger. (Note: 1 for new data, 2 to keep existing data).
4. Turn on Caution light and front and rear spot lights.
5. Set air vents to AC.
6. Ensure AC is set to recirculate inside the cab.
7. Check zones to be sprayed from Mosquito Abatement Notebook Monitoring Records.
8. Position the Control box comfortably and conveniently.
9. Set the sprayer to Auto using the top left button.

Spraying:

1. Begin spray route.
2. Turn on spray using Control box. (Note: Always turn off spray when going down a street with no outlet. Only spray on the way out on such streets to prevent driving through spray.)
3. The alarm will sound if your speed decreases to 6 MPH or exceeds 19 MPH. The fogger will stop spraying at speeds 5 MPH and below or 20 MPH and above.
4. Where you have to stop and turn around, you can set the sprayer to Manual by toggling the top left button of the Control box. Leave it on Manual until your speed is above 6 MPH and then switch back to Auto.
5. After spraying is complete, turn off fogger from Control box in cab. Do not “end the trip” on the Monitor logger though until returning to Maintenance. This gives a consistency of spray route distances.

Shut down:

1. When you have returned to Maintenance, go to “end trip” in the Monitor logger.
2. Unplug and remove the Monitor logger.
3. Turn off ignition key in fogger.
4. Record the engine hour meter reading.

Appendix 25 (continued)
Mosquito Adulticide Procedures

Downloading data:

1. Plug Monitor logger into a computer with the Tracker software installed.
2. Plug the power cord into the Monitor logger.
3. Launch the Tracker software and go to File > Import
4. A dialog box appears to name the file to import. Name this file the date of the spray run in the format yyyy-mm-dd, i.e. 2004-08-25 for a spray run on the morning of Aug 25, 2004.
5. Save this file as the default .mdf format in the folder Monitor Spray Records, which is located on the SNAP19455 > Share1 > Lakes Department > Mosquitoes > Monitor Spray Records.
6. An Uploading Data dialog box appears. DO NOT HIT "START" YET!!! The default settings should be fine here. The Port should be COM 1 and the Bytes Received should be blank.
7. On the top of the Monitor logger, move the GPS/REPORT switch to the "REPORT" position.
8. Press the ACT button and then select 3: REPORT / ERASE DATA
9. Then select 4: REPORT ALL. At this point a screen appears prompting you to "dump the data". DO NOT PRESS 1 TO DUMP THE DATA YET!!!
10. Go back to the Tracker software on the computer now and click "START".
11. Then on the Monitor logger press 1: DUMP @ 9600 BAUD.
12. You should see the number of bytes received on the Uploading Data dialog box. When the process is complete, you get a message on the Monitor logger to SWITCH TO GPS THEN SELECT ANY KEY. The download process is complete.
13. You should see the spray route on the Tracker map. Click on the "1" button on the right side of the window above the speedometer display. This should show you the spray information.
14. Once you have verified that the data is correct you need to purge the memory of the Monitor logger. , Select the ACT button again and again select 3: REPORT / ERASE DATA. This time though, select 7: ERASE ALL, then 1: YES. The data will be erased and when it is finished, the Monitor logger can be unplugged from power and the computer.
15. From the Tracker window, select the "1" button again if not already selected. This will bring up the spray data.
16. Open FileMaker Pro and open the Mosquito.fp5 file from the Lakes Databases folder. Go to the bottom where there is a button "Go to Adulticide Records" and click on it.
17. The Expanded Form should appear but if not, select it from the left corner pull-down menu. Here you can enter the spray data and weather data.
18. After entering the data the process is complete.

Attachment A
ARB Standards and Guidelines

July 12, 2004

Mr. Dave Achey
KICA - Land Management
20 Kestrel Court
Kiawah Island, SC 29455

Re: ARB landscape requirements
Case File # KICA

Dear Dave:

I apologize for not getting this to you earlier. I was out on vacation all last week and most of the week prior.

As we discussed a few weeks back, KICA and the ARB have a very good working relationship regarding landscape issues. The ARB standards and guidelines, *Designing with Nature*, are intended to serve as a control for all single-family residences on Kiawah Island. The guidelines are also intended to help control any other development or improvement practices on the Island, including KICA landscape maintenance. The following is a list of items that we discussed in our recent meeting and a majority of which are indicated directly in our guidelines.

- The removal of any tree or any understory growth without the notification of, and permission being granted by, the ARB is prohibited.
- Any tree removal that is required to develop a property or to provide improvements to a property may require planting of additional trees as mitigation at the Board's discretion.
- Pruning in sensitive areas, such as lagoon edges, marsh edges, maritime forest and beachfront areas is prohibited without the approval of the ARB. These areas contain some of the most sensitive vegetation on the Island and serve as valuable habitat for wildlife. In addition, KICA Lakes Management needs to grant permission for vegetation removals along lagoon edges.
- The ARB is aware of annual pruning efforts made by KICA and overall this pruning is approved as part of a necessary maintenance routine. The ARB still needs to be aware of the pruning efforts prior to commencement, as there might be sensitive areas that need to be observed to prevent opening up unwanted views of homes, roads, and buildings, etc. In the event that an area is over-pruned the ARB has the right to request for additional plant material to be installed to help replace lost vegetation and valuable screening.
- All major landscape improvements (including all hardscaping) must be approved by the ARB prior to installation. The ARB does not need to approve minor landscape changes. The regular replanting of annual color beds does not need to be approved, but the ARB encourages that they blend in with the natural surroundings and reduce the need for extended maintenance. The ARB will need to approve of any major landscape renovation that includes a large-scale plant palette change (trees and shrubs), grading, and irrigation. In addition, these changes will require a South Carolina licensed landscape architect to prepare and stamp the drawings.

Attachment A (continued)
ARB Standards and Guidelines

Page 2
July 12, 2004

The ARB approval of a landscape plan is conditional, pending a field review of the in-place installation. At that time, the ARB may require additional landscaping to provide for additional screening or for other concerns.

- The ARB encourages the use of native and drought tolerant vegetation to allow for proper adaptation and to help blend the material in with the natural surroundings.
- All oak trees of 6" or greater caliper must be preserved unless the ARB determines there is no reasonable solution that would save the tree(s). For every oak tree with a caliper of 6" or greater that is removed, the ARB will require that the tree be replanted for which the sum of the caliper is equal to or greater than the caliper of the tree removed. All mitigation trees must be a minimum of 3" caliper (dbh) and 10-12 feet in height. Palmetto trees count as a half tree when determining mitigation. In the event that a substantial tree dies of natural causes, the ARB will need to assess the type of mitigation on a case-by-case review. Generally, tree removal is only granted if the tree is diseased, damaged, or a direct threat to a home and recommended by a Certified Arborist. Not all scenarios of tree removal will require mitigation. The ARB shall take into consideration, among other things, the number and species of trees removed (pines vs. oaks), any hardship to the property owner (KICA), the remaining foliage, trees, shrubbery, and other plant species as may exist on a lot or be proposed in a landscape plan.

This is a fairly comprehensive list of items that the ARB requires of KICA. Much of this information is already a practice of your office. The ARB continually appreciates the close working relationship with KICA and is more than willing to discuss each of these issues in greater detail if needed. Please do not hesitate to contact our office with any questions or concerns.

Sincerely,

Rodney H. Porter
Landscape Coordinator
Kiawah Island, ARB

CC: Case file
ARB Members

Attachment B
Asset Infrastructure Tracking, SOP #76A

Attached at the end of the document for your reference.

Attachment C
IPM Guidelines

INTEGRATED PEST MANAGEMENT

Integrated pest management is actually a three-pronged approach to maintenance of a landscape. It is not limited to turfgrass, but also can be employed in the ornamental aspects of plantings.

The first aspect is a good knowledge of the physical environment being worked on. Information such as soil type, pH level and nutrient breakdown in the soil is a good start. These can be determined by a soil test. Once that is known, identifying what kind of support base and selection of plant materials that will do best with the soil profile is the next step. Finding the plants that do well in a particular set of criteria gives a head start to a healthy landscape. This aspect alone could save cost just in water usage and chemicals as well as labor. A healthy landscape will sustain itself better and require less outside manipulation.

The second part of the puzzle is good cultural practices. Items to be considered are mowing heights, fertilizer, water requirements and shade tolerance. Once it is determined what will do well with the soil, it is then time to determine what outside manipulations have to be done to keep the landscape in an optimal state of health.

The third phase is a proactive approach to pest management. It starts by developing an “economic threshold” which is basically how much damage is acceptable before an economical burden is incurred. This not only covers the economic aspects such as costs of the chemicals and plant replacement, but also the aesthetic value of a landscape. The next phase ties into phase 2, having a historical knowledge of the kinds of pests the landscape is susceptible to. Carrying the process one step further, know everything you can about your enemy. Be aware of life cycles, optimum temperature, and climactic conditions that favor growth of target pests. Once all of this information has been gathered, the fieldwork begins. This process is known as “scouting,” which involves going out and inspecting the area. With all of the information received, it will be known what to look for, when to look for it and what to do about it once you have exceeded the economical threshold.

Integrated pest management is not an alternative to chemical treatment. It is a method to determine when a chemical is used that returns the best economical benefit. However, biological controls should always be considered if they have a place in the management of the landscapes. Integrated pest management is not the easiest method to employ; it requires some “homework.” However, it has the potential to save time, money, and aggravation. It is also more environmentally friendly. This is extremely important where the environment plays a critical role in the overall product we are trying to maintain.

Attachment D Stewardship

Landscape Guidelines for Future Maintenance of KICA Properties

Goal: Preserve and enhance the Barrier Island environment of Kiawah Island. Insure the continuation of habitat for the islands wildlife.

- Use plants native to southeast coastal region in areas to be landscaped.
- Reduce any clearing of KICA properties.
- Work in conjunction with outside entities to secure funding for wildlife habitat restoration.
- Evaluate KICA properties for possible wildlife habitat installation (food plots, etc.)
- Reduction of non-native invasive species in landscaping.
- Keep usage of turfgrass in landscape to a minimum.
- Adopt a minimal pruning philosophy in areas that need to be kept clear (leisure trails, beach accesses, roadways).
- Continue the three for one replacement policy for removed trees.
- Provide educational programs on good “Stewardship” of the land.
- Utilize plant rescue program in planting designs where possible.

Native Areas:

Kiawah Island Community Association promotes the utilization of landscape sites to be maintained as native areas whenever possible. This extends to corridors so important for Kiawah Islands' wildlife populations to thrive.

The definition of a native area is:

1. Area where the native vegetation on the site is allowed to grow and mature.
2. Mulch is natural leaf litter that has fallen from local foliage.
3. Maintenance is held to a minimum.

*Native areas will be delineated by creating an edge that separates it from maintained areas.

*Grassy and broadleaf weeds should be controlled with herbicide at least once a quarter.

*Large debris should be picked up periodically (palm fronds, large limbs, etc.).

Attachment E
Native Plant Rescue

1. ARB sends copy of final house and landscape design approval letter to Land Management.
2. Land Management sends out permission letter to Member (see example) with return envelope.
3. Land Management enters Member's lot (with permission).
4. Only native plants are removed from property. The footprint of the foundation of the house is the only area where plants are removed.
5. Plants are then staged back at the maintenance facility or transplanted into KICA landscape.

Attachment E (continued)
Seek Permission Letter

(Date)

(Member's name)

(Street address)

(City, State, Zip Code)

Subject: Seek permission to enter (Kiawah Island address) to harvest native plant species.

Dear Mr. And Mrs. (Member's name):

I understand you may be beginning construction on your property on Kiawah soon and I would like to tell you about a project the Community Association started in 2003.

Our horticulturalists are seeking permission from members to save any valuable native plant species from their properties before the sites are cleared for development. The plants are transplanted into a holding area at Association property on Kestrel Court, and later used in the common area landscaping on the island. May we have your consent to enter your property and remove any plants that can be used? We are primarily interested in smaller shrubs, native grasses, and ground covers. We will only remove plants from the building's footprint. We will take care not to harm any of the other existing landscape. Should we remove any plants, I will contact you as to what is removed. I have enclosed a list of some of the plants we look to save.

If you have any further questions, please contact me at: (843) 768-2315. If you are interested in participating in this program, simply sign below and return in the enclosed envelope. I look forward to hearing from you.

Thank you for your consideration to save Kiawah's special plants.

Sincerely,

KIAWAH ISLAND COMMUNITY ASSOCIATION, INC.

David Achey
Director, Land Management

DA/dad

Enclosure: Plants List
 Return Envelope

Yes, you have my permission to come onto my Kiawah property and save any valuable native plant species by transplanting them to KICA common property.

Your signature and date

Attachment F
Landscape Mediation Procedure

Kiawah Island Community Association strives to provide a landscape that is acceptable and pleasing to our members. However, periodically Association members require further assistance in addressing questions or concerns about their landscape or properties. The procedure is as follows:

- A. Call KICA Member Services Representative (843) 768-9194 (toll free at: (866) 226-1770) or email at: KicaAdmin@kiawah-owners.org when concerns arise with Land and Lakes Management. The representative will contact Land and Lakes Management who will seek resolution of the problem with the Member.
- B. For further resolution, the Member can write or call the Land and Lakes Management Advisory Committee Chair person through the KICA Administrative office, 23 Beachwalker Drive, Kiawah Island, SC 29455 (843) 768-9194 (toll free at: (866) 226-1770) or email: KicaAdmin@kiawah-owners.org. The Administrative office will forward the information to the current LLMAC Chair person who will review the situation with the Committee.
- C. If satisfaction is not achieved with the Land and Lakes Advisory Committee, the Member's concerns can then be directed to the KICA Board of Directors via the Administrative office, 23 Beachwalker Drive, Kiawah Island, SC 29455 or email at: KicaAdmin@kiawah-owners.org.

*Other entities like the Town of Kiawah, ARB, or Regime managers may be asked to consult to help find satisfactory solutions.

Attachment G
Service Commitments

I. Service Commitment

We are committed to providing our clientele-members, guests, contractors & employees-with genuine caring and gracious service. We will create an unparalleled world-class community experience in a unique and natural setting that will position us as the premier community association in America.

A. Core Values

1. We are empowered to ensure complete member satisfaction.
2. Our Service Commitment is embraced and executed by each employee.
3. We will demonstrate genuine respect for one another—ladies and gentlemen serving ladies and gentlemen.
4. Communication at all levels is how we succeed.
5. Protection of our natural environment and the association's assets is the responsibility of each employee.
6. A clean, uncluttered, well-organized, and efficient workplace is the responsibility of every employee.
7. Each employee is an ambassador of the Kiawah Island Community Association.
8. All employees use the proper greetings, verbiage and phone etiquette at all times.
9. We anticipate member needs to create a seamless and personalized experience.
10. We maintain a professional appearance through proper and appropriate grooming standards.
11. We establish a positive teamwork environment and share resources with each other.

Attachment H Service Basics

Land Management

I. Empowerment

- Understand the difference between the red rules and the blue rules.

II. Communication Skills

- Demonstrate genuine caring and service for others.
- Be approachable and friendly.
- Seek first to understand, then to be understood. Listen carefully. Speak slowly. Ask questions.
- Keep the communication loop flowing. We are all one-service team.

III. Service

- Anticipate the customers' needs.
- Follow through on the service details like making eye contact, approaching the customer as he/she approaches you, providing a map or an escort.
- Keep your heart in your work. Develop a personal commitment to excellence.
- Keep maps of island in work trucks to help in giving directions.
- Keep department heads business cards in vehicles to give members, if needed.

IV. Differences

- Value individualism, creativity, and specialization since these make the whole better.
- Accept and respect differences.

V. Etiquette

- Use pleasantries like "please," "thank you," "my pleasure," and "you're welcome."
- Use the member's name. Introduce yourself.
- Answer the phone in one ring.
- Idle down equipment when people are approaching on foot or bike, move a safe distance away, they have the right-of-way.
- Turn equipment off when approached by a member with a question. Give them your full attention.
- When operating in traffic or on roadways:
 - Operated equipment as to not blow debris on vehicles or pedestrians.
 - Slow down and allow vehicles to pass (turn off blowers when debris may be blown on vehicles).
- When operating around golf course holes:
 - Reduce engine noise when within earshot of the group.
 - Allow players to complete shots before continuing to work.

VI. The Island

- Understand your connections to the island. The resort, regimes, guests, town, and wildlife are an integral part, just like you.
- Actively represent your association. Promote goodwill.
- Seek the best interests of the island. Be a good steward of the association's assets and a benefit to the island's habitat and animals.

VII. Personal

- Come to work with the well-groomed, neat appearance appropriate for your area.
- Respect each other. If you see a mess, clean it up. If you get it out, put it back. If you turn in on, turn it off. Pick up litter. This goes for your personal work area, the corporate work areas, and the island.
- Wear all issued uniforms to work.

Attachment I
Erosion Diagrams

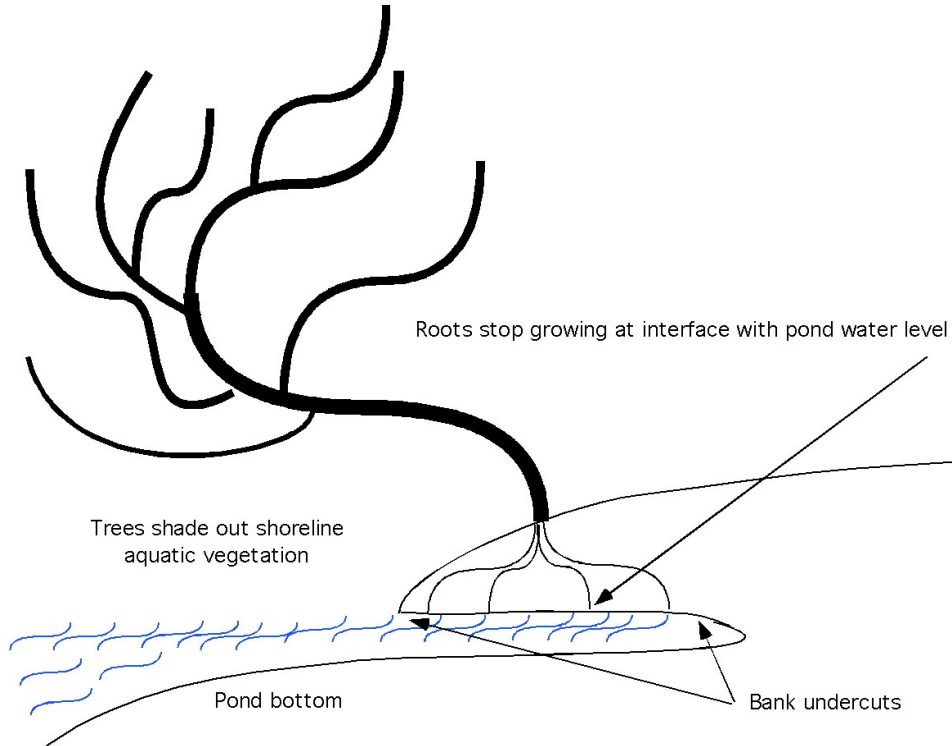


Figure 1. Erosion with woody vegetation

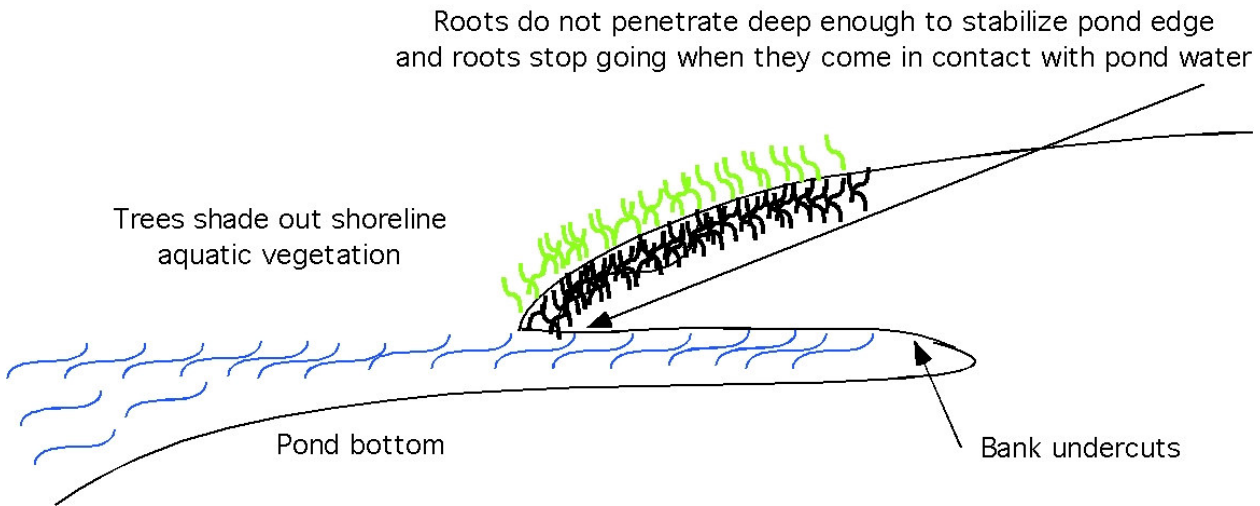


Figure 2. Erosion with turfgrass

Attachment I (continued)
Erosion Diagrams

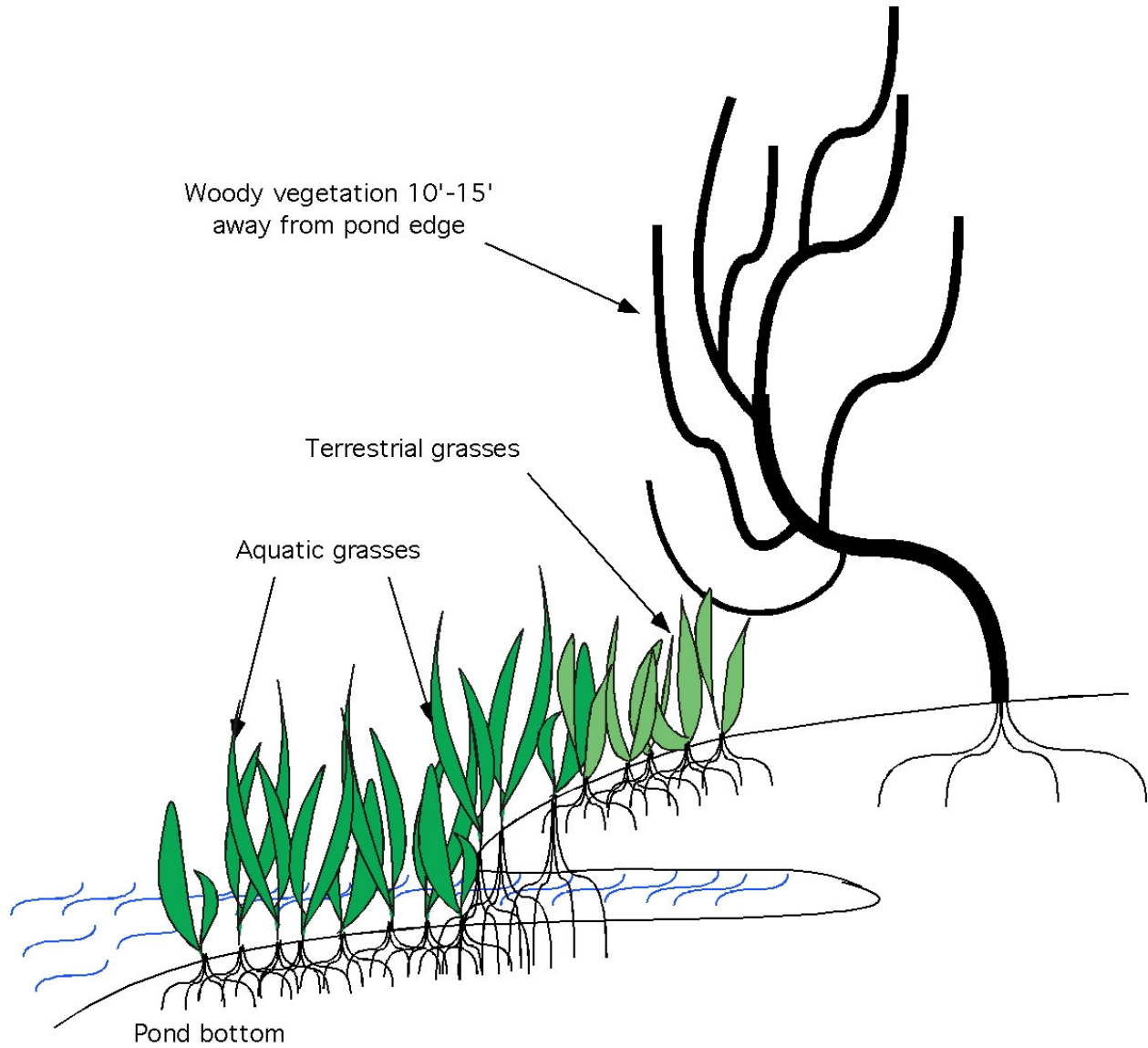


Figure 3. Aquatic vegetation and buffer

Definitions:

Cul-de-Sac: Small to medium sized area, at the ends of roads and side-streets that serve to direct traffic in a manner such that vehicles can turn around, without the need to stop. Areas are typically circular, but may take on asymmetric shapes, depending on individual roads and locations. Cul-de-sacs typically have concrete curbing, buffering them from the street and from the landscaping in the center. The landscaping most often consists of low maintenance trees, shrubs, and perennials. The area may/may not have irrigation and thus, may/may not have turfgrass. All of these areas are kept clean, clear of debris and weeds, and have landscape beds that are mulched/strawed.

Median: Areas of different sizes that divide two directions of traffic. Medians typically have curbing that separates the roadway and landscape, and also provides a barrier from vehicles, where traffic is not desired. The landscaping is typically low maintenance trees, shrubs, grasses, and perennials. Median areas may/may not have turf or irrigation. All median areas are kept clean, clear of debris and weeds, and have landscape beds that are mulched/strawed.

Residential Bed: Areas that serve as the entrance to all of the main side streets directly off of main thoroughfares. Typically, these areas will have a left and right side (inbound/outbound) that is landscaped with larger accent plantings or with more colorful plantings. There are Residential areas that do not have both a left and right side, due to the property already having landscaping, provided by a Property Owner. Most all of the Residential Beds contain irrigation and are kept clean, clear of debris and weeds, and are mulched/strawed.

Annual Bed: Landscaped bed space that contains annual flowers, colorful perennials, accent shrubs, and specimen plants. These areas are focal points throughout the landscape and serve to provide year-round interest and color. All annual beds contain irrigation and are kept clean, clear of debris and weeds, and are mulched/strawed.

Ornamental Bed: Term used to describe all of our landscaped bed spaces. Ornamental beds are the most basic of all spaces. These spaces may/may not have plants, but will always have mulch/straw. Most Ornamental beds will have low maintenance trees, shrubs, perennials, and grasses. Nearly all of these beds, with plants, will have irrigation. All will be kept clean and clear of debris and weeds.

Specialty Beds: Used to describe areas that are not along the main thoroughfares. These areas will consist of beds, along side of common areas between KICA and Regimes/Golf Courses/Resort properties. All areas are to be kept clean, clear of debris and weeds, and mulched/strawed. Specialty beds also describe smaller areas, like those at the Sandcastle, where intricate work and special attention to detail is required. Nearly all of the common areas are lacking irrigation, while those areas at the Sandcastle have irrigation.

MSDS: A Material Data Safety Sheet is an informational sheet that comes with each hazardous chemical used in our operation. KICA is required by law to make MSDS sheets readily available to staff.

Chemical Label: The label contains important information such as how to apply, store, and dispose of the chemical. The government requires that the label be placed on each container of the chemical.