

Rio / St. Lucie Stormwater Quality Retrofit Project

St Lucie River and Estuary Basin Management Action Plan (BMAP)
Annual Meeting



Martin County Engineering Department /
Ecosystem Restoration and Management Division

Greg Nolte
Project Manager

August 13, 2014

The “Watershed & Need”

- Basin area ~53-Acres, adjacent to north shore of St Lucie River
- Topography ranges from EL 28.0 to EL 5.0, over ~1700’
- Platted in March 1925, Plat Book S-4, prior to Martin County
- Typical lot size 25’ wide x 100’ deep
- Roadways constructed prior to today’s WQ design standards
- Existing drainage system consists of:
 - Ad hoc driveway culverts,
 - Swales, if existing, not on grade,
 - One major N / S ditch discharging uncontrolled via culvert
- Historic street flooding, some structural flooding

The “Watershed & Need”



The “Objective & Project”

- To provide a minimum of 1” of WQ treatment over the contributing area
- To provide control and treatment prior to runoff discharging into the St Lucie River.
- To be cost effective
- Reduce street flooding

- Proposed exfiltration trenches within eight (8) road ROWs
- Proposed 2nd Generation Baffle Boxes at three (3) locations
- Re-establish swales
- Initiate Public Education



Project Team

- ✓ Survey: MC Surveying Division, Michael O'Brien / Northstar Geomatics, Greg Fleming



- ✓ Design: CAPTEC Engineering, Inc.



Rhett Keene, P.E. – Design Engineer
Gary Jones, P.E. – CEI Engineer
Jeff Bouley - Inspector

- ✓ Testing: Andersen Andre Consulting Engineers, Inc.



David Andre, P.E. – Materials Testing Engineer
Brian Smith – Field Technician

- ✓ Construction: Melvin Bush Construction, Inc.
Mike Vossen, Project Superintendent



Survey, Design & Permitting

- ✓ Preliminary design started Jun '12;
- ✓ Survey started Feb '13, completed Apr '13
- ✓ Final design started Apr '14, completed Sep '14
- ✓ Permitting :
 - ✓ Exfiltration trenches - No Notice General Permit for Activities in Uplands
 - ✓ Baffle Boxes - de minimus exemptions
- ✓ Design:
 - ✓ 1,976 linear feet of 3.5' x 6' exfiltration trench with 15" RCP, over 53-Acres
 - ✓ Eight (8) neighborhood road rights-of-way.
 - ✓ Two (2) ~ 4' x 8', 8 cfs, 2nd Generation Baffle Boxes,
 - ✓ One (1) ~ 5' x 10' 15 cfs, 2nd Generation Baffle box
- ✓ WQ Treatment provided is 54.4 Ac-In (4.53 Ac-Ft)
Equates to 1" of treatment over 53-Acres

The "Project"



Bidding & Construction

- ✓ Bid Oct '13
- ✓ Notice of Award issued to Melvin Bush Construction, Inc.
- ✓ Notice to Proceed issued in Nov '13
- ✓ Construction schedule for 150-days to Final Completion
- ✓ Final Completion occurred May '14
- ✓ Included an additional 260 linear feet of trench on Alice St.

Construction Photos



Construction Photos



Funding, Budget & Costs

Funding

✓ Two (2) Grants	
✓ FDEP / TMDL Grant	\$240,000
✓ NEEPP / SFWMD 5/5/5 Grant	\$310,000
✓ <u>County MSTU Stormwater funds</u>	<u>\$240,000</u>
Total Budget	\$790,000

Costs

✓ Survey, Design & Permitting	\$ 90,729
✓ Land Costs	\$ 0
✓ <u>Construction</u>	<u>\$606,036</u>
Total Project Costs	\$696,764

Project under / ~~over~~ budget by \$ 93,236

Costs Effectiveness

Previous Martin County Water Quality Projects

Project Name ✓ (Indicates project with BMAP Credits)	Basin Area (acres)	Treated Area (acres)	Treatment Volume (ac-ft)	Treatment Volume (inches)	Cost per Area Treated (\$ / Acre)	Cost per Treatment Volume (\$ / Ac-Ft)
✓ Cedar Pointe	57	31.4	1.7	0.65	\$ 12,676	\$ 234,134
✓ Coral Gardens	2,260	2,011	8.5	0.05	\$ 1,155	\$ 273,160
✓ Danforth Creek PI	3,847	2,460	25.6	0.12	\$ 760	\$ 73,018
✓ Fern Creek	1,190	608	29.8	0.59	\$ 4,379	\$ 89,268
Golden Gate PI,PII,PIII	298	229	17.4	0.91	\$ 11,487	\$ 150,919
Indian River Drive Baffle Boxes	59.8	59.8	0.7	0.14	\$ 12,769	\$ 1,106,635
Kitching Creek PI (Flora Ave)	220	220	2.5	0.14	\$ 5,196	\$ 460,945
Little Club PI & PII	77	77	8.2	1.28	\$ 26,862	\$ 252,505
Manatee Creek Retrofit PI,PII,PIII	838	838	32.3	0.46	\$ 8,385	\$ 217,807
✓ Old Palm City PI ,PII,PIII	192	141.5	10.2	0.87	\$ 32,343	\$ 448,674
✓ Palm Lake Park	80	80	7.7	1.16	\$ 21,709	\$ 225,531
Poinciana Gardens PI & PII	188	188	10.6	0.68	\$ 15,723	\$ 278,509
✓ Rio St Lucie PI,PII	128.5	128.5	6.1	0.57	\$ 10,542	\$ 220,969
Salerno Creek / Hibiscus Park	900	899	54.9	0.73	\$ 6,792	\$ 111,214
✓ Tropical Farms	1,915	468	43.2	1.11	\$ 8,648	\$ 93,686
Tropic Vista	412	100	10.6	1.27	\$ 47,860	\$ 451,088
✓ Warner Creek PI,PII,PIII	5,030	1,524	23.3	0.36	\$ 2,864	\$ 271,718
Totals	17,698	10,063	286.1	0.34	\$ 5,050	\$ 177,636
Rio St Lucie Exfiltration	53	53	4.53	1.03	\$ 13,146	\$ 153,811

Thank you, Questions



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