Lemon Bay

WATERSHED MANAGEMENT PLAN

Sarasota County

Southwest Florida Water Management District

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Chapter 8

Project Analysis

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8.0 PROJECT ANALYSIS

8.1 INTRODUCTION

The purpose of this chapter is to integrate the project and program recommendations made in previous chapters of this report into a final set of prioritized recommendations that are consistent with and support the County's established levels of service and other goals. The recommendations cover four categories: flood control, water quality, natural systems, and water supply. This four-category grouping mirrors the State's Water Management Districts' four "Areas of Responsibility." Project recommendations include capital improvement projects as well as programmatic projects. The inclusion of proposed projects in this plan does not confer any special status, approval, permitting, standing, or funding from Southwest Florida Water Management District (SWFWMD). All proposed projects are subject to regulatory review and permitting. Requests for funding assistance will have to meet the requirements of funding programs and be subject to the District's Governing and Basin Boards appropriating funds.

Project prioritization typically includes an evaluation of costs, benefits, and other measures such as permitability. Comparing benefits that achieve distinctly disparate goals makes comparing projects over multiple areas of responsibility a challenge. For instance, how comparable are the benefits of a project that provides flood protection to two homes to those of a project that reduces total nitrogen loading by 500 pounds per year? In other management plans, qualitative scoring systems are often developed to overcome the difficulty of equating benefits between different project categories. For instance, projects may accumulate relative benefit scores on a fixed scale (e.g., 0 to 10) in multiple categories, with a weighted or unweighted total determining their overall relative benefit. Although this method is easier to implement and understand, it tends to compress the actual scale of benefits and make costs a greater determining factor in the recommendations.

The approach applied in this chapter uses a quantitative evaluation of benefits in combination with benefit values to provide a more equivalent comparison of costs and benefits for each recommended project. To implement this type of approach, it was necessary to use a common metric for benefits and remove two items from consideration. The two items that were removed from consideration are minor benefits and other subjective measurements such as permitability. An example of a minor benefit is a small reduction in flood stage (e.g., 0.1 foot) that is the result of an erosion-control project and that does not contribute to a change in the flood protection level of service. Although these types of benefits may have some level of importance, they are generally very small compared to major benefits. Subjective measurements, such as permitability, were not considered because these factors are already applied at the project evaluation stage within each chapter. For instance, an erosion-control project that would be difficult to permit because it would increase flood stages is very unlikely to be a recommended project.

8.2 MEASURES OF BENEFITS

Based on the discussion above, this analysis focuses on measures of major benefits for each recommendation. The metric that allows the best comparison of major benefits to costs across multiple areas of responsibility is dollars. Therefore, it was necessary to determine the major benefits to measure, how they would be measured, and the dollar value associated with each measure. The following measures of major benefits were determined the most significant and appropriate for this project:

- Natural Systems—Functional gain using Uniform Mitigation Assessment Methodology (UMAM).
- Water Quality—Pounds per year of total nitrogen reduction provided by the project. This measure could be changed or expanded to include other water quality measurements as TMDLs within the stream segments change.
- Water Supply—Total acre-feet per year of alternative water supply beneficially used/supplied by a project.
- Flood Control—Number of road segments and number of homes in which an improved flood protection level of service is provided by the project. Also, the total cubic yards of sedimentation removed at sediment sumps or erosion prevented by a project.

8.3 BENEFIT VALUE

The following total benefit value for the measures above were determined from published information concerning the dollar value per unit of benefit as follows:

- Natural Systems—The benefit value of wetland creation or preservation is $55,000 per credit for herbaceous wetlands and $80,000 per credit for forested wetlands based on costs of credits at nearby wetland mitigation banks.
- Water Quality—The benefit value of $3,700 per pound of total nitrogen removed per year is based on average nitrogen removal costs reported in Florida Department of Environmental Protection (FDEP) grant projects. In this case, the benefit may be thought of as the cost avoided by not having to implement another or different project.
- Water Supply—The benefit value for water supply is $815 per acre-foot of water per year based on a typical alternative water supply cost of $2.50 per 1,000 gallons in Sarasota County from the District's Regional Water Supply Plan.

- Flood Control—The value of benefits for flood control projects is based primarily on using the Sarasota County's Stormwater Environmental Utility's Cost-Effective Analysis for Stormwater Projects. Typical or average values were used for each category. Benefits for erosion prevention and sediment removal at sump locations are based on avoided removal costs along channel reaches. The flood control benefit values are as follows:

  - Improved home flooding level of service—$300,000 per home.
  - Improved evacuation route flooding level of service—$275,000 per segment.
  - Improved arterial route flooding level of service–$225,000 per segment.
  - Improved collector route flooding level of service—$125,000 per segment.
  - Improved neighborhood route flooding level of service—$45,000 per segment.
  - Erosion prevention and sediment removal—$10 per cubic yard, with sediment removal at sump locations being an annual occurrence and the total benefit being over the useful life of the project.

8.4 PROJECT BENEFITS

Project benefits were calculated for each of the recommended projects in the manner described above. Table 8-1 summarizes the benefits and costs. Costs include capital and operation and maintenance costs. The projects in Table 8-1 are sorted based on the benefit-to-cost ratio. The locations of the recommended capital improvement projects are shown in Figure 8-1.

Additionally the projects were evaluated for other criteria used by the County when determining project feasibility and prioritization. The evaluated criteria are:

- Public Property—The project was marked with a Y if it is located on public property and is marked with an N if it will require coordination with a private property owner or is located on private property.

- Intangibles—Some projects have benefits that are difficult to quantify but are important to the health of the watershed. Each project was marked with a Y in the related column if it was determined to improve or restore natural systems, restore historical hydrologic regime, or provide water quality benefits. An N indicates the project does not provide that intangible benefit.

A project sheet and opinion of probable cost for each recommended project are included at the end of this chapter. The project sheets summarize Site Evaluation, Project Elements, Project Benefits, Estimated Pollutant Removal or UMAM Credits, and Opinion of Probable Cost. More detailed information for each project can be found in the Chapters 3, 4, or 5 or Appendix C. The project name will indicate the reference chapter. The first two letters in the project name refer to the watershed (i.e., LB=Lemon Bay). The following letters indicate the area of responsibility benefited by the project and the associated chapter where the project was analyzed (i.e., NS=Natural Systems – Chapter 3, WQ=Water Quality – Chapter 4, WS=Water Supply – Chapter 5, S=Sediment – Appendix C). The numbers indicate the project number assigned during the analysis.

Table 8-1 Project Analysis

Project ID	Project Description	Flood Protection	Water Quality	Natural Systems		Water Supply								Owner	Intangibles		
		Cubic Yards of Erosion Prevention and Sediment Control	Annual Pounds of Total Nitrogen Removal	UMAM Credits of Herbaceous Wetlands	UMAM Credits of Forested Wetlands	Annual Acre-feet of Beneficially Used Water	Estimated Value of Major Benefits	Opinion of Probable Cost	Average Annual O&M Cost	BMP Lifespan	Present Value of O&M	Present Value of Costs	Benefits / Costs	Public Property	Improve/Restore Natural Systems	Restore Historic Hydrologic Regime	Provide Water Quality Benefits
LBWQ01	Alligator Creek Historic Stream Restoration	0	130	0.0	0.0	0	$ 481,000	$ 142,000	$ 100	25	$ 1,000	$ 143,000	$3.36	Y	Y	Y	Y
LBWS06	Heritage Christian Academy	0	113	0.0	0.0	30	$ 418,100	$ 342,000	$ 800	20	$ 9,000	$ 351,000	$1.19	N	N	Y	Y
LBWS26	Myakka Pines Golf Course	0	526	0.0	0.0	107	$ 1,946,200	$ 1,793,600	$ 2,000	20	$ 22,000	$ 1,815,600	$1.07	N	N	Y	Y
LBWQ16	Court St -Langsner ST	20	20	0.0	0.0	0	$ 75,400	$ 62,000	$ 1,000	40	$ 14,000	$ 76,000	$0.99	Y	Y	N	Y
LBWQ12	Cortes Dr	0	20	0.0	0.0	0	$ 74,000	$ 43,000	$ 2,500	40	$ 35,000	$ 78,000	$0.95	Y	N	N	Y
LBWQ04	Waterford Drive	0	125	0.0	0.0	0	$ 462,500	$ 468,000	$ 1,500	50	$ 22,000	$ 490,000	$0.94	Y	N	N	Y
LBWS27	Boca Royale Golf and CC	0	344	0.0	0.0	70	$ 1,272,800	$ 1,544,000	$ 2,000	20	$ 22,000	$ 1,566,000	$0.81	N	N	Y	Y
LBWQ15	Magnolia Ave	0	20	0.0	0.0	0	$ 74,000	$ 56,000	$ 2,500	40	$ 35,000	$ 91,000	$0.81	Y	N	N	Y
LBWS13	Englewood Sports Complex	0	299	0.0	0.0	92	$ 1,106,300	$ 1,657,000	$ 2,000	20	$ 22,000	$ 1,679,000	$0.66	Y	N	Y	Y
LBS16	Forked Creek @ US 41	250	100	0.0	0.0	0	$ 387,500	$ 577,000	$ 2,500	40	$ 35,000	$ 612,000	$0.63	Y	Y	N	Y
LBNS01	Englewood McCall Road Site	0	0	0.0	1.0	0	$ 80,000	$ 158,000	$ 3,000	50	$ 44,000	$ 202,000	$0.40	Y	Y	Y	N
LBWQ06	Overbrook Drive	0	35	0.0	0.0	0	$ 129,500	$ 334,000	$ 100	40	$ 1,000	$ 335,000	$0.39	Y	N	N	Y
LBNS02	Alligator Creek CA - Woodmere Park	0	0	0.0	3.8	0	$ 304,000	$ 284,000	$ 37,000	50	$ 547,000	$ 831,000	$0.37	Y	Y	N	N
LBWS23	South Venice Park	0	20	0.0	0.0	9	$ 74,000	$ 214,000	$ 800	20	$ 9,000	$ 223,000	$0.33	Y	N	Y	Y
LBS06	Woodmere Park Library	650	45	0.0	0.0	0	$ 212,000	$ 470,000	$ 13,000	25	$ 143,000	$ 613,000	$0.35	Y	Y	N	Y
LBNS05	South Venice Lemon Bay Preserve - North	0	0	1.0	0.0	0	$ 55,000	$ 182,000	$ 500	50	$ 7,000	$ 189,000	$0.29	Y	Y	Y	N
LBWS04	Elsie Quirk Library	0	15	0.0	0.0	5	$ 55,500	$ 212,000	$ 800	20	$ 9,000	$ 221,000	$0.25	Y	N	Y	Y
LBNS03	Englewood Sports Complex	0	0	0.9	0.0	0	$ 49,500	$ 118,000	$ 5,500	50	$ 81,000	$ 199,000	$0.25	Y	Y	N	N
LBNS04	South Venice Lemon Bay Preserve - South	0	0	0.3	0.0	0	$ 16,500	$ 95,000	$ 1,300	50	$ 19,000	$ 114,000	$0.14	Y	Y	N	N
LBS07	Venice Gardens WRF	2700	35	0.0	0.0	0	$ 318,500	$ 2,630,000	$ -	25	$ -	$ 2,630,000	$0.12	Y	Y	N	Y
LBS02	Siesta Drive South	1800	10	0.0	0.0	0	$ 163,000	$ 1,830,000	$ 10,000	25	$ 110,000	$ 1,940,000	$0.08	Y	Y	N	Y
LBS05	Briarwood Rd to Alligator Creek	3500	25	0.0	0.0	0	$ 337,500	$ 8,380,000	$ -	25	$ -	$ 8,380,000	$0.04	Y	Y	N	Y
LBS01	Siesta Ditch North	1200	30	0.0	0.0	0	$ 195,000	$ 6,410,000	$ 5,000	25	$ 55,000	$ 6,465,000	$0.03	Y	N	N	Y

* Zero values indicate a neglegible benefit

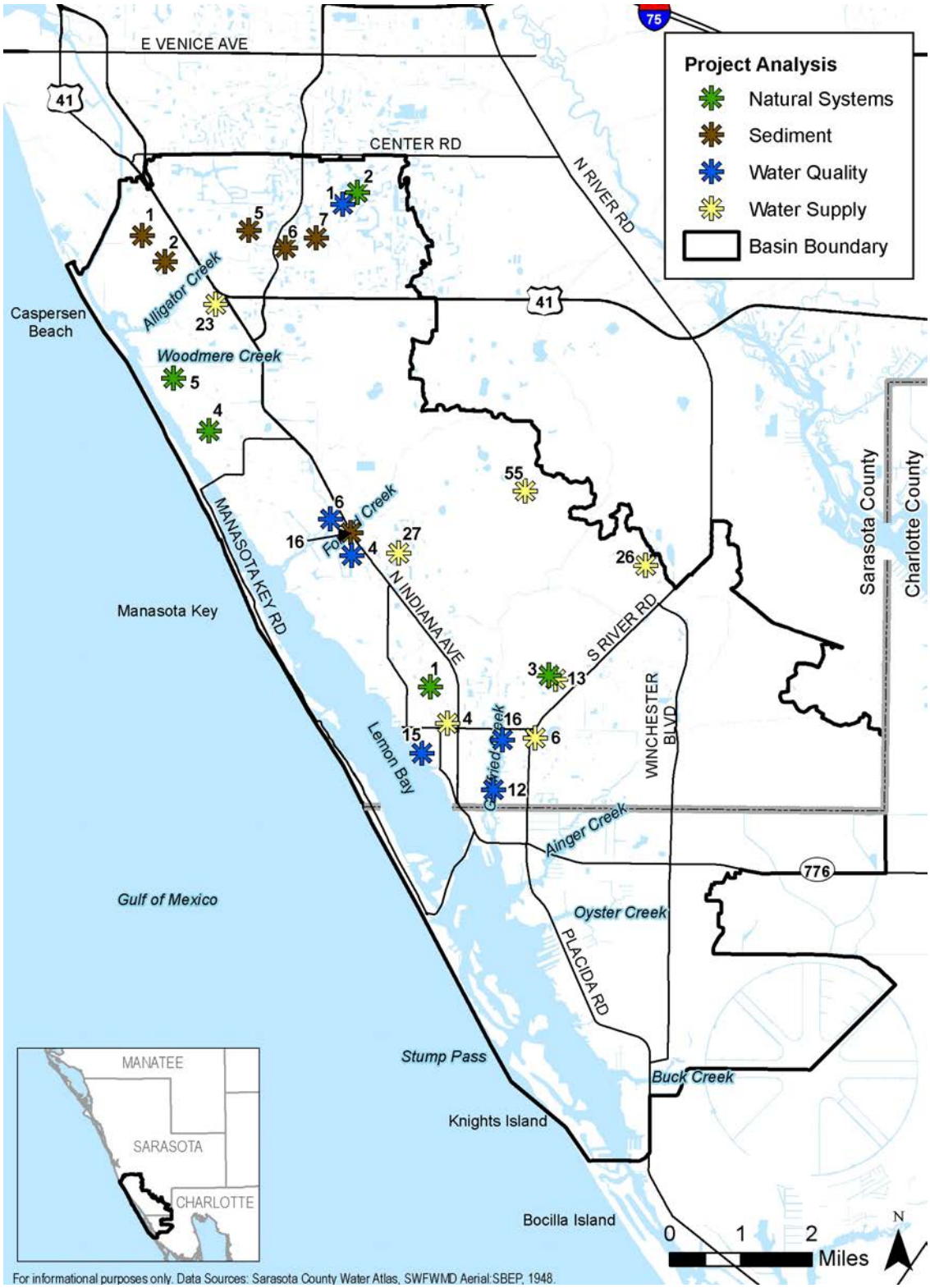


Figure 8-1 Location of Recommended Capital Improvement Projects

8.5 STATUS OF PROJECTS FROM PREVIOUS PLANS

Previous plans and studies were reviewed within the Lemon Bay WMP framework. Although not evaluated as part of the WMP, the projects are important to the County's goals of preserving, protecting, and restoring natural systems and water quality in Lemon Bay ecosystems; supporting a sustainable water supply; and providing flood protection.

Table 8-2 lists projects from these plans that are under contract for design or have been completed between the time of the previous plan and this WMP.

Table 8-3 lists projects previously recommended but not yet initiated; please see the specific plan for additional details. The projects were originally identified as having flood protection or water quality benefits, an analysis of the project descriptions identified additional benefits included in the projects, and these are listed in the Area of Responsibility column. Further design and analysis are necessary for these projects.

Table 8-2 Completed or In-Progress Basin Master Plan Projects

Basin Master Plan	Area of Responsibility	General Project Recommendation	Status
Alligator Creek Flood Protection Improvement Plan	Flood Protection	Scenic Drive- Outfall to Intracoastal Waterway.	Complete
Alligator Creek Flood Protection Improvement Plan	Flood Protection	Quail Lake/Venice East Boulevard Heron and Liesl Lake overflow.	Complete
Forked Creek BMP	Flood Protection	Construct drainage ditch along Manasota Beach Road and improve existing culverts.	Complete
Gottfried Creek BMP	Flood Protection	Remove existing culvert and improve existing ditch upstream of Viridian Street. (Englewood Lateral Improvement)	Complete
Gottfried Creek BMP	Flood Protection	Replace existing culvert across Elm Street . Eliminate culvert located about 50 ft east of Elm Street crossing. Restore ditch cross section. (Englewood Lateral Improvement)	Complete
Gottfried Creek BMP	Flood Protection	Coordinate with FDOT to replace culverts on the north SR 776 crossing downstream from the Viridian Street pond . Replace existing culverts across the Florida Power easement. (Englewood Lateral Improvement)	Complete
Gottfried Creek BMP	Flood Protection	Clear and snag existing ditch in the Artist Avenue area. Maintain existing culvert. (Englewood Lateral Improvement)	Complete
Gottfried Creek BMP	Flood Protection	Remove erosion deposits and provide erosion protection in creek channel. Regrade banks. (Englewood Lateral Improvement)	Complete
Gottfried Creek BMP	Flood Protection	Replace culverts across Florida Power easement with double 72 inch pipes. (Englewood Lateral Improvement)	Complete
Gottfried Creek BMP	Flood Protection	Maintain culvert across River Road. (South River Road Improvement)	Complete
Woodmere Creek BMP	Flood Protection	Hourglass Lakes and Circlewood Condos: Replace Florida Rd culverts	Complete
Woodmere Creek BMP	Flood Protection	Hourglass Lakes and Circlewood Condos: Replace Englewood Rd culverts.	Complete
Woodmere Creek BMP	Flood Protection	Hourglass Lakes and Circlewood Condos: Regrade channel from Englewood Rd to pond outfall and excavate lower pond banks for two ponds in Hourglass Lakes and Circlewood Condos	Complete
Ainger Creek BMP	Flood Protection	Obtain public access and drainage easements for the Englewood Farm Acres and Wellington Acres subdivisions to all routine maintenance	In Progress

Table 8-2 Completed or In-Progress Basin Master Plan Projects

Basin Master Plan	Area of Responsibility	General Project Recommendation	Status
Gottfried Creek BMP	Flood Protection	Elsie Quirk Library - Coconut Ave. Provide positive outfall for Coconut Ave pond with connection to SR 776	Under Contract for Design
Alligator Creek Flood Protection Improvement Plan	Flood Protection	Culverts under Banyan Drive and storage in ROW.	Under Contract for Design
Alligator Creek Flood Protection Improvement Plan	Flood Protection	Briarwood Area conveyance improvements.	Under Contract for Design
Forked Creek BMP	Flood Protection	Provide bank erosion control in secondary channel that runs along the south side of Almeda Isles subdivision.	Under Contract for Design
Gottfried Creek BMP	Water Quality	Regional water quality facility. Clear, snag, and remove existing spoil berms along the creek banks between the confluence of the main branch with the Englewood lateral and the Park Forest bridge. Place diversion structures to route flows through adjacent wetlands for water quality treatment. (Englewood Lateral Improvement)	Complete
Gottfried Creek BMP	Water Quality	Regional detention facility north of an existing Englewood lateral weir structure. (Englewood Lateral Improvement)	Complete
Gottfried Creek BMP	Water Quality	Englewood CRA / West Dearborn St. Low Impact Development Project	Under Contract for Design

Table 8-3 Basin Master Plan Projects

Basin Master Plan	Area of Responsibility	General Project Recommendation
Ainger Creek BMP	Flood Protection	Construct an overflow swale along the side of Englewood Hospital to tie into the improved outfall for Medical Center Blvd to address the flooding in Wellington Acres
Ainger Creek BMP	Flood Protection	Construct a swale along the north side and along the east side in Englewood Farm Acres to connect to the existing ditch network to the south
Ainger Creek BMP	Flood Protection	Re-establish the north-south drainage ditch along the North Port city limits to Ainger Creek Main
Ainger Creek BMP	Flood Protection/ Water Quality	Mitigate the future development impacts of Morris Industrial Park
Ainger Creek BMP	Flood Protection/ Water Quality	Mitigate the future development impacts of Interstate Industrial Park.
Ainger Creek BMP	Flood Protection	Manage floodplain functions adjacent to Ainger Creek Main by setting aside a preservation or conservation area
Ainger Creek BMP	Flood Protection/ Water Supply	Construct a regional stormwater facility
Forked Creek BMP	Flood Protection	Improve facilities to prevent localized flooding in the area around Franklin Street (various localized projects).
Forked Creek BMP	Flood Protection	Acquire easements and clear and snag existing channels from Manasota Beach Road to Overbrook Road.
Forked Creek BMP	Flood Protection	Install culverts at the inflow of the Overbrook Road pond. Add an additional culvert at the outflow.
Forked Creek BMP	Flood Protection	Clear and snag the creek channel downstream from wetland area.
Forked Creek BMP	Flood Protection	Clear and snag the creek channel immediately upstream from Dale Lake (SR 776 crossing).
Forked Creek BMP	Flood Protection	Clear and snag the channel downstream from the Keyway Road culvert. Remove spoil berms where feasible.
Forked Creek BMP	Flood Protection	Clear and snag channel. Provide erosion protection on the creek banks.
Forked Creek BMP	Flood Protection	Provide erosion protection of the creek channel along the Brook to Bay Trailer Ranch.
Forked Creek BMP	Flood Protection	Provide bank erosion control in main channel downstream from the Dale Lake outfall.
Gottfried Creek BMP	Flood Protection	Replace existing culvert. (South River Road Improvement)

Table 8-3 Basin Master Plan Projects

Basin Master Plan	Area of Responsibility	General Project Recommendation
Woodmere Creek BMP	Flood Protection	Olivia Rd Flooding: Replace Heron Rd culvert
Woodmere Creek BMP	Flood Protection	Olivia Rd Flooding: Replace Kent Rd culvert
Woodmere Creek BMP	Flood Protection	Olivia Rd Flooding: Replace Pompano Rd culverts
Woodmere Creek BMP	Flood Protection	Japanese Gardens Mobile Home Park: Replace Heron Rd culvert
Woodmere Creek BMP	Flood Protection	Japanese Gardens Mobile Home Park: Replace Colonial Rd culvert
Woodmere Creek BMP	Flood Protection	Japanese Gardens Mobile Home Park: Replace Japanese Gardens culverts and provide storm sewer outfalls to channel with new endwalls
Woodmere Creek BMP	Flood Protection	Gulfview Estates: Replace Osceola Rd culvert and regrade upstream channel
Woodmere Creek BMP	Flood Protection	Gulfview Estates: Add new culvert at private road crossing and provide new headwalls
Woodmere Creek BMP	Flood Protection	Gulview Estates: Replace Englewood Rd culvert
Woodmere Creek BMP	Flood Protection	Gulview Estates: Replace Gulview Estates pond outfalls and replace pond interconnections
Ainger Creek BMP	Water Quality	Maintain good water quality
Ainger Creek BMP	Water Quality	Construct a regional stormwater facility to addrress potential future impacts caused by development
Forked Creek BMP	Water Quality	Construct a channel to connect the existing wetland systems
Forked Creek BMP	Water Quality	Improve channel and clear and snag the creek segment from Manasota Beach Road to existing driveway.
Forked Creek BMP	Water Quality	Acquire and improve existing wetland.
Forked Creek BMP	Water Quality	Clear and snag the channel adjacent to wetland area downstream.
Forked Creek BMP	Water Quality/ Flood Protection	Reconstruct channel upstream from SR 776 crossing. Provide for erosion control along the creek.
Forked Creek BMP	Water Quality/ Flood Protection	Improve channel in the Whispering Pines area by reshaping the creek banks. Stabilize creek banks in areas where existing structures are located.
Forked Creek BMP	Water Quality/ Water Supply/ Flood Protection	Implement a Regional Stormwater Management Facility (RSMF) in the Forked Creek basin with its outfall located approximately 1,300 ft north of Keyway Road crossing on the creek's eastern branch.
Gottfried Creek BMP	Water Quality/ Water Supply/ Flood Protection	Construct stormwater detention facility approximately 1,300 ft downstream from the existing WENG Radio culvert in the Ainger Creek basin. (South River Road Improvement)

8.6 PROGRAM RECOMMENDATIONS

Sustainability and conservation programs were discussed throughout the previous chapters. Several key programs were identified in the WMP; some have direct nutrient reduction impacts while others have less quantifiable impacts but are important to improving environmental quality throughout the County. Table 8-4 shows those programs with measurable nutrient reductions followed by a discussion of additional program recommendations.

The following criteria, methods, and assumptions were used to calculate the nutrient reduction for the measurable programs.

- LBP11—Stormwater Harvesting: Assume 80% harvesting efficiency of future residential land use. See Chapter 5 for more detailed information.

- LBP25—Aquatic Harvester: From removal rates calculated in Chapter 7, 9% of the total load. See Chapter 7 for more detailed information

- LBP20—Fertilizer Ordinance: Assume 5% reduction of nitrogen loading in commercial, residential, and golf course land uses in the watershed. See Chapter 7 for more detailed information

- LBP24—Buffer Zones: Assume a 50-ft to 100-ft buffer along the undeveloped property identified in the watershed with a removal efficiency between 65% and 85%. See Chapter 3 for more detailed information

- LBP18—Street Sweeping: From the 2009 NPDES Annual Report, 735 tons of sediment was removed from paved surfaces, of which 0.5% of the weight is nitrogen. See Chapter 7 for more detailed information

- LBP28—Public Outreach and Education: Assume 10% of residents see material and take action, which yields a 5% reduction in nitrogen loading. See Chapter 3 for more detailed information

- LBP10—Cisterns: Assume 10% of residential land use will participate in the rain water harvesting. See Chapter 5 for more detailed information

- LBP14—Septic pump out regulation: Calculated from Pollutant Loading Model data with an expected 5% reduction in failure rate. See Chapter 4 for more detailed information

- LBP03—School Programs: Assume on-site instructional programs will lead to implementation and will reduce nitrogen loading on ¼ of the campus by 2%.

Table 8-4 Program Analysis

		Flood Protection		Water Quality	Natural Systems		Water Supply							
Project ID	Project Description	County Flood Control Benefits	Cubic Yards of Erosion Prevention and Sediment Control	Annual Pounds of Total Nitrogen Removal	UMAM Credits of Herbaceous Wetlands	UMAM Credits of Forested Wetlands	Annual Acre-feet of Beneficially Used Water	Estimated Value of Major Benefits	Opinion of Probable Cost	Average Annual O&M Cost	BMP Lifespan	Present Value of O&M	Present Value of Costs	Benefits / Costs
LBP11	Encourage stormwater harvesting (water supply)	0	0	40000	0	0	0	$148,000,000	$0	$10,000	25 yr	$110,000	$110,000	$1,350
LBP25	Implement a aquatic harvester for stormwater maintenance	0	0	3000	0	0	0	$11,100,000	$5,900	$1,300	10 yr	$9,000	$15,000	$740
LBP20	Enforce fertilizer ordinance	0	0	3000	0	0	0	$11,100,000	$0	$5,000	10 yr	$36,000	$36,000	$310
LBP24	Implement buffer zones	0	0	3700	0	0	0	$13,690,000	$0	$5,000	25 yr	$55,000	$55,000	$250
LBP18	Update street sweeping	0	0	750	0	0	0	$2,775,000	$7,700	$4,900	10 yr	$35,000	$43,000	$60
LBP28	Public Outreach and Education	0	0	300	0	0	0	$1,110,000	$15,000	$5,000	10 yr	$36,000	$51,000	$20
LBP10	Participate in rainwater harvesting (cisterns)	0	0	300	0	0	0	$1,110,000	$0	$9,600	25 yr	$106,000	$106,000	$10
LBP14	Septic tank pump out regulation	0	0	40	0	0	0	$148,000	$0	$3,000	10 yr	$22,000	$22,000	$10
LBP03	Sarasota County Schools teacher training and campus environmental activities	0	0	4	0	0	0	$15,000	$0	$5,000	10 yr	$36,000	$36,000	$0

While the programs listed in Table 8-4 are measurable, not all programs have a quantitative value but are important to improving environmental quality throughout the County. The following discussions are recommendations for continuing, revising, and implementing programs to engage residents and help the County achieve its sustainability goals.

8.6.1 LBP01: Public Outreach and Education

Sarasota County has developed a program for Neighborhood Environmental Stewardship Teams (NEST). NEST is a voluntary association of county residents (neighbors, civic groups, student organizations and others) who want to better understand and improve the environmental conditions in the watershed. The public purpose is two-fold: to provide constructive and meaningful activities to help residents improve the environmental quality of the watershed and their neighborhoods and to develop an education of and advocacy for watershed improvement policies and management strategies. NEST's activities address issues such as water quality, natural system preservation, neighborhood drainage, landscaping, and other water-related issues. NEST activities may include water quality or biological monitoring, volunteer restoration, research, and planning input. NEST provides individual and community awareness of appropriate fertilizer usage, implementing buffer zones, incorporating Low Impact Development (LID) practices, and conservation awareness. Additionally public outreach includes developing web/email campaigns and educational materials.

8.6.2 LBP12: National Pollutant Discharge Elimination System (NPDES)

Sarasota County is a Municipal Separate Storm Sewer System (MS4) operator and holds a National Pollutant Discharge Elimination System (NPDES) permit (Number FLS000004) from the Florida Department of Environmental Protection (FDEP). To maintain the permit, the County has developed a stormwater management program that includes BMPs with measurable goals to effectively implement eight minimum control measures outlined in the 2006 Comprehensive Plan. See Chapter 7 for a detailed discussion of the NPDES program and MS4 permit. Field Services must continue to work with the rest of the County staff to meet the overall goals of the NPDES permit, which is to reduce or prevent impairment of the local waterbodies.

8.6.3 LBP15: Facilitating Agricultural Resource Management Systems

The Florida Department of Agriculture and Consumer Services and SWFWMD have developed the Facilitating Agricultural Resource Management Systems (FARMS) program. FARMS is an agricultural best management practices (BMP), cost-share reimbursement program and is intended to expedite implementation of production-scale agricultural BMPs that will help agriculturalists reduce groundwater use from the Upper Floridan aquifer, improve water quality, and restore and augment the area's water. See Chapter 5 for additional information. The program is specific to the Upper Myakka watershed but may be used as a template for agricultural BMPs throughout the County.

8.6.4 LBP16: Preservation Areas

Sarasota County incorporates natural resource protection requirements in its Land Development Regulations (LDRs). One of these requirements is a 30% open space requirement for developments that prioritize natural communities such as wetlands, mesic hammocks, and coastal hammocks. Additional requirements include 30-foot wetland buffers, 33% littoral shelf for stormwater treatment ponds, and a 50-foot buffer around all water courses (Section 3.1.4). Most of these preservation and littoral shelf areas are scattered throughout the County. Chapter 3 discusses the work completed in the WMP to digitize some of the preservation information, but complete digital files will help County staff keep an inventory of preservation areas in the County, make more informed decisions regarding developments adjacent to these protected areas, and identify additional areas for preservation where acquiring land may be most beneficial.

8.6.5 LBP32: Septic Replacement Program

Septic systems that are not properly installed or maintained can increase fecal coliform counts in Lemon Bay and its tributaries. The South County Wastewater Improvement Program (SCWIP) evaluated whether existing wastewater treatment practices affect water quality in the project area and recommended that Sarasota County provide central sewers for those sub-areas with average acreage sizes less than 0.5 acres. The SCWIP recommendation to replace septic systems in certain areas is based on their analysis of the design, construction, installation, utilization, operation, maintenance, and repair of septic tank systems. The SCWIP found that only 24% of all developed parcels have been permitted post-1983 and meet current code separation requirements. Fecal coliforms may pose a special health risk for infants, young children, and people with severely compromised immune systems (epa.gov). Septic systems that are not properly installed or maintained can increase fecal coliform counts in the bay and its tributaries. The continued replacement of septic systems reduces human health risk for exposure to fecal coliforms and may improve water quality; both are beneficial to the residents of Sarasota County and the environment. See Chapter 4 for additional information.

8.6.6 LBP35: Septic to Cistern

In June 2009 the County Health Department implemented a procedure for converting abandoned septic tanks into cisterns based on 64E-6.011 FAC. This conversion allows a single-family residence to convert an abandoned septic tank to a cistern by permit within 90 days of connecting the building plumbing to sanitary sewer. Local-scale harvesting would be more cost-effective and provide a beneficial use for the large number of septic tanks that are no longer needed because of the septic tank phase-out program in this watershed. Active public outreach and education could assist homeowners in the permitting and testing phases of the process. See Chapter 5 for additional discussion.

8.6.7 LBP19: Strategic Maintenance Manual

Stormwater maintenance has traditionally played an active role in maintaining the flood capacity of the stormwater system throughout the County. A more robust maintenance program incorporating the recommendations described below will play a larger role in improving the quality of the runoff reaching the estuaries and bays of Sarasota County. The following approach is intended to expand and enhance the stormwater maintenance process to include water quality in addition to flood protection as part of the focus:

- Implement the 1999 *Strategic Maintenance Plan*.
- Achieve the inspection and maintenance frequency required in the MS4 Permit.
- Update the *Strategic Maintenance Plan*.
- Adopt practices listed below when fiscally feasible.

Updating the *Strategic Maintenance Plan* and adopting several non-structural BMPs and source control practices may provide the best opportunities for increased awareness and implementation of maintenance improvements aimed at improving water quality. With the County's water quality goals in mind, the modifications, additions, or removal of maintenance practices detailed in Section 7.5 will help progress toward meeting those goals. A summary list of topics recommended in Section 7.5 is provided here.

- Inspection and Permit Compliance
  - NPDES Inspection
  - Asset Management
- FEMA Community Rating System
- Facility Maintenance and BMPs
  - Facilities: Scheduling
  - Facilities: Denuding Conveyance Features
  - Non-Structural BMPs: Buffer Zones
  - Non-Structural BMPs: Low-Impact-Development
  - Source Control: Street Sweeping
  - Source Control: Herbicides
  - Source Control: Fertilizer Management
  - Source Control: Harvesters

8.6.8 LBP08: Stormwater Manual

The Stormwater Manual describes the review process and standards for capital improvement projects and land development projects. The manual is designed to assist the applicant with the submittal process and is consistent with the most current (2001) LDRs. Many developers follow the formatting and use the manual as a reference. Adoption of the manual would provide a formal template for consistency.

8.6.9 LBP26: Composting Pilot Study

Composting for beneficial reuse of grass clipping and vegetation debris offers several benefits:

- Removing products before decay will reduce the potential for nitrogen and phosphorus to enter the waterways.
- Using compost material as a soil amendment on eroding banks will provide structure and moisture capacity to the soil matrix.

Maintenance staff and contracted vendors can bag grass clippings during the mowing specifically along waterways and transport the debris to a designated composting facility. The compost would then be worked into the soil by maintenance staff on stream banks that need to be stabilized or vegetated.

8.6.10 LBP31: Low Impact Development (LID)

LID is a stormwater management approach that uses a suite of hydrologic controls (structural and non-structural) distributed throughout the site and integrated as a treatment train (i.e., in series) to replicate the natural hydrologic function of the landscape. A County manual to assist in incorporating LID projects into new development and infrastructure retrofit projects is in development. Consistently implementing LID concepts, design, and practice will improve the overall effectiveness and efficiency of stormwater management relative to conventional systems, reducing runoff and improving water quality.

8.6.11 LBP17: Exotic Species Management Program

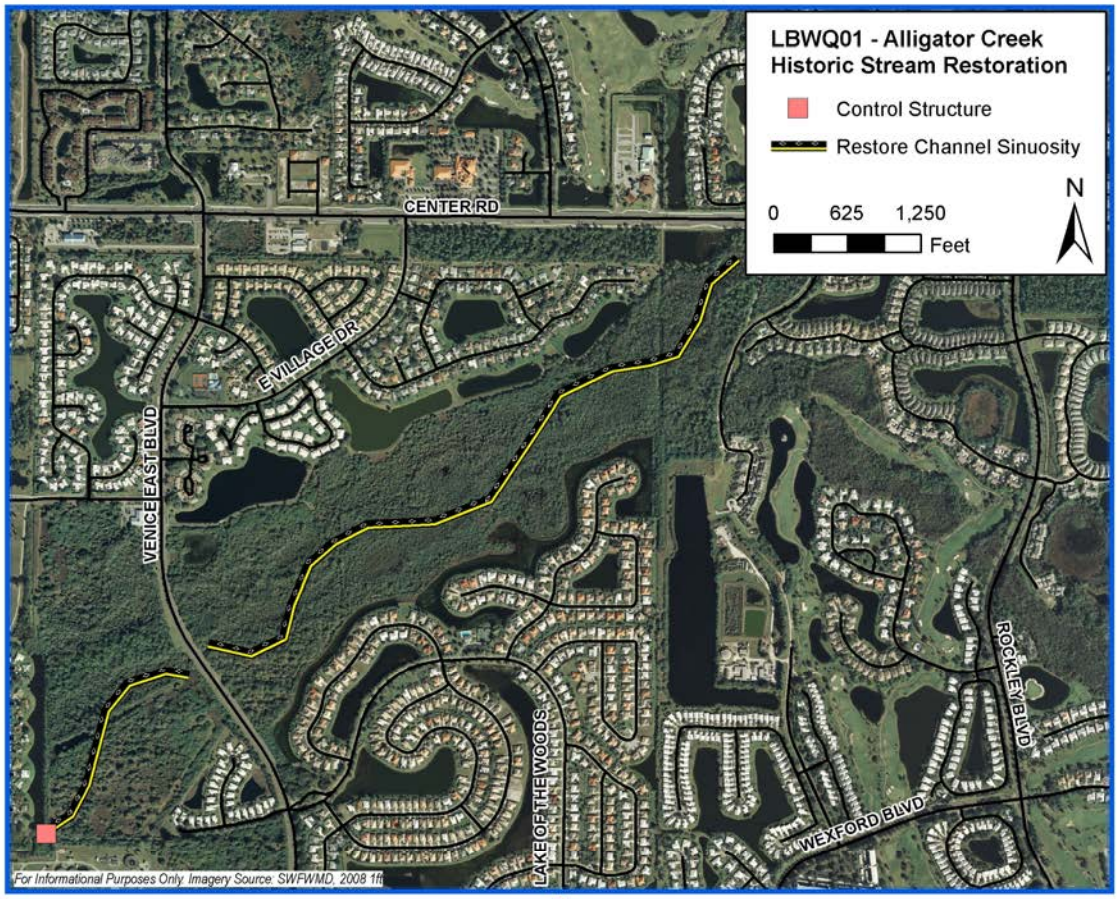
The tropical climate in Sarasota County provides an ideal setting for aquatic invasive/exotic plant species to flourish. The undesirable vegetation, if left unchecked, may out-compete native plant species, cause public health risks, and impede flood conveyance. Only 11 herbicides are approved for use in plant management in Florida waters. Education and training are essential to balancing the environmental risk associated with chemicals versus the potential degradation of an ecosystem where invasive plants prosper. The NEST program provides an opportunity to expand education for individuals and the community on the benefits of using native plant species in landscaping and identifying and removing nuisance species.

8.7 CONCEPTUAL LEVEL PROJECT SHEETS AND COST ESTIMATES

Sarasota County

Lemon Bay Watershed Management Plan
Water Quality Improvements

JONES EDMUNDS
Janicki Environmental, Inc.



Site Evaluation
Historical aerials show the flowpath of Alligator Creek previous to 1950 was more sinuous adjacent to Venice East Blvd. Restoring the historical flow regime will reduce velocities thus encouraging nutrient uptake and settling.

Proposed Project Elements
- Recreate the historical flowpath of Alligator Creek by installing strategic blocks to reroute water employing low-impact construction techniques involving minimal earthwork and clearing

Benefits
A sinuous channel will reduce flow velocities through the system thus providing a higher level of riparian treatment.

Pollutant Removal Estimate
TSS (lb/yr): 600 - 6900
TP (lb/yr): 0 - 5
TN (lb/yr): 50 - 210

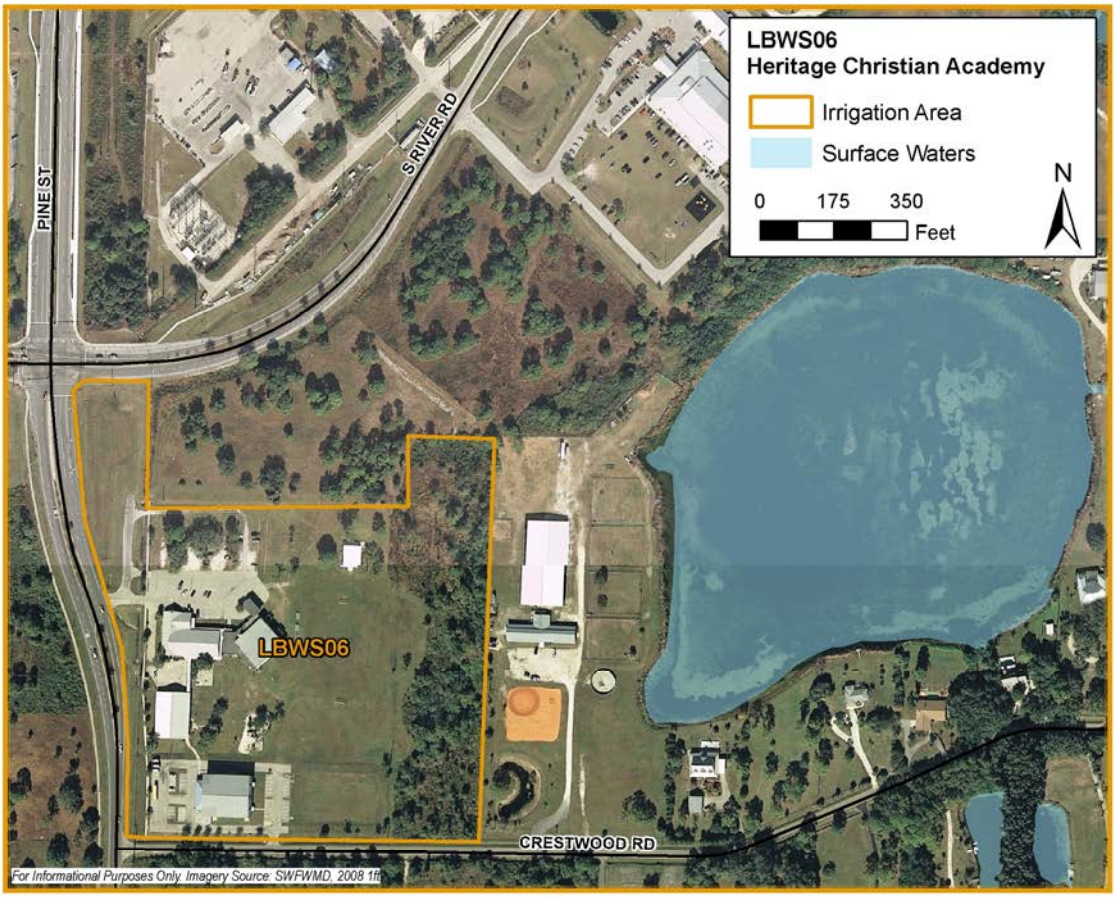
Opinion of Probable Cost
$142,000

PROJECT TITLE: **Lemon Bay Water Quality Improvements**				
LBWQ01: Alligator Creek Historic Stream Restoration		ESTIMATED BY: **JRM**		
JONES EDMUNDS PROJECT NUMBER: **19006-015-03 Task 4110**		CHECKED BY: **CAM** DATE: **8/21/2010**		
ESTIMATE TYPE: ROM		CONSTRUCTION OR PROJECT ESTIMATE:		
Conceptual Plan Cost Estimate		**PROJECT ESTIMATE**		
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 2,475.00	$ 2,475
Control Structure	EA	1	$ 60,000.00	$ 60,000
Wet Excavation	CY	1500	$ 15.00	$ 22,500
Materials Subtotal				**$ 82,500**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 8,250
Subtotal				$ 90,750
CONTINGENCY		20%		$ 18,150
Construction Subtotal				**$ 108,900**
Survey				$ 4,050
Geotechnical Investigation				$ 4,050
Design and Permitting				$ 25,000
Engineering Services Subtotal				**$ 33,100**
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 142,000**
General Maintenance	LS	1	$100	$100
MAINTENANCE (First Yr Annual Cost)				**$100**

Sarasota County

Lemon Bay Watershed Management Plan
Water Supply

JONES EDMUNDS
Janicki Environmental, Inc.
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



Site Evaluation

This project involves converting the existing wet detention pond east of the academy into a stormwater harvesting pond to supply irrigation water for the academy. The contributing area is 18 acres.

Proposed Project Elements

- Install an end suction pump, filtration system, irrigation screen and a backflow preventer
- Install piping

Benefits

Pollutant removal, water supply source, reduce freshwater peak flow to estuary

- Approximate Average Volume (ac-ft/yr): 30
- Pollutant Removal Estimate: TN (lb/yr): 113

Opinion of Probable Cost

$342,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: Lemon Bay Harvesting Revised Cost Estimate		
LBWS04: Elsie Quirk Library	ESTIMATED BY:	**JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY:	**BAC**
19006-016-03	DATE:	**8/22/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:	
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**	

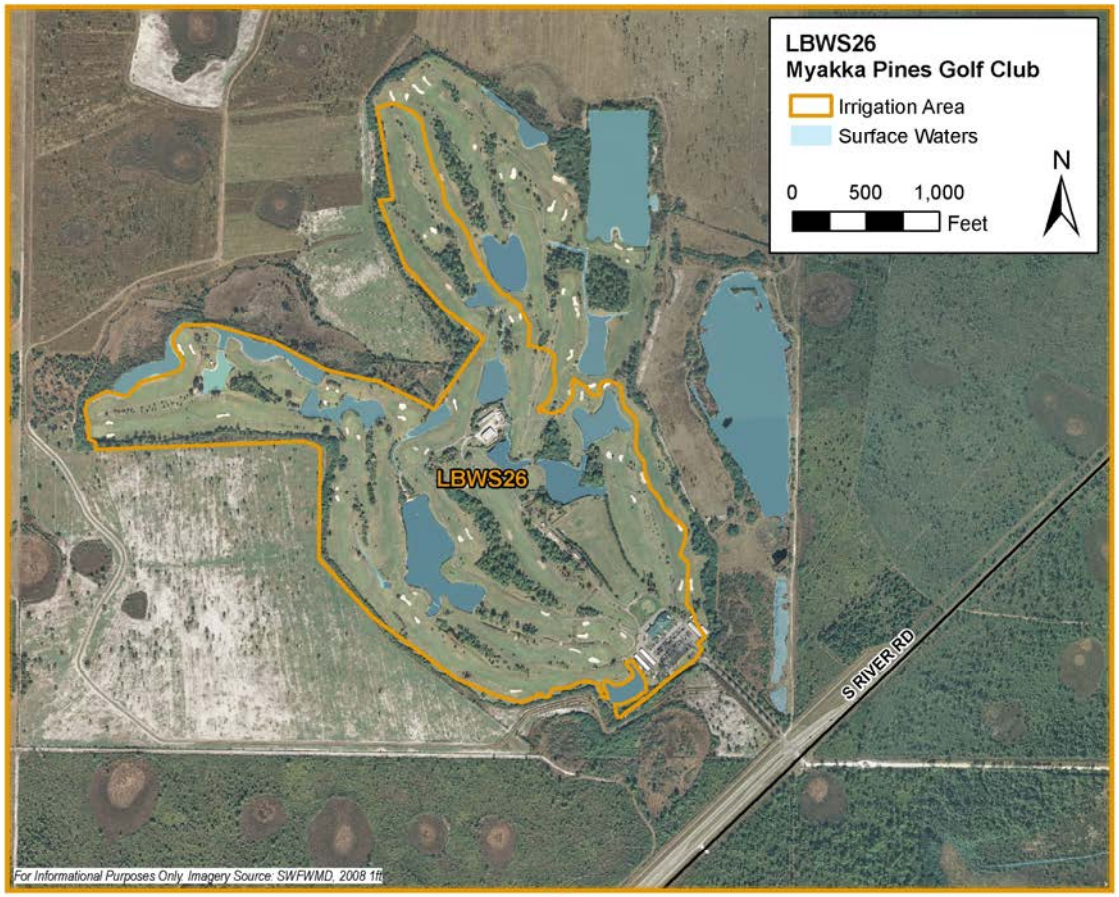
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 3,694.57	$ 3,695
Excavation	CY	500	$ 15.00	$ 7,500
Silt Fence	LF	2000	$ 2.00	$ 4,000
Turbidity Barrier Floating (Multiple Use)	LF	2000	$ 12.00	$ 24,000
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
End Suction Pump (250 gpm)	EA	1	$ 4,320.00	$ 4,320
Pipe (sch 40 PVC 2.5 inch)	LF	710	$ 2.44	$ 1,732
Irrigation Basket Screen	EA	1	$ 300.00	$ 300
Filtration System	EA	1	$ 14,400.00	$ 14,400
Backflow Preventer	EA	1	$ 6,000.00	$ 6,000
Pipe (sch 40 PVC 4 inch)	LF	1600	$ 36.00	$ 57,600
Subtotal				$ 127,000
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 12,700
Subtotal				$ 139,700
CONTINGENCY		20%		$ 27,940
Survey		5%		$ 6,985
Geotechnical Investigation		5%		$ 6,985
Design and Permitting		20%		$ 30,000
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 212,000**
Pump Maintenance	EA	1	$ 250.00	$ 250
Filter Maintenannce	EA	1	$ 500.00	$ 500
MAINTENANCE (First Yr Annual Cost)				**$ 800**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.
Note 2: It is assumed that minimal distribution additions are required.

Sarasota County

Lemon Bay Watershed Management Plan
Water Supply

JONES EDMUNDS
Janicki Environmental, Inc.



Site Evaluation

This project involves converting the existing wet detention ponds into stormwater harvesting ponds to supply irrigation water for the golf club. The contributing area is 143 acres within the Lemon Bay watershed. Additional golf club property exists outside of the Lemon Bay watershed.

Proposed Project Elements

- Install 3 end suction pumps, filtration systems, irrigation screens and backflow preventers
- Install piping

Benefits

Pollutant removal, water supply source, reduce freshwater peak flow to estuary

- Approximate Average Volume (ac-ft/yr): 107
- Pollutant Removal Estimate: TN (lb/yr): 526

Opinion of Probable Cost

$1,793,600

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: Lemon Bay Harvesting Revised Cost Estimate		
LBWS26	ESTIMATED BY:	**JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY:	**BAC**
19006-016-03	DATE:	**8/22/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:	
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**	

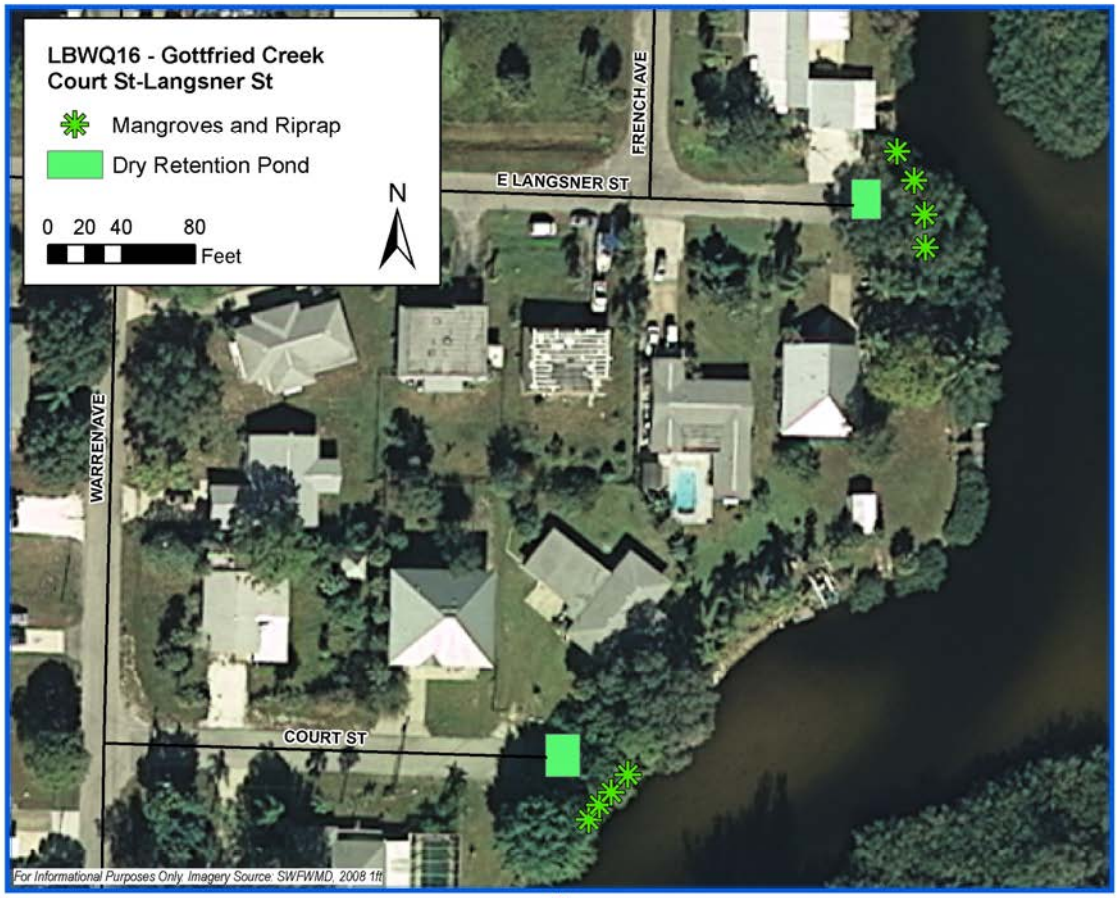
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 31,665.30	$ 31,665
Excavation	CY	10000	$ 15.00	$ 150,000
Silt Fence	LF	10000	$ 2.00	$ 20,000
Turbidity Barrier Floating (Multiple Use)	LF	10000	$ 12.00	$ 120,000
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
End Suction Pump (250 gpm)	EA	3	$ 4,320.00	$ 12,960
Pipe (sch 40 PVC 2.5 inch)	LF	15,500	$ 22.50	$ 348,750
Irrigation Basket Screen	EA	3	$ 300.00	$ 900
Filtration System	EA	3	$ 14,400.00	$ 43,200
Backflow Preventer	EA	3	$ 6,000.00	$ 18,000
Pipe (sch 40 PVC 4 inch)	LF	9400	$ 36.00	$ 338,400
Subtotal				$ 1,087,000
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 108,700
Subtotal				$ 1,195,700
CONTINGENCY		20%		$ 239,140
Survey		5%		$ 59,785
Geotechnical Investigation		5%		$ 59,785
Design and Permitting		20%		$ 239,140
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 1,793,600**
Pump Maintenance	EA	3	$ 250.00	$ 750
Filter Maintenannce	EA	3	$ 500.00	$ 1,500
MAINTENANCE (First Yr Annual Cost-ROUNDED)				**$ 2,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.
Note 2: It is assumed that minimal distribution additions are required.

Sarasota County

Lemon Bay Watershed Management Plan
Water Quality Improvements

JONES EDMUNDS
Janicki Environmental, Inc.



Site Evaluation

Court and Langsner Streets are roadways that end within 100 feet of Gottfried Creek. The roadways are in poor repair and have excess gravel and fine sediment accumulated on the surface. The roadways are sloped to direct stormwater runoff directly to the creek without any treatment.

Proposed Project Elements

- Add dry retention ponds at the end of the roadways to provide treatment
- Add mangroves and riprap to the shoreline to provide additional stability

Benefits

The small stormwater pond will capture roadway runoff and reduce pollutants from reaching the canal system. Mangroves will provide additional bank stabilization.

Pollutant Removal Estimate

TSS (lb/yr): 300 - 400
TP (lb/yr): 2 - 3
TN (lb/yr): 15 - 20

Sediment Abatement/Removal Estimate

- Stabilization (CY): 20

Opinion of Probable Cost

$62,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: **Lemon Bay Water Quality Improvements**				
LBWQ16: Gottfried Creek - Court St/Langsner St.		ESTIMATED BY: **JRM**		
JONES EDMUNDS PROJECT NUMBER:		CHECKED BY: **CAM**		
19006-016-03		DATE: **8/21/2010**		
ESTIMATE TYPE: ROM		CONSTRUCTION OR PROJECT ESTIMATE:		
Conceptual Plan Cost Estimate		**PROJECT ESTIMATE**		
		PROJECT ESTIMATE		
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 759.02	$ 759.02
Excavation	CY	160	$ 15.00	$ 2,400.00
Riprap	CY	40	$ 451.02	$ 18,040.80
Mangrove (seedlings)	EA	30	$ 10.00	$ 300.00
Silt Fence	LF	330	$ 2.00	$ 660.00
Turbidity Barrier Floating (Multiple Use)	LF	50	$ 12.00	$ 600
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Materials Subtotal				**$ 26,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 2,600
Subtotal				$ 28,600
CONTINGENCY		20%		$ 5,720
Construction Subtotal				**$ 34,320**
Survey				$ 1,300
Geotechnical Investigation				$ 1,300
Design and Permitting				$ 25,000
Engineering Services Subtotal				**$ 28,000**
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 62,000**
Sediment Removal	CY	20	$ 50.00	$ 1,000
MAINTENANCE (First Yr Annual Cost)				**$ 1,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Water Quality Improvements

JONES EDMUNDS
Janicki Environmental, Inc.

Site Evaluation

This site is located at the end of Cortes Drive off of South Oxford Drive. A drop inlet with a pipe discharging directly to the tidally-influenced creek is located between the end of the cul-de-sac and the mangroves. The roadway is in poor condition with accumulated sediment and gravel on the surface and along the edge of pavement. Much of the sediment on the roadway is crumbling roadway material.

Proposed Project Elements

- Add a dry retention pond at the end of the roadway to provide treatment to stormwater runoff
- Add bioretention swales to provide attenuation and treatment
- Replace damaged discharge structure

Benefits

The stormwater pond will capture roadway runoff and reduce pollutants from reaching the canal system.

Pollutant Removal Estimate

TSS (lb/yr): 300 - 500
TP (lb/yr): 0 - 5
TN (lb/yr): 15 - 25

Opinion of Probable Cost

$43,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

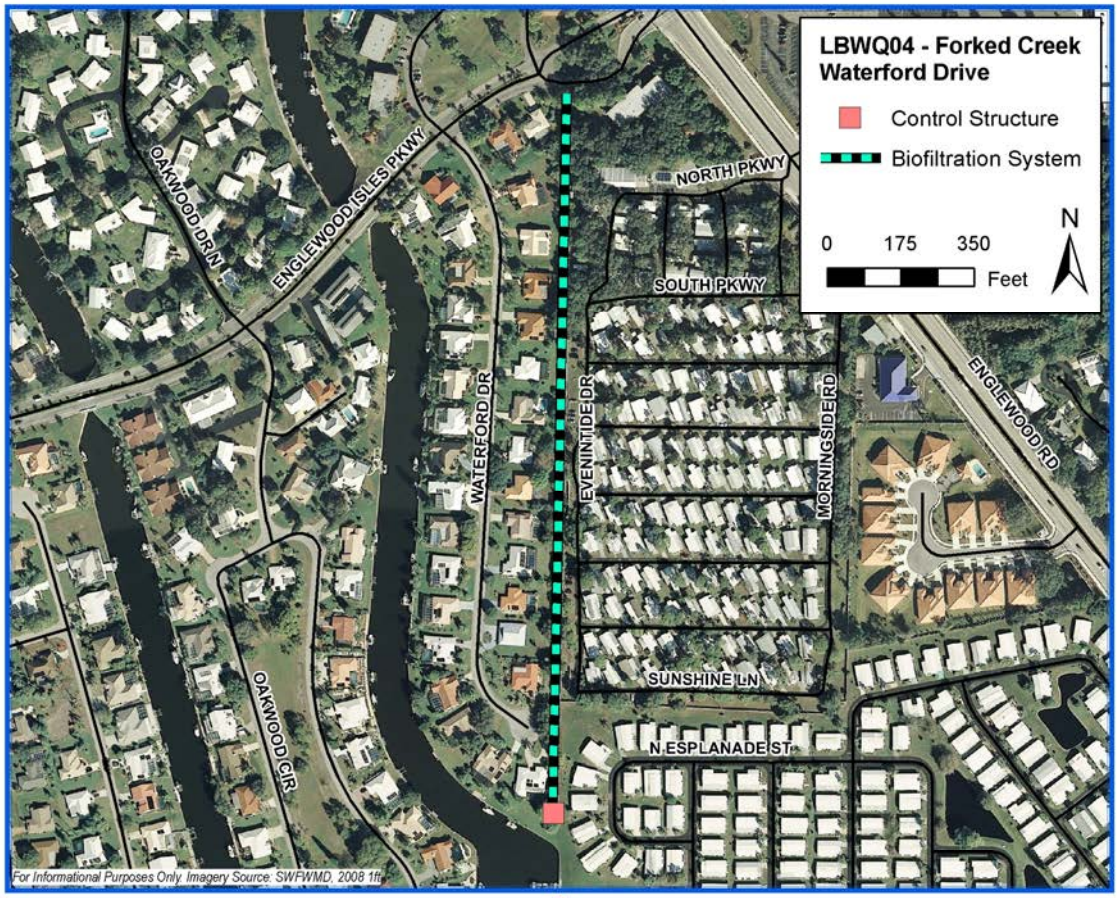
PROJECT TITLE: **Lemon Bay Water Quality Improvements**				
LBWQ12: Gottfried Creek - Cortes Dr.		ESTIMATED BY: **JRM**		
JONES EDMUNDS PROJECT NUMBER:		CHECKED BY: **CAM**		
19006-016-03		DATE: **8/21/2010**		
ESTIMATE TYPE: ROM		CONSTRUCTION OR PROJECT ESTIMATE:		
Conceptual Plan Cost Estimate		**PROJECT ESTIMATE**		
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 345.96	$ 345.96
Wet Excavation	CY	100	$ 50.00	$ 5,000.00
Dewatering (pond)	DAY	1	$ 780.00	$ 780.00
Grading	SF	400	$ 0.03	$ 12.00
24" RCP	LF	20	$ 59.00	$ 1,180.00
Silt Fence	LF	600	$ 2.00	$ 1,200.00
Turbidity Barrier Floating (Multiple Use)	LF	5	$ 12.00	$ 60.00
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300.00
Materials Subtotal				**$ 11,878**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 1,188
Subtotal				$ 13,066
CONTINGENCY		20%		$ 2,613
Construction Subtotal				**$ 15,679**
Survey				$ 1,200
Geotechnical Investigation				$ 1,200
Design and Permitting				$ 25,000
Engineering Services Subtotal				**$ 27,000**
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 43,000**
Clean out Bioretention	LF	1	$ 1,500.00	$ 1,500
SW Pond		1	$ 1,000.00	$ 1,000
MAINTENANCE (First Yr Annual Cost)				**$ 2,500**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Water Quality Improvements

Jones Edmunds
Janicki Environmental, Inc.
Southwest Florida Water Management District



Site Evaluation

A 1700 ft channel discharges to a Forked Creek tributary through a 15-inch culvert at this location. The channel segment carries runoff from approximately 30 acres of a medium-density residential area with the swale as the only water quality treatment BMP.

Proposed Project Elements

- Replace drainage swale with a biofiltration system
- Install a control structure at the outfall

Benefits

The benefits of biofiltration include decreased surface runoff, increased groundwater recharge, and increased pollutant removal.

Pollutant Removal Estimate

TSS (lb/yr): 2500 - 4100
TP (lb/yr): 0 - 0
TN (lb/yr): 100 - 150

Opinion of Probable Cost

$468,000

PROJECT TITLE: **Lemon Bay Water Quality Improvements**				
LBWQ04: Waterford Dr.		ESTIMATED BY: **JRM**		
JONES EDMUNDS PROJECT NUMBER:		CHECKED BY: **CAM**		
19006-015-03 Task 4110		DATE: **8/21/2010**		
ESTIMATE TYPE: ROM		CONSTRUCTION OR PROJECT ESTIMATE:		
Conceptual Plan Cost Estimate		**PROJECT ESTIMATE**		
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 8,408.67	$ 8,409
Grading	SF	12000	$ 0.03	$ 360
Control Structure	EA	1	$ 60,000.00	$ 60,000
Organic Mulch	SY	1850	$ 2.48	$ 4,588
Planting Soil Filter Bed	0	1850	$ -	$ -
Sand Filter Bed	CY	600	$ 35.91	$ 21,546
Filter Fabric	SY	1850	$ 1.42	$ 2,627
Gravel Media	CY	600	$ 90.00	$ 54,000
Perforated Underdrain Pipe	LF	1700	$ 47.04	$ 79,968
Excavation	CY	3100	$ 15.00	$ 46,500
Silt Fence	LF	3,400	$ 2.00	$ 6,800
Turbidity Barrier Floating (Multiple Use)	LF	50	$ 12.00	$ 600
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Materials Subtotal				**$ 289,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 28,900
Subtotal				$ 317,900
CONTINGENCY		20%		$ 63,580
Construction Subtotal				**$ 381,000**
Survey				$ 14,450
Geotechnical Investigation				$ 14,450
Design and Permitting				$ 57,800
Engineering Services Subtotal				**$ 87,000**
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 468,000**
Structure cleanout	CY	1	$ 30.00	$ 30
Clean out bioretention	EA	1	$ 1,500.00	$ 1,500
MAINTENANCE (First Yr Annual Cost)				**$ 1,530**

**Distance and Fuel Costs may cause this cost to change.

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Water Supply

JONES EDMUNDS
Janicki Environmental, Inc.

Site Evaluation

This project involves converting the existing wet detention ponds into stormwater harvesting ponds to supply irrigation water for the club. The contributing area is 94 acres.

Proposed Project Elements

- Install 2 end suction pumps, filtration systems, irrigation screens and backflow preventers
- Install piping

Benefits

Pollutant removal, water supply source, reduce freshwater peak flow to estuary

- Approximate Average Volume (ac-ft/yr): 70
- Pollutant Removal Estimate: TN (lb/yr): 344

Opinion of Probable Cost

$1,544,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: Lemon Bay Harvesting Revised Cost Estimate		
LBWS27: Boca Royale Golf and CC	ESTIMATED BY:	**JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY:	**BAC**
19006-016-03	DATE:	**8/22/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:	
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**	

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 27,259.20	$ 27,259
Excavation	CY	10000	$ 15.00	$ 150,000
Silt Fence	LF	12000	$ 2.00	$ 24,000
Turbidity Barrier Floating (Multiple Use)	LF	12000	$ 12.00	$ 144,000
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
End Suction Pump (250 gpm)	EA	2	$ 4,320.00	$ 8,640
Pipe (sch 40 PVC 2.5 inch)	LF	10,600	$ 22.50	$ 238,500
Irrigation Basket Screen	EA	2	$ 300.00	$ 600
Filtration System	EA	2	$ 14,400.00	$ 28,800
Backflow Preventer	EA	2	$ 6,000.00	$ 12,000
Pipe (sch 40 PVC 4 inch)	LF	8300	$ 36.00	$ 298,800
Subtotal				$ 936,000
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 93,600
Subtotal				$ 1,029,600
CONTINGENCY		20%		$ 205,920
Survey		5%		$ 51,480
Geotechnical Investigation		5%		$ 51,480
Design and Permitting		20%		$ 205,920
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 1,544,000**
Pump Maintenance	EA	2	$ 250.00	$ 500
Filter Maintenannce	EA	2	$ 500.00	$ 1,000
MAINTENANCE (First Yr Annual Cost)				**$ 2,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.
Note 2: It is assumed that minimal distribution additions are required.

Sarasota County

Lemon Bay Watershed Management Plan
Water Quality Improvements

JONES EDMUNDS
Janicki Environmental, Inc.

Site Evaluation

A large wetland, located to the east of Magnolia Avenue, provides some treatment for stormwater runoff.

Proposed Project Elements

- Treat limestone on West Palm Grove Avenue
- Construct a stromwater pond
- Create a bioswale on the east side of Magnolia Avenue for additional treatment of stormwater runoff

Benefits

The small stormwater pond will capture roadway runoff and reduce pollutants from reaching the canal system. Bioswales serve to remove sediment and nutrients in runoff by slowing overland flow.

Pollutant Removal Estimate

TSS (lb/yr): 200 - 600
TP (lb/yr): 0 - 5
TN (lb/yr): 15 - 25

Opinion of Probable Cost

$56,000

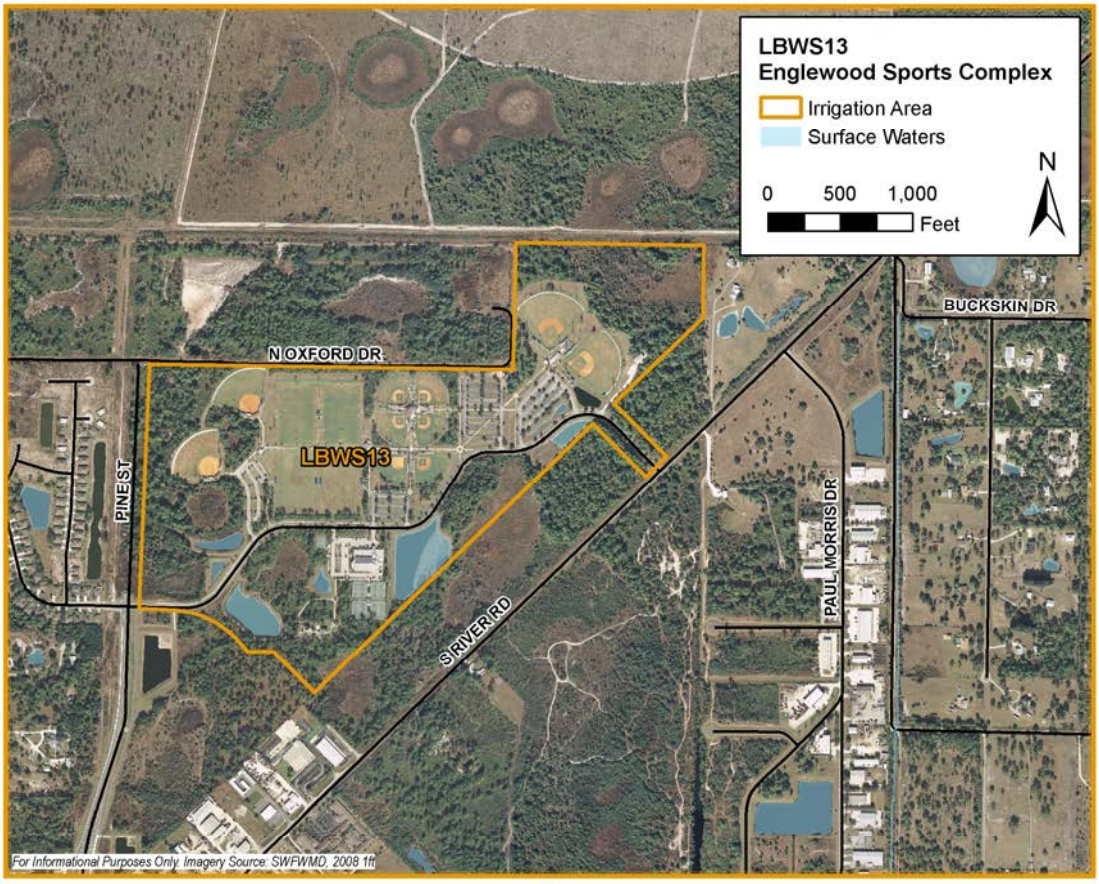
PROJECT TITLE: **Lemon Bay Water Quality Improvements**				
LBWQ15: Lemon Bay Coastal - Magnolia Avenue		ESTIMATED BY: **JRM**		
JONES EDMUNDS PROJECT NUMBER:		CHECKED BY: **CAM**		
19006-016-03		DATE: **8/21/2010**		
ESTIMATE TYPE: ROM		CONSTRUCTION OR PROJECT ESTIMATE:		
Conceptual Plan Cost Estimate		**PROJECT ESTIMATE**		
		PROJECT ESTIMATE		
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 642.48	$ 642
Treatment on Limestone Road	SF	4000	$ 1.08	$ 4,316
Excavation	CY	500	$ 15.00	$ 7,500
Silt Fence	LF	3000	$ 2.00	$ 6,000
Grading	SF	6000	$ 0.03	$ 180
Turbidity Barrier Floating (Multiple Use)	LF	10	$ 12.00	$ 120
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Subtotal				**$ 22,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 2,200
Subtotal				$ 24,200
CONTINGENCY		20%		$ 4,840
Construction Subtotal				**$ 29,040**
Survey				$ 1,200
Geotechnical Investigation				$ 1,200
Design and Permitting				$ 25,000
Engineering Services Subtotal				**$ 27,000**
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 56,000**
Sediment Removal	CY	20	$ 50.00	$ 1,000
Bioretention	EA	1	$ 1,500.00	$ 1,500
MAINTENANCE (First Yr Annual Cost)				**$ 2,500**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Water Supply

Jones Edmunds
Janicki Environmental, Inc.
Southwest Florida Water Management District



Site Evaluation

This project involves converting the existing wet detention ponds into stormwater harvesting ponds to supply irrigation water for the park. The contributing area is 137 acres.

Proposed Project Elements

- Install 3 end suction pumps, filtration systems, irrigation screens and backflow preventers
- Install piping

Benefits

Pollutant removal, water supply source, reduce freshwater peak flow to estuary

- Approximate Average Volume (ac-ft/yr): 92
- Pollutant Removal Estimate: TN (lb/yr): 299

Opinion of Probable Cost

$1,657,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: Lemon Bay Harvesting Revised Cost Estimate		
LBWS13: Englewood Sports Complex	ESTIMATED BY:	**JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY:	**BAC**
19006-016-03	DATE:	**8/22/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:	
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**	

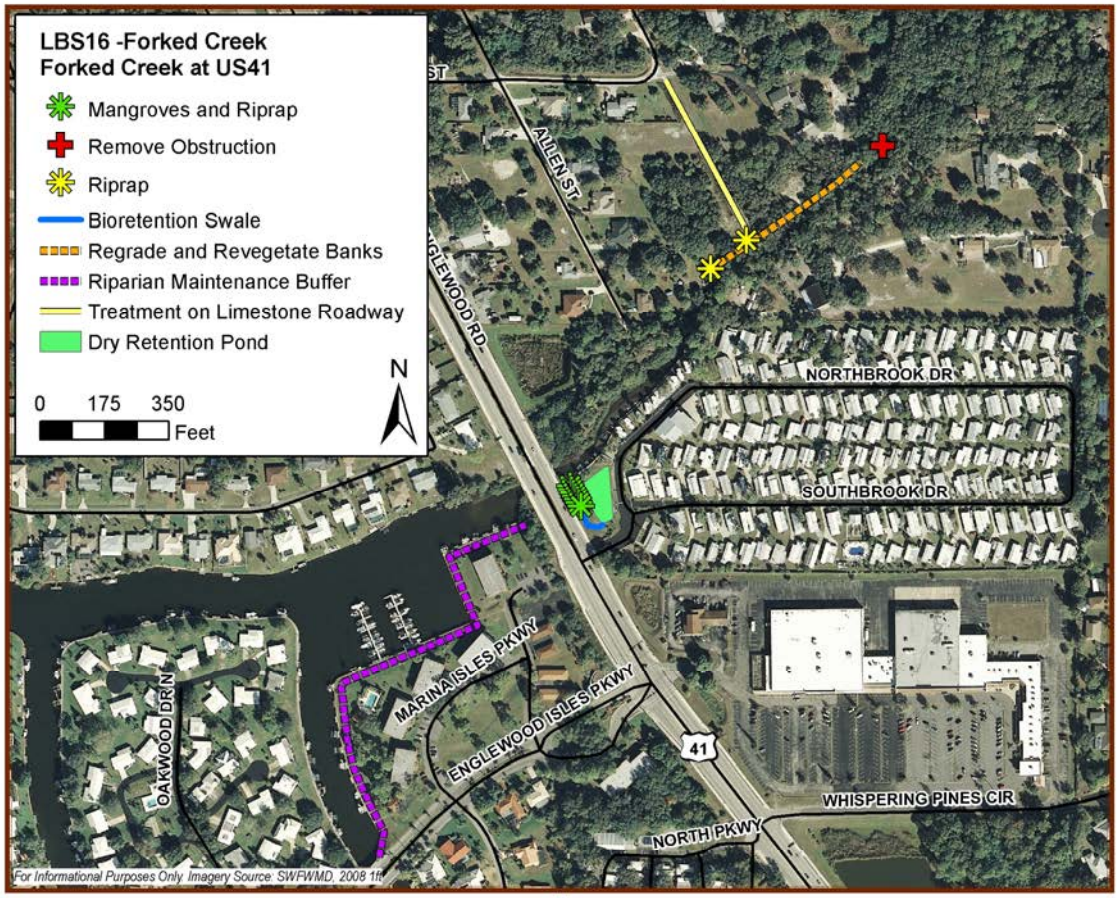
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 29,253.30	$ 29,253
Excavation	CY	10000	$ 15.00	$ 150,000
Silt Fence	LF	13000	$ 2.00	$ 26,000
Turbidity Barrier Floating (Multiple Use)	LF	13000	$ 12.00	$ 156,000
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
End Suction Pump (250 gpm)	EA	3	$ 4,320.00	$ 12,960
Pipe (sch 40 PVC 2.5 inch)	LF	15,500	$ 22.50	$ 348,750
Irrigation Basket Screen	EA	3	$ 300.00	$ 900
Filtration System	EA	3	$ 14,400.00	$ 43,200
Backflow Preventer	EA	3	$ 6,000.00	$ 18,000
Pipe (sch 40 PVC 4 inch)	LF	6000	$ 36.00	$ 216,000
Subtotal				$ 1,004,000
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 100,400
Subtotal				$ 1,104,400
CONTINGENCY		20%		$ 220,880
Survey		5%		$ 55,220
Geotechnical Investigation		5%		$ 55,220
Design and Permitting		20%		$ 220,880
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 1,657,000**
Pump Maintenance	EA	3	$ 250.00	$ 750
Filter Maintenannce	EA	3	$ 500.00	$ 1,500
MAINTENANCE (First Yr Annual Cost)				**$ 2,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.
Note 2: It is assumed that minimal distribution additions are required.

Sarasota County

Lemon Bay Watershed Management Plan
Sediment Management Plan

JONES EDMUNDS
Janicki Environmental, Inc.
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



Site Evaluation

A mobile home community is adjacent to the creek on the upstream side and residents report the creek is un-navigable due to accumulated sediment. The southern bank has a seawall while the northern bank is mangroves. The system is tidally influence and the bottom sediment appears mucky. On the downstream side of the 41 bridge, the south bank was hardened with a seawall from the bridge to about 300 feet downstream. Residents reported the channel had been dredged to remove excess sediment that interfered with recreational boat traffic. The north bank has mangroves for approximately 200 feet and then is hardened by seawalls.

Proposed Project Elements

- Add a dry retention pond
- Add mangroves and riprap at outfall
- Regrade and revegetating banks
- Add riprap at outfalls
- Remove an obstruction in the channel
- Add a riparian maintenance buffer
- Create a bioretention swale to capture and treat runoff from the entrance

Benefits

Creating a maintenance buffer of vegetation along channel bank to reduce the impact of mowing. Maintenance buffers also serve to dissipate energy by slowing overland flow and remove nutrients in the runoff. Re-introduction of native vegetation will reduce maintenance requirements.

Pollutant Removal Estimate

TSS (lb/yr): 1300 - 2100
TP (lb/yr): 10 - 15
TN (lb/yr): 90 - 110

Sediment Abatement/Removal Estimate

- Stabilization (CY): 250

Opinion of Probable Cost

$577,000

PROJECT TITLE: **Lemon Bay Sediment**				
LBS16: Forked Creek at US 41	ESTIMATED BY: **JRM**			
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY: **KBC**			
19006-016-03	DATE: **08.24.2010**			
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:			
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**			

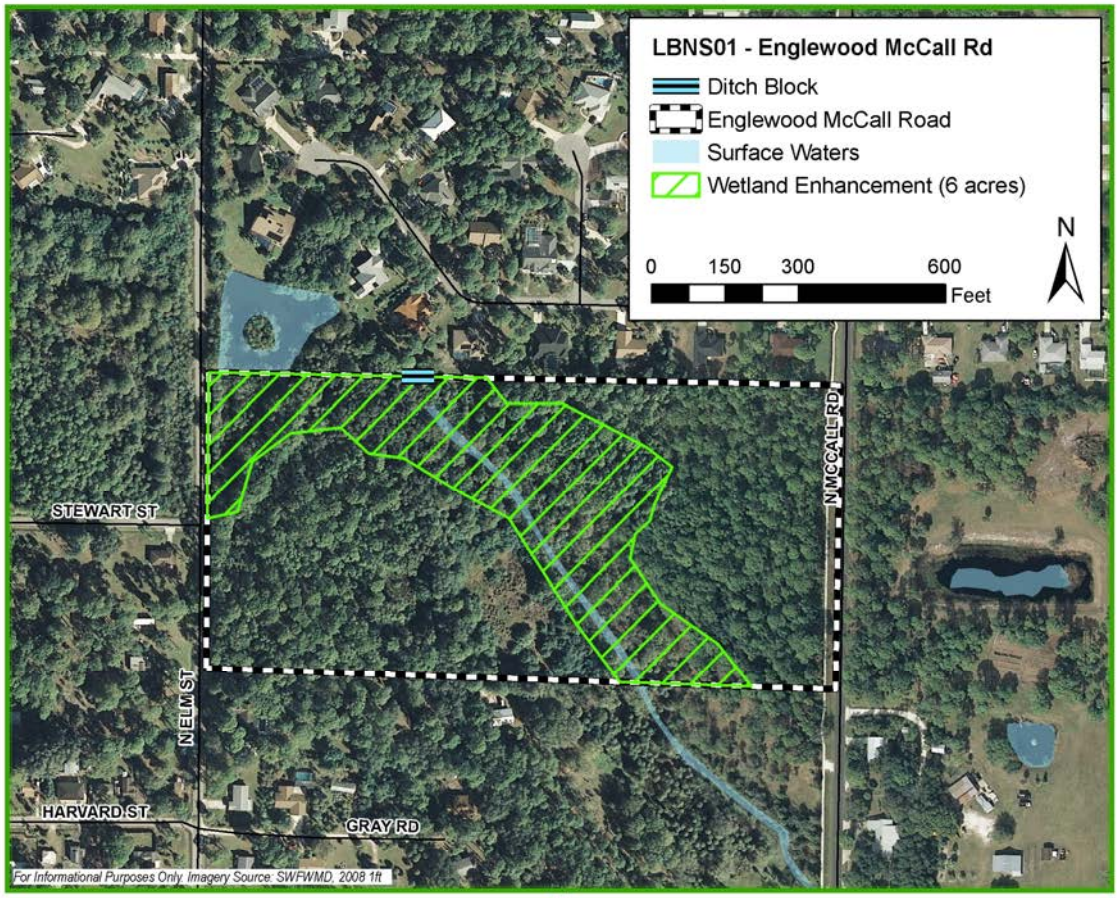
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 10,369.85	$ 10,370
Excavation	CY	2000	$ 50.00	$ 100,000
Planting	AC	0.5	$ 5,000.00	$ 2,515.61
Revegetation Mat	SY	800	$ 7.95	$ 6,360.00
Native Plants for Bank Stabilization	EA	50	$ 1.51	$ 75.50
Grading	SF	16000	$ 0.03	$ 480
Mangroves	EA	35	$ 10.00	$ 350.00
Riprap	CY	20	$ 451.02	$ 9,020.40
Silt Fence	LF	7400	$ 30.00	$ 222,000
Turbidity Barrier Floating (Multiple Use)	LF	130	$ 12.00	$ 1,560
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Subtotal				**$ 356,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 35,600
Subtotal				$ 391,600
CONTINGENCY		20%		$ 78,320
Survey				$ 17,800
Geotechnical Investigation				$ 17,800
Design and Permitting				$ 71,200
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 577,000**
Bioretention Maintenance	Ea	1	$ 1,500.00	$ 1,500
Stormwater Pond Maintenance	Ea	1	$ 1,000.00	$ 1,000
MAINTENANCE (First Yr Annual Cost)				**$ 2,500**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Natural Systems & Habitat Improvements

Jones Edmunds
Janicki Environmental, Inc.
Southwest Florida Water Management District



Site Evaluation

The Englewood McCall Road site is an approximately 18-acre County-owned property bound on the west by North Elm Street and the east by North McCall Road. An approximately 6-acre medium-quality Mixed Wetland Hardwood habitat is located in the central portion of the site. Exotic and invasive species are scattered throughout the wetland. A channelized ditch runs from the southeast corner through this wetland to a stormwater pond in the northwest corner of the property. Much pepper vine was encroaching into the wetland, which may indicate that this ditch is affecting the hydrology. Local residents north of the site discussed flooding and high water problems in this area along their back yards during the summer.

Proposed Project Elements

- Remove exotic species
- Construct ditch block
- Install geofabric and rip rap on both sides of ditch block

Benefits

Exotic species removal and hydrologic enhancement at this site will increase the habitat quality. Installing a ditch block will help to rehydrate the wetlands, improve water quality and may also reduce flooding.

- 1 UMAM Credit

Opinion of Probable Cost

$158,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

OWNER:	ESTIMATED BY:
Sarasota County	**JRM**
CLIENT:	CHECKED BY:
Sarasota County	**BJ**
PROJECT TITLE:	APPROVED BY:
McCall Road Habitat Improvement	
JONES EDMUNDS PROJECT NUMBER:	DATE:
19006-015-04 Task 4320	**6/12/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	0.5	$ 13,600.67	$ 6,800
Rubber Mats	EA	70	$ 80.00	$ 5,600
Earthen Ditch Block	CY**	13	$ 390.00	$ 5,200
Sod	SF	180	$ 30.55	$ 5,499
Riprap	SY	7	$ 120.90	$ 806
Geofabric	SY	7	$ 3.50	$ 23
Silt Fence	LF	84	$ 1.20	$ 100
Turbidity Barrier Floating (Multiple Use)	LF	40	$ 12.00	$ 480
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Maintenance of Exotic Species (4 Years)	ACRE	6	$ 500.00	$ 12,000
Monitoring (Baseline and 3 Years)	LS	1		$ 55,000
Design and Permitting	LS	1	$ 25,000.00	$ 25,000
Subtotal				$ 119,809
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 11,981
Subtotal				$ 131,790
CONTINGENCY		20%		$ 26,358
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 158,000**
MAINTENANCE (First Yr Annual Cost)				**$ 3,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

**Distance and Fuel Costs may cause this cost to change.

Sarasota County

Lemon Bay Watershed Management Plan
Water Quality Improvements

JONES EDMUNDS
Janicki Environmental, Inc.
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Site Evaluation

The bridge west of Forked Creek Drive on Overbrook Road was replaced in 2008. Accumulated sediment south of the bridge is visible in 2007 aerial photographs. Stormwater runoff flows directly to the channel through a driveway culvert/roadside swale system. Overbrook Road is in good repair but several of the local neighborhood roads are pitted and graveled with accumulated sediment on the pavement and at the edge of the pavement.

Proposed Project Elements

- Construct a stormwater treatment pond
- Build supporting infrastructure

Benefits

- The retention pond will capture roadway runoff and reduce the sediment and pollutant loads reaching the canal system.

Pollutant Removal Estimate

TSS (lb/yr): 1400 - 2500
TP (lb/yr): 5 - 20
TN (lb/yr): 0 - 70

Opinion of Probable Cost

$334,000

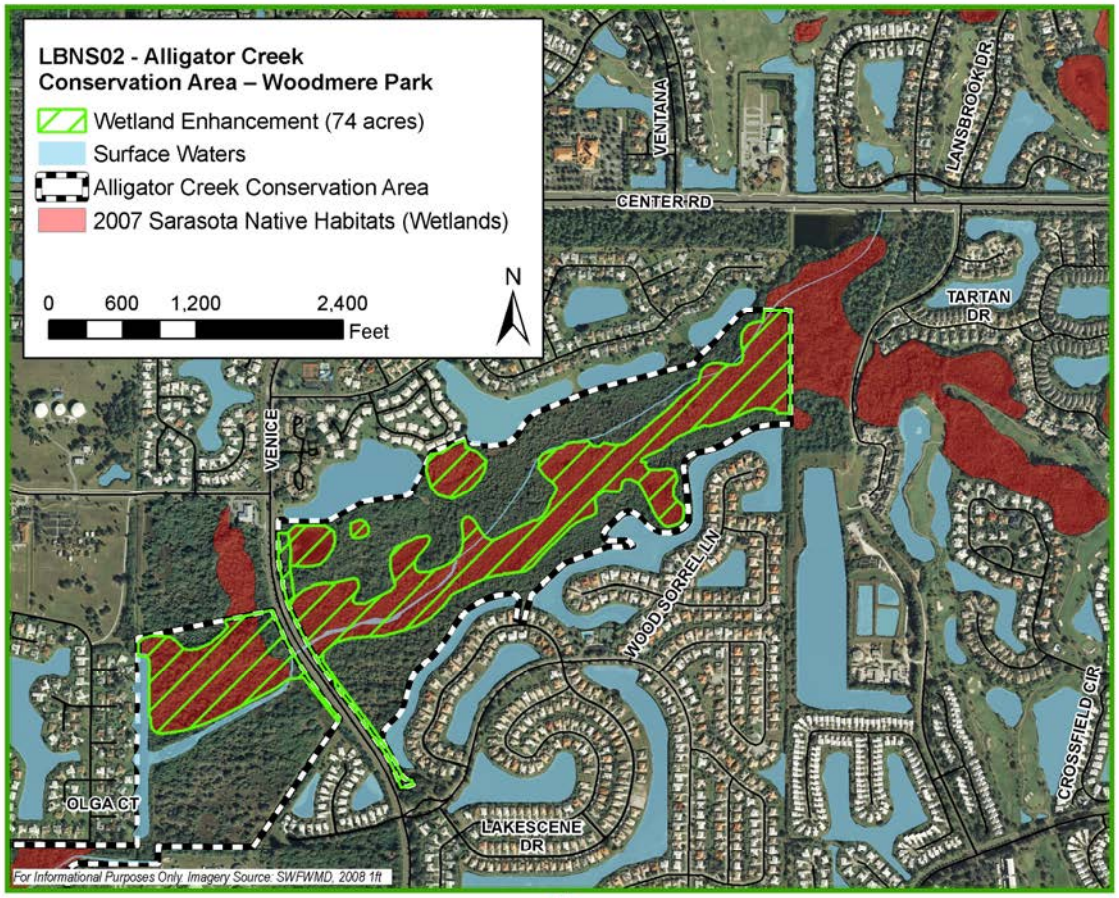
PROJECT TITLE: **Lemon Bay Water Quality Improvements**				
LBWQ06: Forked Creek - Overbrook Drive		ESTIMATED BY: **JRM**		
JONES EDMUNDS PROJECT NUMBER: **19006-016-03**		CHECKED BY: **KBC** DATE: **08.20.2009**		
ESTIMATE TYPE: ROM		CONSTRUCTION OR PROJECT ESTIMATE:		
Conceptual Plan Cost Estimate		**PROJECT ESTIMATE**		
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 6,003.60	$ 6,004
Wet Excavation	CY	2000	$ 50.00	$ 100,000
Dewatering (Pond)	DAY	1	$ 780.00	$ 780
24" RCP	LF	500	$ 59.00	$ 29,500
Grading	SF	10000	$ 0.03	$ 300
Silt Fence	LF	3000	$ 2.00	$ 6,000
Control Structure	EA	1	$ 60,000.00	$ 60,000
Turbidity Barrier Floating (Multiple Use)	LF	20	$ 12.00	$ 240
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Materials Subtotal				**$ 206,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 20,600
Subtotal				$ 226,600
CONTINGENCY		20%		$ 45,320
Construction Subtotal				**$ 271,920**
Survey				$ 10,300
Geotechnical Investigation				$ 10,300
Design and Permitting				$ 41,200
Engineering Services Subtotal				**$ 62,000**
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 334,000**
MAINTENANCE (First Yr Annual Cost)				**$ 100**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Natural Systems & Habitat Improvements

Jones Edmunds
Janicki Environmental, Inc.
Southwest Florida Water Management District



Site Evaluation

Alligator Creek downstream of Center Road is a channelized system with dense Brazilian pepper along the banks. Areas adjacent to the creek are characterized as Mixed Wetland Hardwoods. These wetlands are dominated by exotic and invasive species.

Proposed Project Elements

- Remove exotic species.

Benefits

Removing exotic species will increase the habitat quality of the on-site wetland and reduce the further encroachment of these species. The project will provide wetland enhancement for approximately 74 acres of wetlands.

- 3.8 UMAM Credits

Opinion of Probable Cost

$284,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

OWNER:	ESTIMATED BY:
Sarasota County	**JRM**
CLIENT:	CHECKED BY:
Sarasota County	**BJ**
PROJECT TITLE:	APPROVED BY:
Alligator Creek Preservation Area Habitat Improvement	
JONES EDMUNDS PROJECT NUMBER:	DATE:
19006-015-04 Task 4320	**6/12/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Maintenance of Exotic Species (4 Years)	ACRE	74	$ 500.00	$ 148,000
Monitoring (Baseline and 3 Years)	LS	1		$ 55,000
Design and Permitting	LS	1	$ 12,000.00	$ 12,000
Subtotal				$ 215,000
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 21,500
Subtotal				$ 236,500
CONTINGENCY		20%		$ 47,300
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 284,000**
MAINTENANCE (First Yr Annual Cost)				**$ 3,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Water Supply

JONES EDMUNDS
Janicki Environmental, Inc.

Site Evaluation

This project involves converting the existing wet detention pond into a stormwater harvesting pond to supply irrigation water for the park. The contributing area is 9 acres.

Proposed Project Elements

- Install an end suction pump, filtration system, irrigation screen and a backflow preventer
- Install piping

Benefits

Pollutant removal, water supply source, reduce freshwater peak flow to estuary

- Approximate Average Volume (ac-ft/yr): 9
- Pollutant Removal Estimate: TN (lb/yr): 20

Opinion of Probable Cost

$214,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: Lemon Bay Harvesting Revised Cost Estimate		
LBWS23: South Venice Park	ESTIMATED BY:	**JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY:	**BAC**
19006-016-03	DATE:	**8/22/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:	
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**	

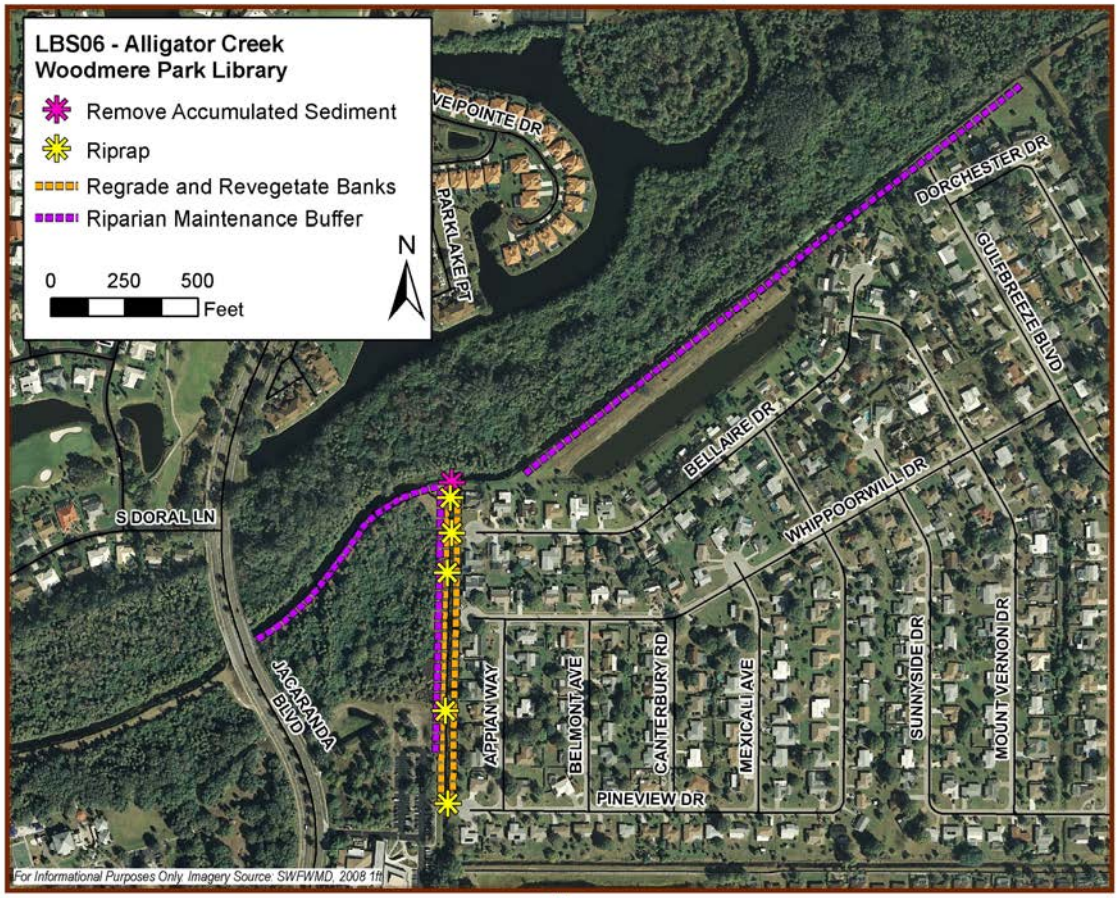
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 3,752.10	$ 3,752
Excavation	CY	700	$ 15.00	$ 10,500
Silt Fence	LF	2400	$ 2.00	$ 4,800
Turbidity Barrier Floating (Multiple Use)	LF	2400	$ 12.00	$ 28,800
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
End Suction Pump (250 gpm)	EA	1	$ 4,320.00	$ 4,320
Pipe (sch 40 PVC 2.5 inch)	LF	900	$ 22.50	$ 20,250
Irrigation Basket Screen	EA	1	$ 300.00	$ 300
Filtration System	EA	1	$ 14,400.00	$ 14,400
Backflow Preventer	EA	1	$ 6,000.00	$ 6,000
Pipe (sch 40 PVC 4 inch)	LF	900	$ 36.00	$ 32,400
Subtotal				$ 129,000
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 12,900
Subtotal				$ 141,900
CONTINGENCY		20%		$ 28,380
Survey		5%		$ 7,095
Geotechnical Investigation		5%		$ 7,095
Design and Permitting		20%		$ 30,000
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 214,000**
Pump Maintenance	EA	1	$ 250.00	$ 250
Filter Maintenannce	EA	1	$ 500.00	$ 500
MAINTENANCE (First Yr Annual Cost)				**$ 800**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.
Note 2: It is assumed that minimal distribution additions are required.

Sarasota County

Lemon Bay Watershed Management Plan
Sediment Management Plan

JONES EDMUNDS
Janicki Environmental, Inc.



Site Evaluation

This channel segment starts at the Woodmere Park Library and extends 1300 feet to Alligator Creek. The banks are steep, less than 3:1 (H:V) and show signs of eroding, sloughing, and undercutting. Primrose was pervasive along the entire eastern bank. Manicured lawns extend to the top of bank on the east side with evidence of grass clippings in the channel. The channel bottom had several sand bars toward the upstream end.

Proposed Project Elements

- Add a riparian buffer zone
- Amend soil to improve moisture holding capacity and revegetation with native species
- Add riprap at outfalls
- Remove accumulated sediment

Benefits

Soil amendment and revegetation with native plants will improve the quality of the waterway. Maintenance buffers serve to dissipate energy by slowing overland flow, thereby reducing erosion at the top of bank removing pollutants in the runoff.

Pollutant Removal Estimate

TSS (lb/yr): 600 - 1400
TP (lb/yr): 0 - 10
TN (lb/yr): 40 - 50

Sediment Abatement/Removal Estimate

- Stabilization (CY): 600
- Sediment Removal (CY): 50

Opinion of Probable Cost

$470,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

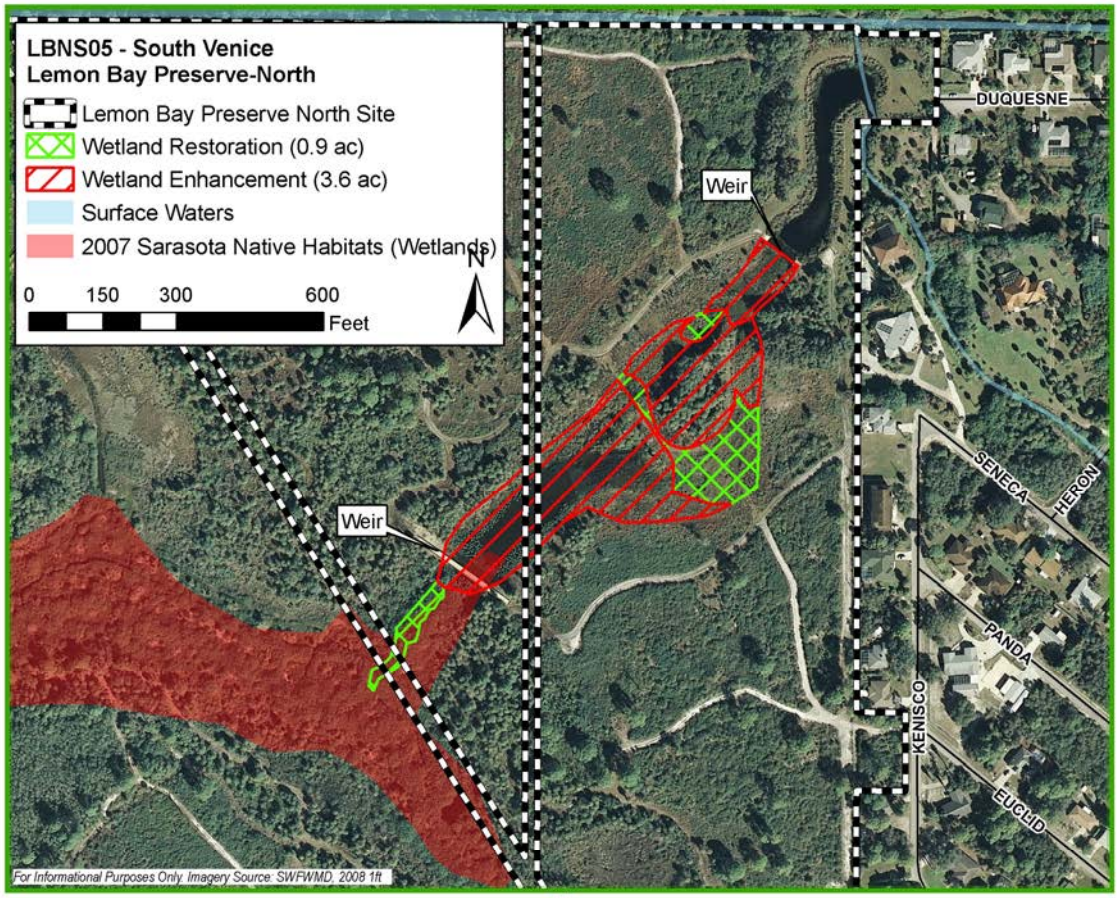
PROJECT TITLE: **Lemon Bay Sediment**				
LBS06: Alligator Creek - Woodmere Park Library		ESTIMATED BY: **JRM**		
JONES EDMUNDS PROJECT NUMBER:		CHECKED BY: **KBC**		
19006-016-03		DATE: **08.24.2010**		
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):		CONSTRUCTION OR PROJECT ESTIMATE:		
Conceptual Plan Cost Estimate		**PROJECT ESTIMATE**		
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 8,408.79	$ 8,409
Excavation	CY	3200	$ 50.00	$ 160,000
Grading	SF	5800	$ 0.03	$ 174
Revegetation Mat	SY	6100	$ 7.95	$ 48,495
Native Plants for Bank Stabilization	EA	110	$ 1.51	$ 166
Planting	AC	2	$ 5,000.00	$ 11,661
Riprap	CY	85	$ 451.02	$ 38,337
Silt Fence	LF	8600	$ 2.00	$ 17,200
Turbidity Barrier Floating (Multiple Use)	LF	80	$ 12.00	$ 960
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Subtotal				**$ 289,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 28,900
Subtotal				$ 317,900
CONTINGENCY		20%		$ 63,580
Survey				$ 14,450
Geotechnical Investigation				$ 14,450
Design and Permitting				$ 57,800
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 470,000**
Remove Accumulated Sediment	CY	250	$ 50.00	$ 12,500
MAINTENANCE (First Yr Annual Cost)				**$ 13,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Natural Systems & Habitat Improvements

JONES EDMUNDS
Janicki Environmental, Inc.



Site Evaluation

Sarasota County recently completed a restoration project at this park which entailed regrading areas and installing a weir near Woodmere Creek South Branch. However, some areas were not graded down to wetland grade and thus they are not sufficiently hydrated and are impounding water upstream of these areas.

Proposed Project Elements

- Regrade
- Install native herbaceous wetland plan species

Benefits

Approximately 4 acres of wetlands will be enhanced hydrologically by grading down the high areas. This project will restore the hydroperiod to downstream and upstream wetlands. Planting native, herbaceous wetland vegetation will restore additional wetland areas.

- 1 UMAM Credits

Opinion of Probable Cost

$182,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE:	
South Venice Lemon Bay Preserve Habitat Improvement (North)	ESTIMATED BY **JRM**
JONES EDMUNDS PROJECT NUMBER: **19006-015-05**	CHECKED BY: **BJB** DATE: **6/25/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Excavation	CY	1,452	$ 22.96	$ 33,338
Silt Fence	LF	4,000	$ 1.50	$ 6,000
Turbidity Barrier	LF	200	$ 12.00	$ 2,400
Equipment Matting	EA	250	$ 80.00	$ 20,000
Planting	LS		$ 7,000.00	$ 7,000
Subtotal				**$ 68,738**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 6,874
Subtotal				$ 75,612
CONTINGENCY		20%		$ 15,122
Survey				$ 3,437
Geotechnical Investigation				$ 3,437
Design and Permitting				$ 25,000
Monitoring (Baseline and 3 Years)				$ 55,000
Maintenance of Exotic Species (4 Years)	ACRE	1	$500	$ 4,000
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 182,000**
MAINTENANCE (First Yr Annual Cost)				**$ 500**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Water Supply

JONES EDMUNDS
Janicki Environmental, Inc.

Site Evaluation

This project involves converting the existing wet detention pond north of the library into a stormwater harvesting pond to supply irrigation water for the library. The contributing area is 3 acres.

Proposed Project Elements

- Install an end suction pump, filtration system, irrigation screen and a backflow preventer
- Install piping

Benefits

Pollutant removal, water supply source, reduce freshwater peak flow to estuary

- Approximate Average Volume (ac-ft/yr): 5
- Pollutant Removal Estimate: TN (lb/yr): 15

Opinion of Probable Cost

$212,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: Lemon Bay Harvesting Revised Cost Estimate		
LBWS04: Elsie Quirk Library	ESTIMATED BY:	**JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY:	**BAC**
19006-016-03	DATE:	**8/22/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:	
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**	

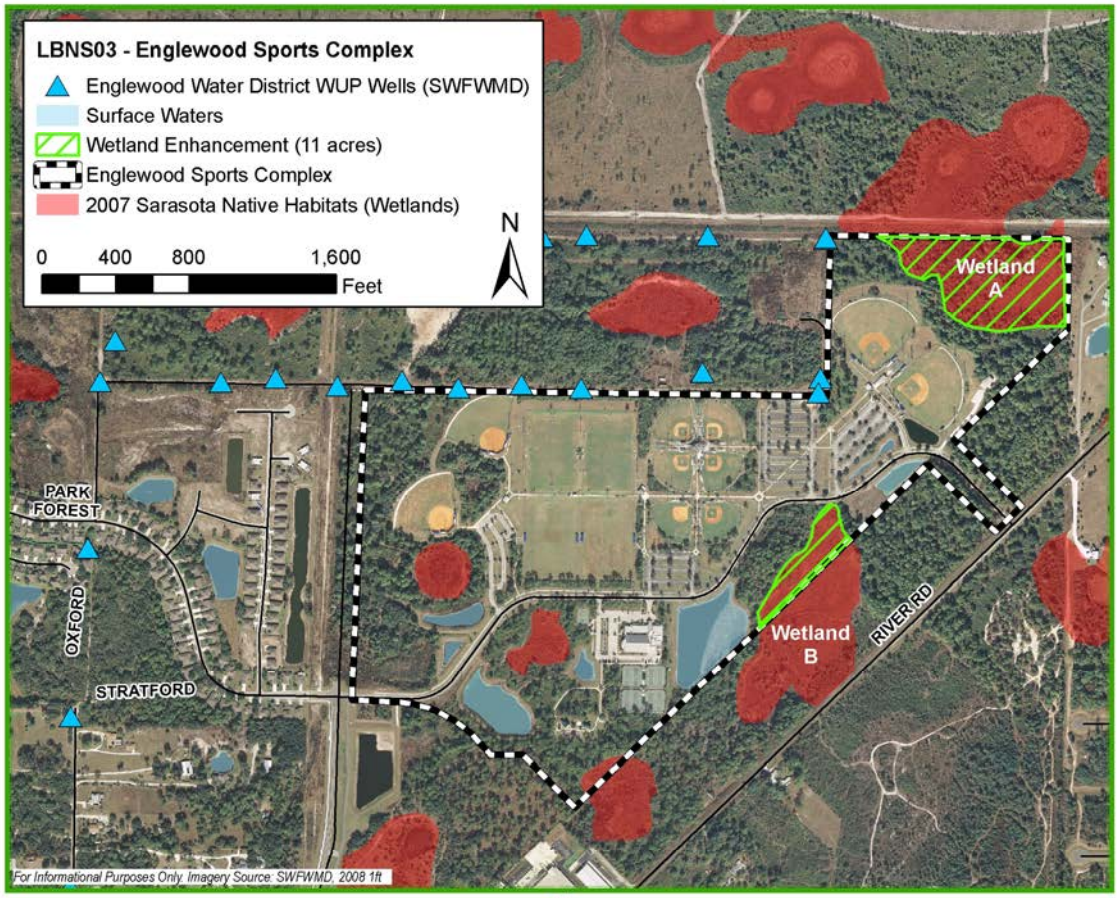
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 3,694.57	$ 3,695
Excavation	CY	500	$ 15.00	$ 7,500
Silt Fence	LF	2000	$ 2.00	$ 4,000
Turbidity Barrier Floating (Multiple Use)	LF	2000	$ 12.00	$ 24,000
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
End Suction Pump (250 gpm)	EA	1	$ 4,320.00	$ 4,320
Pipe (sch 40 PVC 2.5 inch)	LF	710	$ 2.44	$ 1,732
Irrigation Basket Screen	EA	1	$ 300.00	$ 300
Filtration System	EA	1	$ 14,400.00	$ 14,400
Backflow Preventer	EA	1	$ 6,000.00	$ 6,000
Pipe (sch 40 PVC 4 inch)	LF	1600	$ 36.00	$ 57,600
Subtotal				$ 127,000
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 12,700
Subtotal				$ 139,700
CONTINGENCY		20%		$ 27,940
Survey		5%		$ 6,985
Geotechnical Investigation		5%		$ 6,985
Design and Permitting		20%		$ 30,000
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 212,000**
Pump Maintenance	EA	1	$ 250.00	$ 250
Filter Maintenannce	EA	1	$ 500.00	$ 500
MAINTENANCE (First Yr Annual Cost)				**$ 800**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.
Note 2: It is assumed that minimal distribution additions are required.

Sarasota County

Lemon Bay Watershed Management Plan
Natural Systems & Habitat Improvements

JONES EDMUNDS
Janicki Environmental, Inc.
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



Site Evaluation

This 137-acre site contains four main on-site wetlands. Wetlands A and B are characterized as a high-quality wet prairies and are dominated by exotic and invasive species. Wetland A is extremely dry, possibly due to the numerous wells immediately to the west.

Proposed Project Elements

- Remove exotic species

Benefits

Removing the exotic species in Wetlands A and B will increase habitat quality of the on-site wetlands and reduce further encroachment of these species.

- 0.9 UMAM Credits

Opinion of Probable Cost

$118,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

OWNER:	ESTIMATED BY:
Sarasota County	**JRM**
CLIENT:	CHECKED BY:
Sarasota County	**BJ**
PROJECT TITLE:	APPROVED BY:
Englewood Sports Complex Habitat Improvement	
JONES EDMUNDS PROJECT NUMBER:	DATE:
19006-015-04 Task 4320	**6/12/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

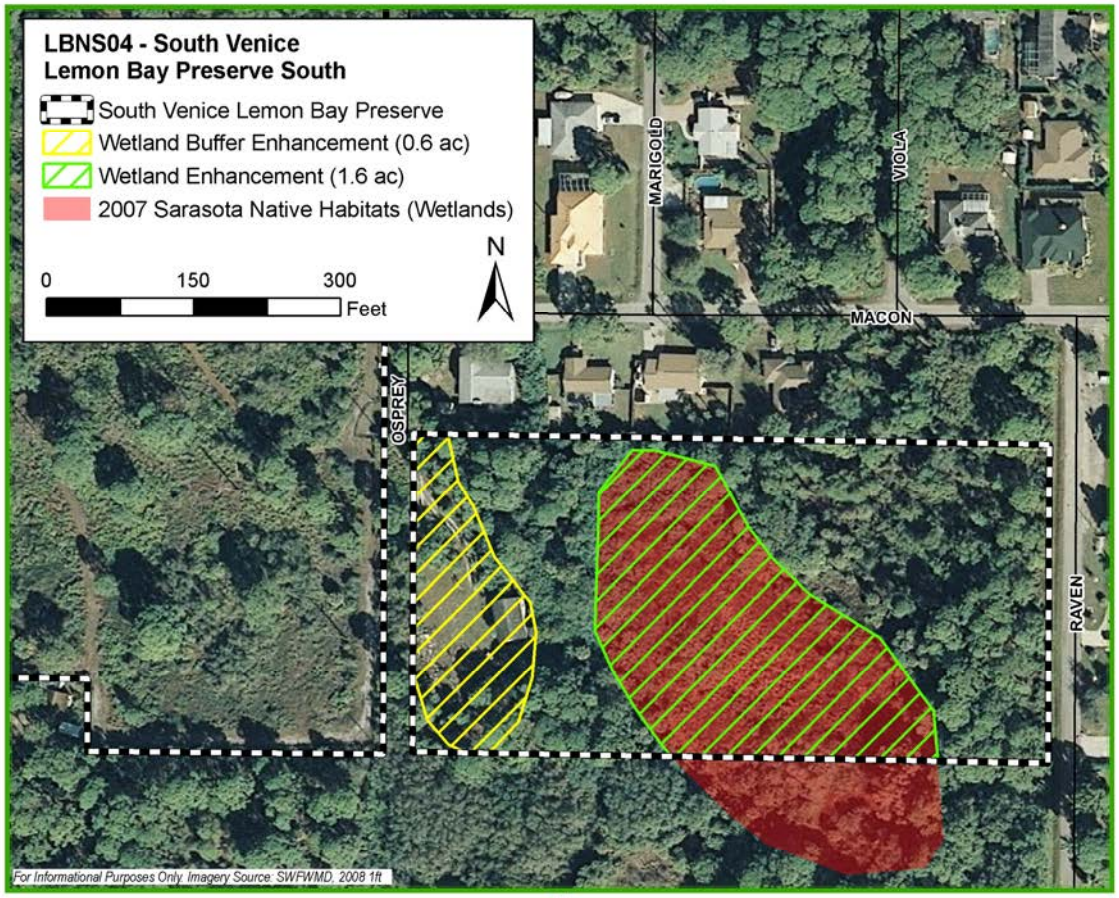
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Maintenance of Exotic Species (4 Years)	ACRE	11	$ 500.00	$ 22,000
Monitoring (Baseline and 3 Years)	LS	1		$ 55,000
Design and Permitting	LS	1	$ 12,000.00	$ 12,000
Subtotal				$ 89,000
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 8,900
Subtotal				$ 97,900
CONTINGENCY		20%		$ 19,580
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 117,500**
MAINTENANCE (First Yr Annual Cost)				**$ 5,500**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Natural Systems & Habitat Improvements

JONES EDMUNDS
Janicki Environmental, Inc.



Site Evaluation

An approximately 5-acre portion of the preserve located at the end of Osprey Road and fronts Raven Road on its east side. This site was a former homestead and the County recently demolished the home. An open, grassed area along the west side of the property was the former maintained yard of the residence. This property contains an isolated, approximately 2-acre wetland characterized as Willow and Elderberry. Exotic species are scattered throughout the wetland.

Proposed Project Elements

• Remove exotic species in buffer and wetland

Benefits

Removing the exotic species will increase habitat quality of the on-site wetlands and reduce the further encroachment of these species. Enhancing the wetland buffer will improve the habitat quality and provide greater cover for wetland- and upland-dependent wildlife species. The enhanced buffer will also create a naturally vegetated corridor to the remaining portions of the park to the west.

Opinion of Probable Cost

$95,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

OWNER:	ESTIMATED BY:
Sarasota County	**JRM**
CLIENT:	CHECKED BY:
Sarasota County	**BJ**
PROJECT TITLE:	APPROVED BY:
South Venice Lemon Bay Preserve Habitat Improvement (South)	
JONES EDMUNDS PROJECT NUMBER:	DATE:
19006-015-04 Task 4320	**6/2/2009**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

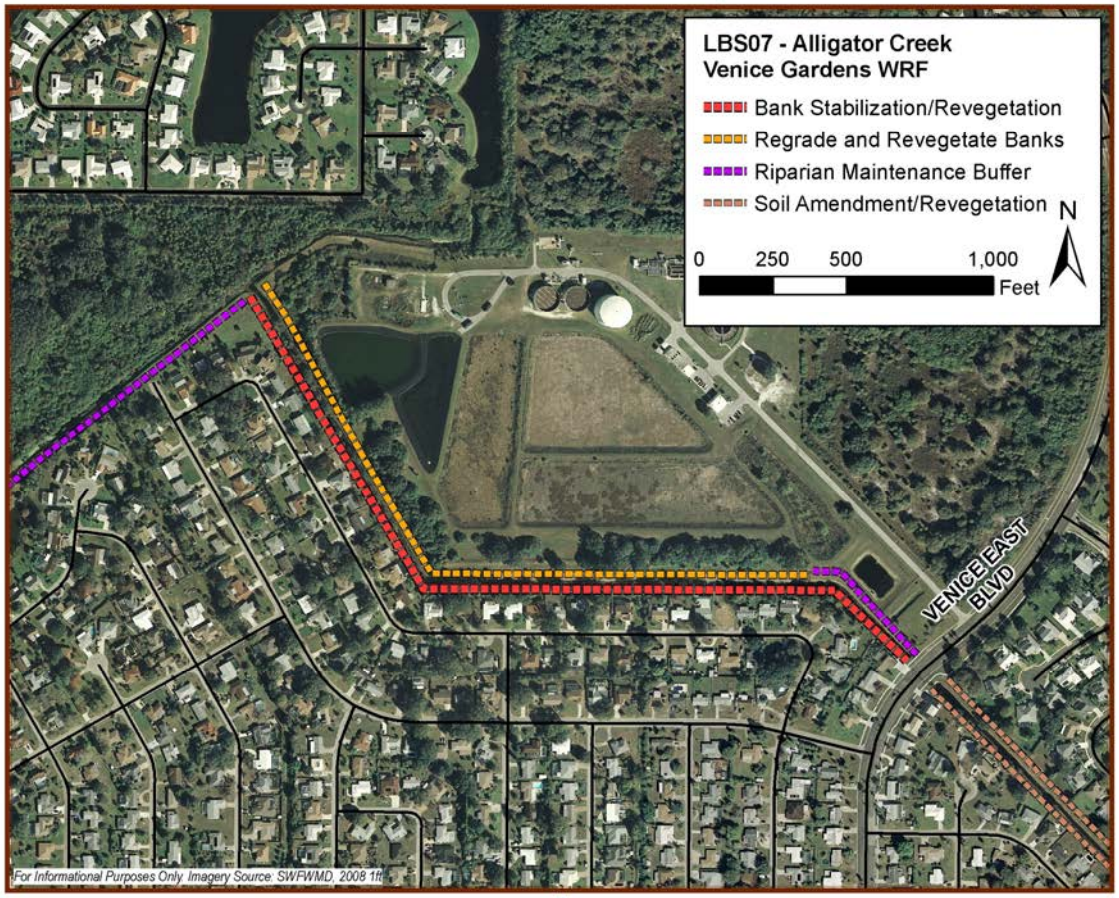
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Maintenance of Exotic Species (4 Years)	ACRE	2.6	$ 500.00	$ 5,200
Monitoring (Baseline and 3 Years)	LS	1		$ 55,000
Design and Permitting	LS	1	$ 12,000.00	$ 12,000
Subtotal				$ 72,200
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 7,220
Subtotal				$ 79,420
CONTINGENCY		20%		$ 15,884
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 95,000**
MAINTENANCE (First Yr Annual Cost)				**$ 1,300**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Sediment Management Plan

JONES EDMUNDS
Janicki Environmental, Inc.
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



Site Evaluation

The upstream segment, southeast of Venice East Boulevard is characterized by very loose, sandy soils and sloughing of the banks with a proliferation of nuisance vegetation that does not add cohesiveness to the soil matrix. The banks on the downstream portion of the channel segment show signs of erosion and undercutting.

Proposed Project Elements

- Add a riparian buffer zone
- Regrade and revegetate banks
- Stabilize banks using geoweb and geofabric
- Amend soil to improve moisture holding capacity

Benefits

Maintenance buffers serve to dissipate energy by slowing overland flow, thereby reducing erosion at the top of bank, removing pollutants in the runoff. Bank stabilization will reduce erosion and retain sediment thereby improving flood control conditions. Soil amendment and revegetation with native plants will improve the quality of the waterway.

Pollutant Removal Estimate

TSS (lb/yr): 400 - 1000
TP (lb/yr): 5 - 10
TN (lb/yr): 30 - 40

Sediment Abatement/Removal Estimate

- Stabilization (CY): 2700

Opinion of Probable Cost

$2,630,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

LBS05: Alligator Creek - Briarwood Rd to Alligator Creek	ESTIMATED BY: **JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY: **KBC**
19006-016-03	DATE: **08.24.2010**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 150,654.76	$ 150,655
Excavation	CY	20300	$ 15.00	$ 304,500
Grading	SY	40700	$ 0.03	$ 1,221
Riprap	CY	320	$ 451.02	$ 144,326
Revegetation Mat	SY	55000	$ 7.95	$ 437,250
Soil Amendment	SF	60000	$ 53.50	$ 3,210,000
Geoweb	SF	60000	$ 3.00	$ 180,000
Geofabric	SY	6700	$ 3.50	$ 23,450
Gravel	CY	6700	$ 90.00	$ 603,000
Disconnect Roofdrains	EA	60	$ 75.00	$ 4,500
Silt Fence	LF	46300	$ 2.00	$ 92,600
Planting	AC	3	$ 5,000.00	$ 15,278
Turbidity Barrier Floating (Multiple Use)	LF	200	$ 12.00	$ 2,400
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Subtotal				**$ 5,172,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 517,200
Subtotal				$ 5,689,200
CONTINGENCY		20%		$ 1,137,840
Survey				$ 258,600
Geotechnical Investigation				$ 258,600
Design and Permitting				$ 1,034,400
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 8,380,000**
MAINTENANCE (First Yr Annual Cost)				**$ -**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Sediment Management Plan

JONES EDMUNDS
Janicki Environmental, Inc.
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Site Evaluation

This channel segment flows parallel to Siesta Drive. The adjacent roadways are drained by a small roadside swale system, but Siesta Drive discharges stormwater runoff directly to the channel. The banks are loose, non-cohesive sand that does not have good moisture retaining characteristics. The nuisance vegetation does not have deep root systems to help create a cohesive soil matrix. The banks slopes are steep, approximately 2:1 (H:V).

Proposed Project Elements

- Monitor water quality
- Incorporate a sidewalk, bioswale, trees and vegetation along the top of bank
- Amend soil to improve moisture holding capacity
- Remove nuisance vegetation
- Plant native vegetation on the banks to stabilize slopes and in the flowpath to improve water quality
- Install a low-flow sedimentation weir
- Add riprap

Benefits

Re-introduction of native vegetation will reduce maintenance requirements. Bank stabilization will reduce erosion and retain sediment thereby improving flood control conditions. Constructing small swales at the top of bank will aid in providing retention and treatment of roadway runoff, dissipate energy of the overland flow and reduce the erosion along the top of bank of the channel.

Pollutant Removal Estimate

TSS (lb/yr): 0 - 100
TP (lb/yr): 0 - 5
TN (lb/yr): 5 - 10

Sediment Abatement/Removal Estimate

- Stabilization (CY): 1800

Opinion of Probable Cost

$1,830,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: **Lemon Bay Sediment**	
LBS02: Alligator Creek - Siesta Ditch South	ESTIMATED BY: **JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY: **KBC**
19006-016-03	DATE: **08.24.2010**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

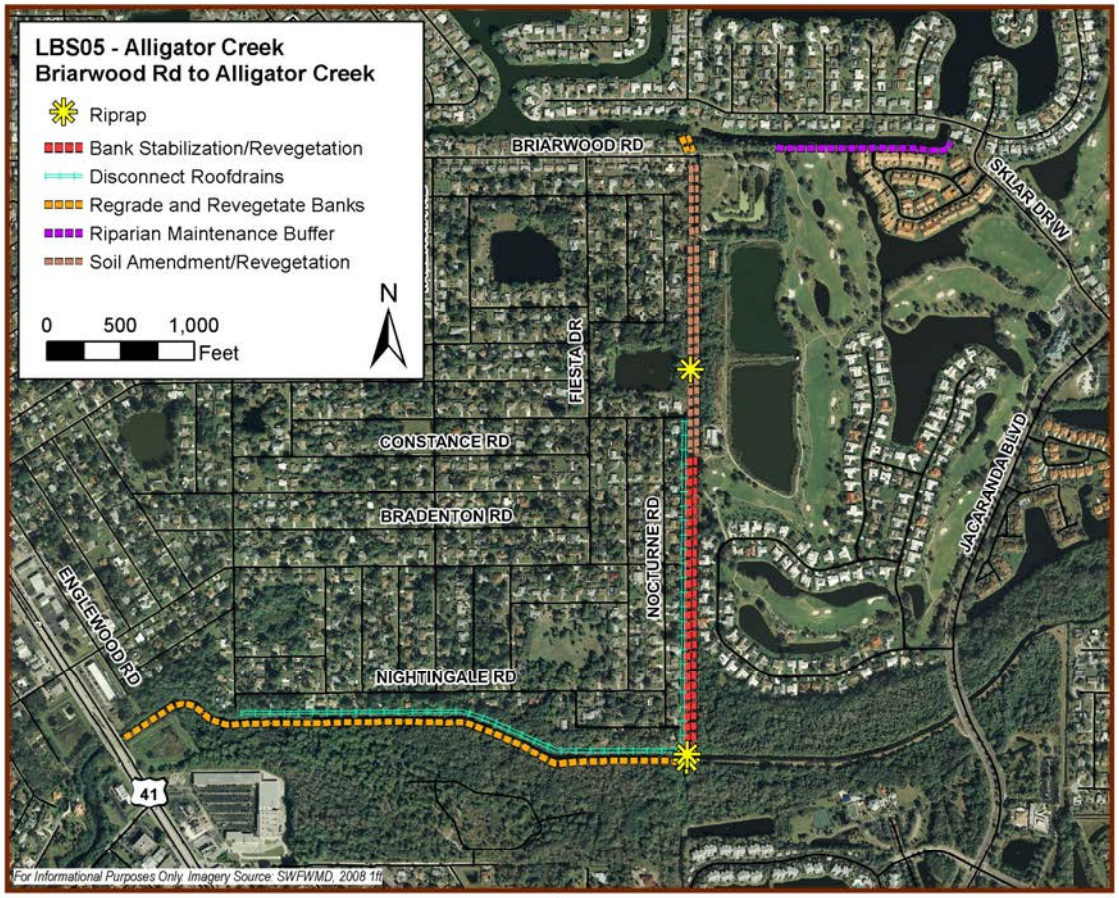
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 32,820.30	$ 32,820
Grading	SF	101500	$ 0.03	$ 3,045
Planting Trees and Shrubs	EA	200	$ 20.00	$ 4,000
Riprap	CY	400	$ 451.02	$ 180,408
Soil Amendment	SF	3750	$ 53.50	$ 200,625
Geoweb	SF	3750	$ 3.00	$ 11,250
Geofabric	SY	400	$ 3.50	$ 1,400
Gravel	CY	200	$ 90.00	$ 18,000
Revegetation Mat	SY	400	$ 7.95	$ 3,180
Native Plants for Bank Stabilization	EA	200	$ 1.51	$ 302
Excavation	CY	44000	$ 15.00	$ 660,000
Silt Fence	LF	4100	$ 2.00	$ 8,200
Turbidity Barrier Floating (Multiple Use)	LF	25	$ 12.00	$ 300
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Subtotal				**$ 1,127,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 112,700
Subtotal				$ 1,239,700
CONTINGENCY		20%		$ 247,940
Survey				$ 56,350
Geotechnical Investigation				$ 56,350
Design and Permitting				$ 225,400
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 1,830,000**
Water Quality Monitoring	EA	2	$ 2,500.00	$ 5,000
Bioretention Cleanout	EA	3	$ 1,500.00	$ 4,500
Bi-annual sediment cleanout	CY	20	$ 30.00	$ 600
MAINTENANCE (First Yr Annual Cost)				**$ 10,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.
**Distance and Fuel Costs may cause this cost to change.

Sarasota County

Lemon Bay Watershed Management Plan
Sediment Management Plan

JONES EDMUNDS
Janicki Environmental, Inc.
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



Site Evaluation

This site is at the end of Briarwood Road at the entrance to a decommissioned WWTP. The channel segment on the north side of Briarwood Road is densely vegetated. Erosion was pronounced on the eastern slope of the downstream segment although the bank slope is relatively gentle at approximately 4:1 (H:V). The vegetation in the channel showed evidence of being sprayed with herbicide and the decaying vegetation left in the channel. The south bank was covered with nuisance vegetation but the soil matrix was very loose and signs of erosion were present.

Proposed Project Elements

- Add riparian maintenance buffer
- Regrade and revegetating banks
- Amend soil to improve moisture holding capacity
- Stabilize banks with geoweb and geofabric
- Disconnect roof drains

Benefits

Maintenance buffers serve to dissipate energy by slowing overland flow, thereby reducing erosion at the top of bank and removing pollutants in the runoff. Soil amendment and revegetation with native plants will improve the quality of the waterway. Bank stabilization will reduce erosion and retain sediment thereby improving flood control conditions.

Pollutant Removal Estimate

TSS (lb/yr): 200 - 400
TP (lb/yr): 0 - 5
TN (lb/yr): 20 - 30

Sediment Abatement/Removal Estimate

- Stabilization (CY): 3500

Opinion of Probable Cost

$8,380,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

LBS05: Alligator Creek - Briarwood Rd to Alligator Creek	ESTIMATED BY: **JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY: **KBC**
19006-016-03	DATE: **08.24.2010**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 150,654.76	$ 150,655
Excavation	CY	20300	$ 15.00	$ 304,500
Grading	SY	40700	$ 0.03	$ 1,221
Riprap	CY	320	$ 451.02	$ 144,326
Revegetation Mat	SY	55000	$ 7.95	$ 437,250
Soil Amendment	SF	60000	$ 53.50	$ 3,210,000
Geoweb	SF	60000	$ 3.00	$ 180,000
Geofabric	SY	6700	$ 3.50	$ 23,450
Gravel	CY	6700	$ 90.00	$ 603,000
Disconnect Roofdrains	EA	60	$ 75.00	$ 4,500
Silt Fence	LF	46300	$ 2.00	$ 92,600
Planting	AC	3	$ 5,000.00	$ 15,278
Turbidity Barrier Floating (Multiple Use)	LF	200	$ 12.00	$ 2,400
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Subtotal				**$ 5,172,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 517,200
Subtotal				$ 5,689,200
CONTINGENCY		20%		$ 1,137,840
Survey				$ 258,600
Geotechnical Investigation				$ 258,600
Design and Permitting				$ 1,034,400
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 8,380,000**
MAINTENANCE (First Yr Annual Cost)				**$ -**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.

Sarasota County

Lemon Bay Watershed Management Plan
Sediment Management Plan

JONES EDMUNDS
Janicki Environmental, Inc.
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Site Evaluation

This channel segment runs parallel to Quincy Road for approximately ½ mile. The area is drained by a small roadside swale system. The banks are sparsely vegetated with nuisance vegetation and the soil is non-cohesive and sandy. The water surface is covered with hydrilla.

Proposed Project Elements

- Add a sediment removal structure at the upstream discharges
- Amend soil, hydroseed, and plant adjacent to Quincy Road
- Disconnect roof drains
- Add riprap to outfalls
- Add a sediment sump downstream
- Regrade top of bank adjacent to Quincy Road
- Add trees and shrubs to the top of bank adjacent to Siesta Drive

Benefits

The addition of a sediment sump will reduce flow velocities and promote settling of sediment. Soil amendment and planting will enhance the environmental quality of the channel segment.

Pollutant Removal Estimate

TSS (lb/yr): 1400 - 3400
TP (lb/yr): 0 - 5
TN (lb/yr): 20 - 40

Sediment Abatement/Removal Estimate

- Stabilization (CY): 850
- Sediment Sump (CY): 350

Opinion of Probable Cost

$6,410,000

JONES EDMUNDS
ENGINEERS | ARCHITECTS | SCIENTISTS

Sarasota County

PROJECT TITLE: **Lemon Bay Sediment**	
LBS01: Alligator Creek - Siesta Ditch North	ESTIMATED BY: **JRM**
JONES EDMUNDS PROJECT NUMBER:	CHECKED BY: **KBC**
19006-016-03	DATE: **08.24.2010**
ESTIMATE TYPE (ROM, BUDGET, DEFINITIVE):	CONSTRUCTION OR PROJECT ESTIMATE:
Conceptual Plan Cost Estimate	**PROJECT ESTIMATE**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clearing and Grubbing	LS	1	$ 115,255.01	$ 115,255
Excavation	CY	850	$ 15.00	$ 12,750
Sediment Sump Construction	CF	10000	$ 50.00	$ 500,000
Dewatering (Sump)	CY	1300	$ 13.50	$ 17,550
Sediment Removal Baffle Box	EA	1	$ 70,000.00	$ 70,000
Grading	SF	8700	$ 0.03	$ 261
Soil Amendment	SF	56700	$ 53.50	$ 3,033,450
Revegetation Mat	SY	6300	$ 7.95	$ 50,085
Planting	AC	1.5	$ 5,000.00	$ 7,500
Trees and Shrubbs	EA	80	$ 20.00	$ 1,600
Geoweb	SF	4800	$ 3.00	$ 14,400
Geofabric	SY	550	$ 3.50	$ 1,925
Gravel	CY	550	$ 90.00	$ 49,500
Silt Fence	LF	12100	$ 1.50	$ 18,150
Riprap	CY	130	$ 451.02	$ 58,633
Disconnect Roof Drains	EA	30	$ 75.00	$ 2,250
Turbidity Barrier Floating (Multiple Use)	LF	40	$ 12.00	$ 480
Soil Tracking Prevention Device	EA	1	$ 3,300.00	$ 3,300
Subtotal				**$ 3,957,000**
MOBILIZATION AND GENERAL CONDITIONS		10%		$ 395,700
Subtotal				$ 4,352,700
CONTINGENCY		20%		$ 870,540
Survey				$ 197,850
Geotechnical Investigation				$ 197,850
Design and Permitting				$ 791,400
OPINION OF PROBABLE CONSTRUCTION COST (ROUNDED)				**$ 6,410,000**
Bi-annual sump cleanout	EA	2	$ 1,000.00	$ 2,000
Bi-annual sediment removal structure cleanout	CY	20	$ 150.00	$ 3,000
MAINTENANCE (First Yr Annual Cost)				**$ 5,000**

Note 1: The unit costs for this estimate were derived using 2009 RS Means Data and 2009 FDOT Unit Costs.