



BEAUFORT COUNTY
STORMWATER MANAGEMENT UTILITY BOARD AGENDA
Wednesday, June 13, 2018
2:00 p.m.
Executive Conference Room, Administration Building
Beaufort County Government Robert Smalls Complex
100 Ribaut Road, Beaufort, South Carolina
843.255.2805

In accordance with South Carolina Code of Laws, 1976, as amended, Section 30-4-80(d), all local media was duly notified of the time, date, place and agenda of this meeting.

1. CALL TO ORDER – 2:00 p.m.
 - A. Approval of Agenda
 - B. Approval of Minutes – May 9, 2018 ([backup](#))
2. INTRODUCTIONS
3. PUBLIC COMMENT
4. REPORTS
 - A. Utility Update – Eric Larson, P.E. ([backup](#))
 - B. Monitoring Update – Eric Larson, P.E. ([backup](#))
 - C. Stormwater Implementation Committee Report – Eric Larson, P.E. ([backup](#))
 - D. Stormwater Related Projects – Eric Larson, P.E. ([backup](#))
 - E. Upcoming Professional Contracts Report – Eric Larson, P.E. ([backup](#))
 - F. Regional Coordination – Eric Larson, P.E. ([backup](#))
 - G. Municipal Reports – Eric Larson, P.E. ([backup](#))
 - H. MS4 Update – Eric Larson, P.E. ([backup](#))
 - I. Maintenance Projects Report – David Wilhelm, P.E. ([backup](#))
5. UNFINISHED BUSINESS
 - A. Regionalization - Selection of Consultant for Regional Stormwater Standard ([backup](#))
6. NEW BUSINESS
 - A. Special Presentation – Drop Off Center (DOC) Facility Plan ([backup](#))
7. PUBLIC COMMENT
8. NEXT MEETING AGENDA
 - A. July 11, 2018 ([backup](#))
9. ADJOURNMENT



Beaufort County Stormwater Management Utility Board (SWMU Board) Meeting Minutes

May 9, 2018 at 2:00 p.m. in Executive Conference Room, Administration Building, Beaufort County Government Robert Smalls Complex, 100 Ribaut Road, Beaufort, South Carolina

Draft Minutes 05/14/2018

Board Members

Present

Don Smith
Allyn Schneider
Marc Feinberg
William Bruggeman
James Fargher
Patrick Mitchell

Absent

Beaufort County Staff

Eric Larson
Patty Wilson
Melissa Allen
Katie Herrera
Joshua Gruber

Ex-Officio Members

Present

Van Willis
Andy Kinghorn
Scott Liggett
Kim Jones

Absent

Visitors

Dr. Alan Warren, USCB Lab
Alice Howard, County Council
York Glover, County Council
Ellen Comeau, Clemson Extension
Sam Connor, Citizen

1. Meeting called to order – Don Smith

- A. Agenda – Approved.
- B. April 11, 2018 Minutes – Approved.

2. Introductions – Completed.

3. Public Comment(s) – None.

4. Reports – Mr. Eric Larson and Mr. David Wilhelm provided a written report which is included in the posted agenda and can be accessed at:

<http://www.bcgov.net/departments/Administrative/beaufort-county-council/boards-and-commissions/council-appointed/board-list/stormwater-management-utility-board/agendas/2018/050918.pdf>

A. Utility Update – Eric Larson

In reference to item #1 will be discussed under unfinished business. The budget is going through the approval process; it received a 7/0 vote and is moving forward.

B. Monitoring Update – Eric Larson

In reference to item #2, County Staff and Lab Staff met and discussed the monitoring plan. With changes to the MS4 permit there is a need to update the plan. The updated plan will be

presented in the future. Mr. Don Smith asked if the County is trying to increase monitoring at County line to get a baseline near development areas. Mr. Larson said no baseline, but will be expanding monitoring in the watershed with a TMDL to meet requirements. He mentioned the plan they are putting together will be able to track land uses and have the ability to isolate impacts and contributors to be able to address the cause.

C. Stormwater Implementation Committee (SWIC) Report – Eric Larson

Please reference the report, no additional updates.

D. Stormwater Related Projects – Eric Larson

In reference to the Bold and Gold addition (item #1), the County is looking into a \$20,000 change order and going through the process to approve it for the project.

E. Professional Contracts Report – Eric Larson

Please reference the report, no additional updates.

F. Regional Coordination – Eric Larson

In reference to item #5, the project is ongoing and the County had a meeting with the Graves family today. It was an SRT level meeting to discuss code and how it would apply to development of that track. The concepts look good.

The Fall SESWA Conference (item #6) will be held in Hilton Head in October and the local community (as a whole) submitted eight papers, two of which were selected for presentation.

G. Municipal Reports – Eric Larson

In reference to the Mossy Oak Task Force (item D) the update provided by the City is consistent with the County commitment, the money has been budgeted for the next FY to help fund the project.

Mr. Scott Liggett indicated they have delivered the budget to Town Council for review during a workshop that will be held on May 22nd.

Ms. Kim Jones thanked the County for their partnership with Keep Bluffton Beautiful. Another event will be taking place on May 19th, primarily focusing on clean-up of May River Road.

H. Municipal Separate Storm Sewer System (MS4 Update) – Eric Larson

Mr. Larson shared that on April 1st the County moved to enforcing permitting (one year into the programming), which shows in the increase in of violations, referring to the MS4 charts. In reference to item #5, staff is working with DHEC and Hilton Head Homebuilders Association to get permit process training set up.

Mr. Billy Bruggeman asked about runoff into the Okatie from new construction. He commented there is permitting, but no violations. Mr. Larson responded that it [new development] falls in Jasper County and permitting is through DHEC. He explained the goal is to proactively work with Hardeeville and Jasper County to protect the Okatie. Mr. Joshua Gruber provided history of when the development was called the Semmler tract, now called the Horne Development. The County at that time said if there aren't assurances that there are protections to make sure the County isn't negatively impacted from the development that

they would hold them up in litigation. At that time it drove the development away. Now they are much more proactive in understanding what needs to be done to not negatively impact the Okatie. The East Argent tract has recently come up and the bulk of that tract drains toward the New River, but small portion drains to the Okatie. Conversations have taken place with the City; the County has expressed that when they begin looking at actual development plans that they want a seat at the table to provide steps to avoid negative impacts to the river.

In reference to LSP (item #4) the next consortium meeting will be taking place on May 15th. Ms. Ellen Comeau indicated they will be working on a special project dealing with septic tank education and also having a special guest from Clemson. Ms. Jones thanked Ms. Comeau for doing an Enviroscene at the May River event, where there were 340 participants.

Dr. Alan Warren informed the Board that Mike Monday resigned from the USCB lab and they will be looking for a replacement. The lab hopes to arrange a contract relationship with Mr. Monday in the future.

I. Maintenance Projects Report – Eric Larson

There were no major projects to report; all projects were minor routine maintenance.

5. Unfinished Business

A. Regionalization Update – Mr. Larson expressed that regionalization is gaining synergy from SoLoCo and the Mossy Oaks Task Force. The stormwater subcommittee has been working toward determining a single design standard that could be applied throughout the region and it was suggested to hire a consultant to help establish that standard. It has been agreed to find a consultant (cost share). The subcommittee had a good idea of scope and cost based on some work the Town of Bluffton had done for a similar project and an RFQ was put out. The results are due Monday, May 14th and the subcommittee will be meeting soon after to make a selection.

The second part of the process will be discussing the idea of a regional authority, to implement one program regionally. Mr. Marc Feinberg asked who the regional board would report to. Mr. Larson said the board would be appointed by the Councils and would be evenly represented by all of the communities [municipalities].

Mr. Don Smith asked if the consultant for this requires specialized experience. Mr. Larson replied that the consultant is for a design standard that would be general enough to cover all of conditions of the region, but be specific to be used by the jurisdictions (redevelopment vs development). In response to a question about how many submissions were received, Mr. Larson stated there were two responses.

B. Easement Acquisition Update – Mr. Larson and Mrs. Patricia Wilson shared easement acquisition updates for three ditch systems that are located in Councilman Gerald Dawson's district that are in need of maintenance. The efforts made to obtain the necessary easements required to be able to properly clean/maintain the ditch systems are described in the [attached memo](#). Following an update of each ditch system, brief discussion took place to clarify the steps taken by staff and to ensure that all options were considered. The board then made a recommendation on how to proceed with each project.

- **Pine Grove, Kato Lane, & Burlington Circle** – A motion was made to recommend proceeding with condemnation for easement on tracts: 42B, 284, 285 and 287. The motion was approved (6/0).

- **Jenkins Road** – A motion was made to recommend proceeding with condemnation for easement on tract 15-103. The motion was approved (6/0).
- **Bessies Lane & Young Circle** – A motion was made to recommend abandonment of easement for tracts: 16-199, 17, and 8A. The motion was approved (6/0).

6. New Business – None.

7. Public Comment(s) – None.

8. Executive Session – A motion was made to go into Executive Session. Approved (6/0).

9. Matter Arising Out of Executive Session – None.

10. Next Meeting Agenda – Approved.

11. Meeting Adjourned



BEAUFORT COUNTY STORMWATER UTILITY
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wstormwater@bcgov.net



M E M O R A N D U M

TO: Natural Resources Committee
Stormwater Utility Board

FROM: Eric W. Larson, PE, AICP, CPSWQ, CFM

DATE: April 25, 2018

SUBJECT: Condemnation for Easement – 4 tracts associated with the Pine Grove Road, Kato Lane & Burlington Circle

Condemnation for Easement – Jenkins Road tract 15-103

Easement Abandonment – Multiple tracts @ Bessies Ln. & Young Cir.

The attached easement exhibits are being proposed by staff at the request of adjacent property owners and/or Councilman Dawson to either begin formal condemnation procedures to acquire the easement, abandonment of existing easements, and/or cease easement acquisition. Multiple written, verbal and personal communications have resulted in unsuccessful voluntary easement acquisitions. Councilman Dawson has been involved with the acquisition process and supports further action.

Pine Grove Road, Kato Lane & Burlington Circle

The Stormwater Department often receives requests to maintain this regionally significant system due to flooding issues. The process to obtain easements needed for this ditch system formally began in January 2017. The County has received 20 unrecorded notarized easements out of the 24 requested easements. Three property owners consisting of four tracts (42B, 284, 285 & 287 as noted on the attached exhibit) have verbally denied granting easements. These property owners were contacted at least twice by letter, door hangers were left and personal contact was established. Councilman Dawson was instrumental in acquiring a couple unrecorded notarized easements, however, he is recommending board/committee review for condemnation and he will support their decision.

Jenkins Road

The process to obtain easements for this ditch system formally began in March 2017. Easements for the southern section of the ditch were acquired and recorded. The County has received 2 unrecorded notarized easements out of three requested easements for the northern section of the ditch. Multiple attempts of communication and negotiation including a visit from Councilman Dawson were unsuccessful on the remaining tract. Tract 15-103 (as shown on the attached easement exhibit) is heir's property and the heir who pays the taxes does not want to grant an easement to the County. Staff proposes condemnation of tract 15-103 to complete the easement acquisition process for this ditch. Councilman Dawson is recommending board/committee review for condemnation and he will support their decision.

Bessies Lane and Young Circle

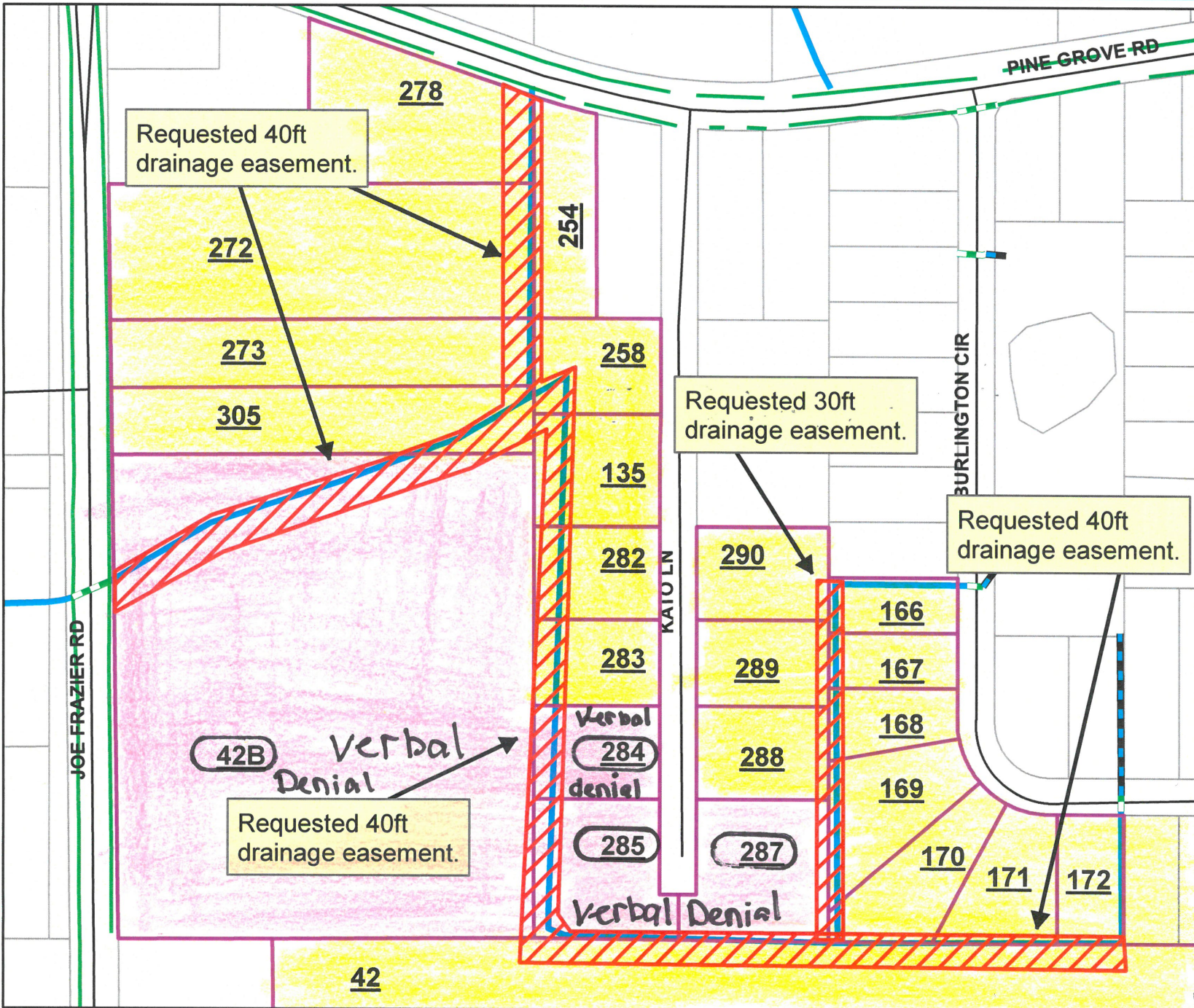
The process to obtain the easements needed for this regionally significant ditch system formally began in March 2017, although conversations with one of the residents offering to assist in garnering community

support began several years ago. Through past efforts, the County has recorded several easements. However, there are gaps in easement coverage to fully cover the system. While we have signed (unrecorded) easements on two tracts, we have numerous tracts still unsigned. All remaining property owners have been contacted by letter at least twice and have had multiple other attempts to communicate with them. Rev. Venice Young initially volunteered to assist us. We communicated with him 12 times, including 4 “no-show” meetings. Recently, one of the property owners, in which the County has a recorded easement, has stated verbally they desire to have the easement abandoned and do not want the County to continue to maintain the system. Due to lack of interest, Staff is recommending abandonment of all current recorded easements, ceasing further attempts to acquire easements, and ceasing future maintenance of this system. Abandonment would include easements on Tracts R100-16-199, R100-13-8A, & R100-13-17.

(Exhibit "A")
 R100-24
 Pine Grove Road

Activity: Drainage Easement

Township: Port Royal Island



Legend

- Requested Esmt
- Drainage**
- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel (fka Outfall)
- Channel Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Lateral
- Lateral Pipe
- Access Pipe
- Bleeder Pipe

Notarized Easements

Verbal denial

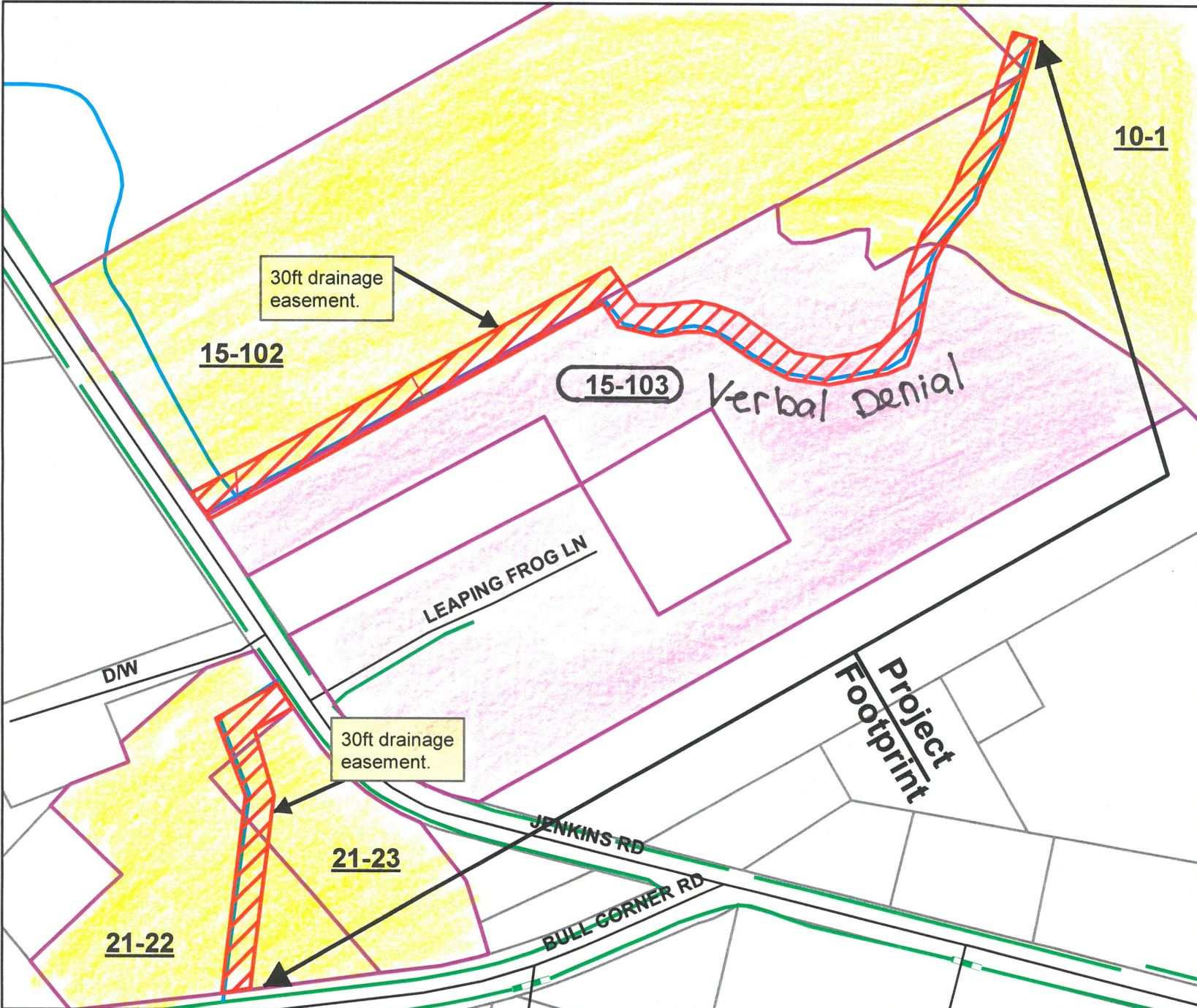


1 inch = 189 feet

(Exhibit "A")
**R700-
 Jenkins Road**

**Activity: Drainage
 Easement Request**

**Township:
 Sheldon**



Legend

- Requested Esmt
- Access Pipe
- Bleeder Pipe
- Channel Pipe
- Channel
- Crossline Pipe
- Lateral
- Lateral Pipe
- Road Pipe
- Roadside
- Roadside Pipe
- Parcels
- Easements

Notarized Easements

Verbal Denial

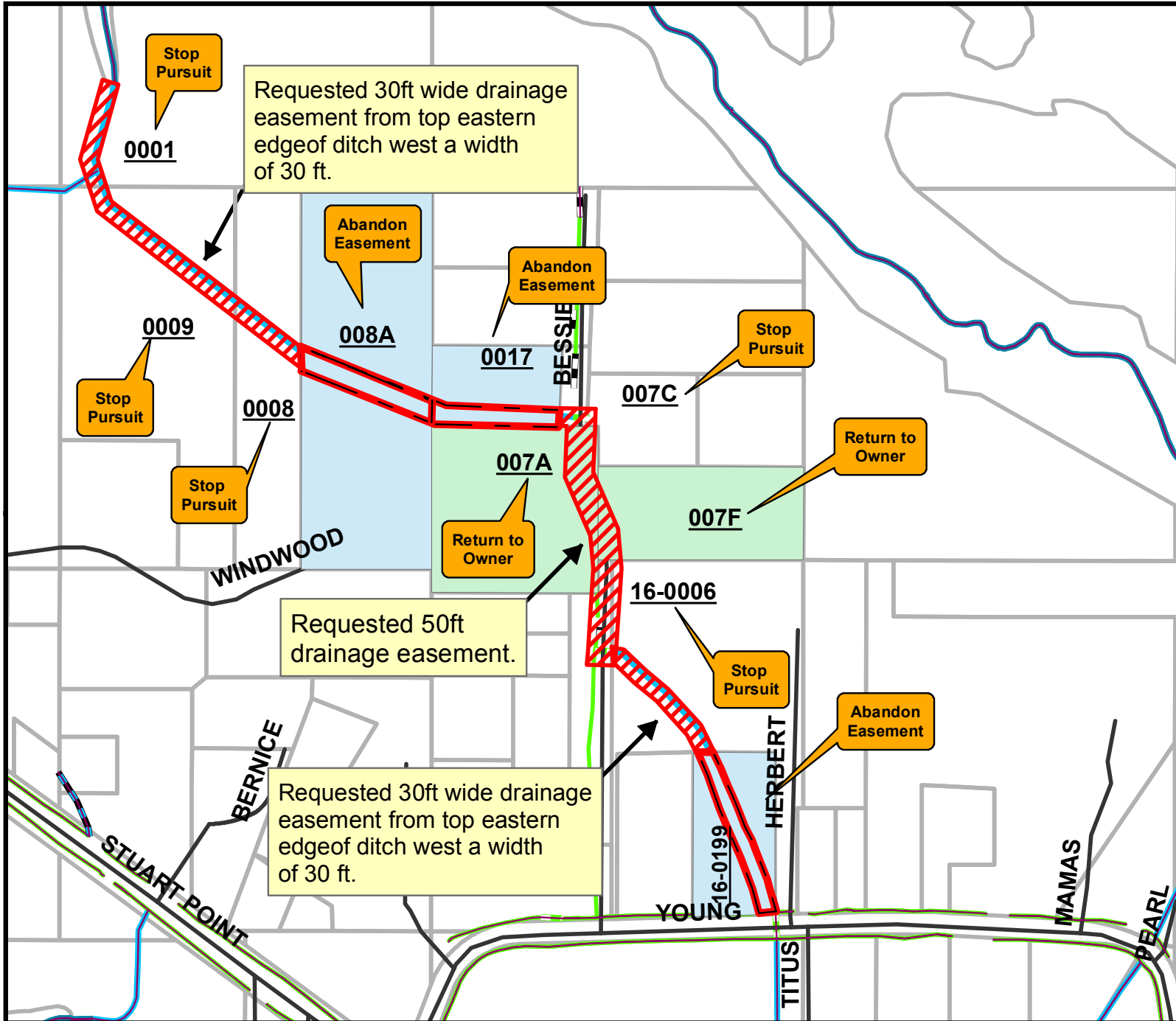


1 inch = 192 feet

(Exhibit "A")
 R100-13
 Young Circle &
 Bessies Lane

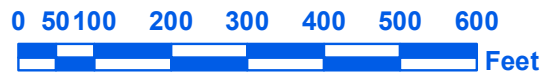
Activity: Drainage
 Easement Request

Township: Port
 Royal Island



Legend

- Requested Esmt
- Recorded Easements
- Notorized Easements
- Parcels
- Easements
- Ditch to be Constructed
- River
- Creek/Stream
- River/Creek/Marsh BANK
- Channel Pipe
- Roadside
- Roadside Pipe
- Road Pipe
- Crossline Pipe
- Driveway Pipe
- Lateral
- Lateral Pipe
- Access Pipe
- Bleeder Pipe
- Channel (fka Outfall)
- To be Piped



1 inch = 251 feet



**BEAUFORT COUNTY
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June 13, 2018

Stormwater Manager's Report for the Stormwater Utility Board Meeting

Utility Update

1. Southern Lowcountry Regional Board (SoLoCo) –
 - a) Proposals from firms to lead the region through a regional Stormwater standard development were reviewed by committee on June 1. The subcommittee received two proposals: 1) The Center for Watershed Protection, and 2) Wood Environment & Infrastructure Solutions. The subcommittee convened on June 1, 2018 to review and rank proposals. In general, both teams were found to be qualified for the project. However, the fee proposals were significantly different, \$179,554 and \$223,420, respectively. Without an overwhelming reason to pay more for the same end product, the subcommittee selected the Center for Watershed Protection without further deliberation. [See attached memo](#). Funding commitments for the study by each municipality are pending and will be discussed at the June 18, 2018 joint meeting of the City of Beaufort and Town of Port Royal and the June 26, 2018 SoLoCo meeting in Bluffton. Under Unfinished Business, the SWUB will be asked to recommend to the County Council to fund the County's portion of the cost.
2. Regionalization
 - a) The City of Beaufort and Town of Port Royal have invited staff to speak on the topic at a joint workshop on June 18, 2018 at 6pm at the Keyserling Cancer Center in Port Royal at 1680 Ribaut Road.
 - b) Also see SoLoCo update.
3. FY 19 Budget – Approval of the management fee for TY 18 by the municipalities has been received. County Council will have a budget adoption ordinance in May and June. They had second reading on May 29th.
4. International Erosion Control Association, Southeast Chapter Annual meeting – Larson and Herrera attended a 3-day training session in Chattanooga, TN.
5. Tidal Creeks, Development, & Water Quality Workshop – Larson attended a collaborative workshop at the College of Charleston put on by SC Seagrant on June 13.
6. Special projects – Staff has begun research on the various topics provided by the Board for future meetings:
 - a) Superfunds sites – DHEC staff have agreed to present and are scheduled for the

- September meeting.
- b) DHEC Shellfish monitoring results for 2017 – DHEC staff have agreed to present but it has not been scheduled. We are hoping to confirm them for the August meeting.
 - c) County Convenience Center (Drop off Center, or DOC) Facility Plan – [A draft document is attached to this packet](#). The report will be presented at today's meeting under New Business.
 - d) Military Site's Stormwater management – Staff has not made contact with representatives at MASC, PI, and Naval Hospital at this time.

Monitoring Update

1. Lab Update (From Dr. Alan Warren and Lab Manager Danielle Mickel)
 - a) Beaufort County:
 - i. Meeting on 5/4/18 with BC staff and MS4 consultant to discuss future plan goals.
 - ii. Finished sample collection for second quarter of second year for MS4.
 - b) USCB Lab:
 - i. Lab moves forward to serve in the same capacity as prior to Michael Monday's resignation. USCB will soon post the job vacancy on the University's website.
 - ii. Accepting weekly sample from Water Oak Utility for E.coli.
 - iii. Annual proficiency testing is complete with passing of all analytes.
 - iv. Monthly (and as needed) calibration of equipment and instruments.
 - v. Exploration of new TKN method approved for state certification.
 - vi. Certification Upkeep-including review of QA/QC, logbooks, COC's.
 - vii. On-going efforts to obtain additional certification; no new certs obtained during this Qtr.
 - viii. Monthly sterility checks on Lab water for TOC, TRC, HPC, Conductivity, metals.
 - ix. Learning new software for laboratory management systems.
 - c) Town of Bluffton:
 - i. Continue with weekly sample analysis.
 - ii. Additional weekly nutrient (T-N, T-P) parameter analysis for NRP-pond site.
 - iii. 2nd Qtr MS4 has finished.
 - d) Palmetto Bluff:
 - i. Revision for new MOU to continue sampling and analyses for 6 wet and 6 dry events.
 - ii. Data reduction/reporting.
 - e) GEL-HHI:
 - i. Analysis for Hilton Head Island E.coli samples 4x/Qtr, including data reduction/reporting, and invoicing.
2. Monitoring Plan updates - County staff and Lab staff met May 4th to discuss expanded monitoring plan needs.

3. Special Project Monitoring
 - a) Site visit on May 29th to finalize Walmart sampling locations; USCB staff accompanied County staff for the field work.
 - b) USCB will meet with Town of Port Royal on June 7th to discuss twice per year sampling of the Cypress Wetlands and a sampling plan for Port Royal driven largely by redevelopment of the port.
 - c) Went out with BC on 5/29/18 to US 278 pond sites to establish sampling points.
4. USCB staff attended the Clemson-sponsored environmental forum last week which was informative and an opportunity to discuss local issues related to stormwater and water quality.

Stormwater Implementation Committee (SWIC) Report

1. The SWIC has not met in the last month.

Stormwater Related Projects

1. Okatie West / SC 170 Widening Retrofit (Construction = \$993,048, CO#1 Design \$8,000, CO#1 &2 Const. \$25,739) Construction is ongoing. Pipe is in and excavation of the pond is currently underway. The USACE permit for the ditch diversion is still pending. The Bold and Gold experimental site add-on has been added to the contract. The project is on schedule for a July 31, 2018 completion.
2. Easements – Staff is working on numerous easement requests and meets monthly to review status. County Council approved condemnation on the projects from last month's meeting - Jenkins Road, Pine Grove Road, Bessie Lane / Young Circle. Note that SWUB recommendation on Bessie/Young was to abandon project and release existing easements. NRC and CC decided to keep the project and condemn. Staff was asked to make one more attempt at volunteer contribution of easement at Bessie/Young before condemnation.
3. SC 170 Widening and Stormwater Issues – Larson and Matt Rausch met on site to review the Stormwater ponds related to the Zinn property issues and discussed the requested changes to the pond weirs to satisfy Mr. Zinn's concerns. County legal sent a letter to Mr. Zinn requesting his agreement to sign a statement that any and all claims related to Stormwater would be resolved if we performed the requested work on the pond weirs. He refused to sign such a statement at this time. Therefore, the requested changes to the pond, which staff has stated will have no effect on the issues Mr. Zinn is having, has been canceled until further notice.

Professional Contracts Report

1. CIP FY 18 Grouping Stormwater Projects – (Design - Ward Edwards \$202,000, Andrews

Engineering \$560,490, Const. est. \$5,512,900) – All projects are in early design phase. No additional update at this time.

Regional Coordination

1. Factory Creek Watershed Regional Detention Basin “Phase I” & Academy Park Subdivision (Design Cost \$49,873, Tree Mitigation Cost \$18,200 & \$18,200, Construction Cost by the Developer) – Construction is ongoing. Topsoil stripped and excavation is beginning. No issues from adjacent property owners at this time.
2. Factory Creek Watershed Regional Detention Basin “Phase II” (Design Cost = \$63,390, Tree Mitigation Cost is pending, Construction Cost by the Developer) – Final stage is under construction. Last stage of construction is ongoing; dewatering into previous stages. No issues.
3. Town of Bluffton and Beaufort County Joint meeting – Nothing new to report.
4. Mossy Oaks Task Force – See Municipal Reports.
5. Graves Property / Pepper Hall Public / private partnership – The CC subcommittee met last on May 30, 2018 to review the proposed site plan. The concept plan will now go to SRT for staff and public review. The CC will still need to enter into a development agreement related to the project co-development of the county rural and critical lands park at that location. Stormwater is an integral part of the development of both the park and the development.
6. SESWA Fall Conference – October 3-5, 2018 at the Marriott Convention Center, Palmetto Dunes, Hilton Head Island, SC. Registration is open. This conference is not limited to SESWA members. Any Board member or member of the development community that wants to attend, should go to www.seswa.org and watch for registration information. This is an excellent training at a reasonable cost, and local.
7. Charleston area MS4 group – No meeting this past month.
8. County and Bluffton staff attended the Clemson-sponsored environmental forum last week which was informative and an opportunity to discuss local issues related to stormwater and water quality.

Municipal Reports

1. Town of Hilton Head Island (From Jeff Netzinger, Stormwater Manager and Brian Eber, MS4 Coordinator)
 - i. No information was available at the time of this report.
2. Town of Bluffton (From Kim Jones, Watershed Management Division Director)

- i. [See attached report.](#)
3. City of Beaufort (From Neil Desai, Asst. Public Works Director)
 - i. Mossy Oaks Task Force – No update at this time.
 - ii. No additional information was available at the time of this report.
4. Town of Port Royal (From Van Willis, Town Manager and Tony Maglione, consultant)
 - i. No information was available at the time of this report.

MS4 Report

1. Plan Review – [See the attached chart](#) for Beaufort County Stormwater staff plan review workload for the past 12 months.
2. Stormwater Permits – [See the attached chart](#) for Beaufort County Stormwater permits issued for the past 12 months. It is noteworthy that we are seeing numerous permits coming from Daufuskie Island. This is a time consuming task but something we are prepared for.
3. Monthly Inspection summary - [See the attached chart](#) for Beaufort County Stormwater staff inspection, complaint, IDDE, and violations summary for the past 12 months.
4. Public Education – Lowcountry Stormwater Partners (LSP), via Carolina Clear, continues to work on several initiatives towards public education and outreach. No additional information was available at the time of this report.
5. Construction permitting – Staff from BC, ToB, and ToHHI met with DHEC representatives, leaders of the HHI Home Builders Association, and numerous local and state elected officials on Friday, May 25th to discuss permitting requirements. At issue seems to be the length of time to get a DHEC permit, the complexity of the permit application (the NOI), and the perception of double permitting. As an MS4, the local governments must permit construction, however, this does not preclude a state permit from being required. Action items from the meeting included: 1) proposed changes to the statewide permit to exempt, or provide automatic coverage on, some projects from state permitting, 2) DHEC to work on ways to speed up plan review, and 3) a commitment to have open house meetings in Beaufort County within the coming months to educate permittees on the current and proposed process. While not discussed in detail during the meeting, the HBA and elected officials present has expressed interest to BC Staff that they wish to; 1) pursue Delegated Plan Review / Qualified Local Program status for Beaufort County MS4s which would allow for DHEC permitting to be eliminate in lieu of local review only, and 2) continue to support the concept of regionalization and a unified Stormwater Authority to create a single set of design standards and permitting requirements, as the HBA members have a certain degree of frustration and confusion with the differing permitting requirements currently in place among the three local MS4s.

6. MCM6 – Facility plan for Drop Off Centers – A draft document is attached to this packet. Staff will be presenting the finding today at the meeting.
7. Monitoring plan update – Work ongoing. No update at this time.
8. MS4 Statewide General permit – Staff attended training on E-Permitting for MS4 permits. It appears to be a simple process and will require limited effort. DHEC is recommending MS4s hold off on new SWMP development until after the new MS4 permit is issued in early 2019.
9. Statewide General permit for Construction – DHEC plans to get this “minor” update approved by EPA Region 4 within the next 60 days. The proposed permitting changes mentioned in #5 above are one of the proposed changes.
10. E-permitting – See #8 above.

MEMORANDUM

TO: Members of the Southern Lowcountry Regional Board (SoLoCo)
Elected representatives of the City of Beaufort, & Towns of Port Royal & Yemassee

FROM: SoLoCo Stormwater Technical Subcommittee (incl. staff from BC, JC, ToB, CoB, CoH,
and ToPR)

DATE: June 18, 2018

SUBJECT: Recommendations to select a consultant and fund a project to develop a regional
stormwater technical standard and model ordinance

Recommendation:

The Stormwater Technical Subcommittee recommends the elected officials of SoLoCo and throughout the Lowcountry region agree to the procurement of the Center for Watershed Protection, a stormwater consultant, to assist with the development of regional stormwater design standards and a model ordinance. Further, the subcommittee recommends that the cost of said project be shared among all jurisdictions based on a distribution using population figures. The project cost will be \$179,554.

Background:

As directed by our elected officials, making up the membership of the SoLoCo, at the December 5, 2017 meeting, staff members representing participating jurisdictions of the SoLoCo have met multiple times to develop a plan to write a unified regional stormwater technical standard that could be implemented uniformly throughout the region. Understanding the importance of the regional approach, these staff members invited staff from other jurisdictions not part of the SoLoCo, namely the City of Beaufort and Town of Port Royal. This subcommittee has been working to develop a scope of work to achieve these goals. Staff members quickly realized this is an effort that cannot be done within the limited resources, budget, and time of existing departments.

On March 27, 2018, the subcommittee presented a proposal to the SoLoCo Board to hire a consultant and co-fund the project in the amount of \$179,554. During that meeting, the Towns of Ridgeland and Hilton Head Island stated they would not be participating in the project. The SoLoCo Board voted that the members of the Board should consider the request as each jurisdiction prepared their annual budgets. They further agreed to reconvene at the June meeting and state their commitment to participate and fund the project as proposed.

Following that meeting, discussions among the subcommittee members concluded that with a 3-month window until a decision would be made that we should do a 2nd Request for Qualifications and solicit additional proposals. Our scope of services was identical to the scope presented in March. In summary, the project will:

- Benchmark the region among similar communities in SC and the southeast coast
- Define stormwater design standards that are consistent with our mission statement
- Engage stakeholders before, during, and after the standards are developed

The subcommittee received two proposals: 1) The Center for Watershed Protection, and 2) Wood Environment & Infrastructure Solutions. The subcommittee convened on June 1, 2018 to review and rank proposals. In general, both teams were found to be qualified for the project. However, the fee proposals were significantly different, \$179,554 and \$223,420, respectively. Without an overwhelming reason to pay more for the same end product, the subcommittee selected the Center for Watershed Protection without further deliberation.

The following options for a cost sharing arrangement among the participating jurisdictions for this scope of work are as follows. Based on statements made to the SoLoCo Board at the March 27, 2018 meeting, the Towns of Hilton Head Island and Ridgeland have been removed from the proposed cost share:

Cost Share for Regional SW Std. Development	Split by Population ⁽²⁾		Split by land mass (sq. mi) ⁽³⁾		Even Distribution
	Population	Cost	Land Mass	Cost	
Port Royal	12,785 (7.6%)	\$13,669	19.0 (1.8%)	\$3,282	\$29,925
Beaufort, City	13,445 (8.0%)	\$14,374	24.7 (2.4%)	\$4,260	\$29,926
HHI ⁽⁴⁾	N/A	\$0	N/A	\$0	\$0
Bluffton	18,897 (11.3%)	\$20,203	52.2 (5%)	\$9,015	\$29,926
Unincorp. BC	98,494 (58.7%)	\$105,302	267.8 (26.0%)	\$46,703	\$29,926
Yemassee ⁽¹⁾	N/A	\$0	N/A	\$0	\$0
Unincorp. Jasper	18,603 (11.1%)	\$19,889	624.2 (60.0%)	\$107,717	\$29,926
Hardeeville	5,721 (3.4%)	\$6,116	49.7 (4.8%)	\$8,576	\$29,925
Ridgeland ⁽⁴⁾	N/A	\$0	N/A	\$0	\$0
Total		\$179,554		\$179,554	\$179,554

⁽¹⁾ Beaufort County will assume this cost wholly on behalf of the Town of Yemassee.

⁽²⁾ Source: Vintage July 1, 2016 Population Estimates: Population Estimates

⁽³⁾ Source: Beaufort County GIS data for BC, Wikipedia search, JC Comp. Plan for JC. (excludes water areas)

⁽⁴⁾ Hilton Head Island and Ridgeland have chosen not to participate in the regional effort.

After careful consideration of the pros and cons for each option, the subcommittee came to consensus on a distribution of cost based on population. While annexations can shift costs, the impacts of growth from development is most evident in population changes. It is the opinion of the subcommittee that the need for uniform regional stormwater standards for future growth is equally as great in “built out” communities facing redevelopment pressures. Population figures more fairly represent needs now and in the future. Thus, the subcommittee recommends a cost share based on population figures. Once the project is underway, the needs and concerns of all jurisdictions participating should be addressed evenly without preference to the larger financial contributors.

The Stormwater Technical Subcommittee thanks you for your continued commitment to regionalism and this important environmental and development topic.



Solid Waste DOC Water Quality Retrofit Planning Level Cost Estimates

Prepared for Beaufort County
Public Works

June 2018



McLaughlin Consulting

Summary

11 drop off centers were inspected and considered for stormwater quality retrofits. Based upon those inspections, a desktop analysis and discussions with staff, a planning level cost estimate for recommended retrofits is below.

DOC Name	Planning Level Cost
Big Estate	\$46,000
Sheldon	\$5,200
Lobeco	\$8,700
Coffin Point	\$11,000
Gate	\$13,700
Pritchardville	\$9,800
Cuffy	\$6,000
St. Helena	\$0
Shanklin	\$20,000
Hilton Head	\$20,000
Bluffton	\$40,000
Total	\$180,400

Background

Inspections were performed of all of the County's Drop off Centers (DOCs) except for Daufuskie on February 12-13. These inspections were performed by Tanner Powell, Beaufort County, and Beth McLaughlin, McLaughlin Consulting. The goals of the inspections were to determine the need for stormwater quality improvements and pollution prevention needs. Inspection reports were completed for each DOC. An initial report was prepared to inform staff about observed trends and initial concepts. The next task was to develop retrofit concepts with planning level cost estimates to aid in decision-making. This report describes those retrofit structural and non-structural concepts as well as planning level costs for the structural retrofits.



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DOC Facilities Included

DOC facilities that were inspected in February have been grouped into regional and local facilities. Regional facilities are those that are larger, paved DOCs, and local facilities are smaller with a paved ramp and concrete roll-off pads. **Regional facilities** are in bold type in the list below.

DOC Facilities Inspected February 12-13	
Big Estate	St. Helena
Sheldon	Shanklin
Lobeco	Hilton Head
Coffin Point	Bluffton
Gate	
Pritchardville	
Cuffy	

Non-structural stormwater quality and pollution prevention practices

Non-structural activities recommended for all facilities are described below.

Training and behavior changing. These practices focus on changing behavior of DOC facility staff. SWPPPs and standard operating procedures have been developed for all facilities. These components will be included in staff training at least annually (or more frequently where ongoing issues are noted). A concerted effort must be continuously made towards training and education to realize effectiveness. Training can simply focus on going over DOC facility SOPs to ensure all staff are aware of the best practices. Annual evaluations of the effectiveness of the training should occur in coordination with the MS4 annual report preparation or other ongoing annual requirement.

Pollution prevention practices. While the DOCs have pollution prevention practices in place, most were not being maintained. Pollution prevention practices include absorbent socks around the waste oil storage tanks, spill cleanup materials available on the site, and covering household garbage roll-offs. SOPs for each facility will focus on practice installation and long-term operation and maintenance.

Used waste oil tanks. In the February inspections, most of the used oil tanks were in need of maintenance. Specifically, the absorbent socks in the spill reservoirs needed to be replaced with a new sock or with a sock of a different size. During discussions with County staff, these issues have been or are being resolved. Therefore, costs for those structural controls are not included in this document.

DOC retrofits with planning level cost estimates

The following section provides a summary of the structural retrofits recommended for each site, as well as a planning level cost estimate. These retrofit options were developed with input from Public Works staff. Assumptions for the retrofits and cost estimates are below:

Assumptions:

- Concepts were developed to address water quality treatment, not water quantity.

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- The baseline water quality design is to capture and treat the first 1 inch of runoff from impervious surfaces. Where feasible, pretreatment was included to address potential pollutants from roll-off leakage.
- Pond construction costs, including the first year of maintenance, were estimated at \$6.80 per cubic foot of storage needed. This cost estimate came from EPA's *Methodology for Developing Cost Estimates for the Opti-Tool* document (February 2016).
- These planning level costs do not include design or survey costs.
- Where rock is to be placed as a stabilization practice, geotextile fabric should be placed first. The geotextile fabric prevents the rock from being pressed into the soil and also provides a more stable base upon which to drive. A 2400 lb tensile strength geotextile fabric is recommended with a 4-inch depth of 2-inch stone on top. If a lower tensile strength fabric is used, the depth of rock on top should be increased. For cost estimating purposes, the Mirafi HP270 geotextile fabric was used. More information on this geotextile product can be found in Appendix A.
- Where pretreatment is recommended, a manufactured treatment device (MTD) was recommended as pretreatment prior to discharging to ponds. Pretreatment removes the larger portion of pollutants in runoff beyond sediment and solids, such as nutrients and other pollutants associated with leaking roll-off bins. Pretreatment devices also decrease the amount of maintenance needed on ponds. For cost estimating purposes, a MTD type, size and cost were needed. The MTD used as an example in this report is the Suntree Nutrient Separating Baffle Box (NSBB). The NSBB is a filtering type MTD, which will require attention/maintenance over time to ensure its proper function. Note that this is not the only option available to the County. MTDs generally have a maximum treatment flow rate associated with a treatment criteria, such as 80% TSS reduction. Most maximum treatment flow rates for MTDs are low and require either a flow regulator upgradient from the MTD or small drainage areas. For the purposes of this cost estimation, pretreatment was only designed for the area around the roll-off bins and was assumed generally to be about 0.25-0.5 acres in size. Given these assumptions, the following cost applies to the pretreatment device:
 - o Nutrient Separating Baffle Box 3-6 is \$20,000. Maximum treatment flow rate is 1.4 cfs for a 50% TSS reduction (as certified by NJDEP).

This cost does not include grading, additional stormwater system pipes, or labor to install. More information can be found on the NSBB in Appendix B.

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Big Estate (63 Big Estate Rd)

Planning Level Cost Estimate: \$46,000

Site information. Big Estate is a local facility with a paved ramp and paved roll-off container pads. The tract is 1.2 acres. The northwest corner may be the best option for a pond to treat water quality. Based upon a desktop analysis, 1 acre of treatment would be needed. The pond should be 3350 ft² at 2 ft depth. Pollution prevention and training are needed for managing used oil collection tank area, cleanup materials and absorbent sock replacement. The household waste roll-off bin was covered, but the other bins for bulky materials and yard waste were not covered. Pollution prevention training should focus on ensuring proper sorting of all trash before being placed in a roll-off. Also, concrete pads under the roll-offs should be cleaned at least weekly so leaks are more visible and can be cleaned up.

Retrofit information.

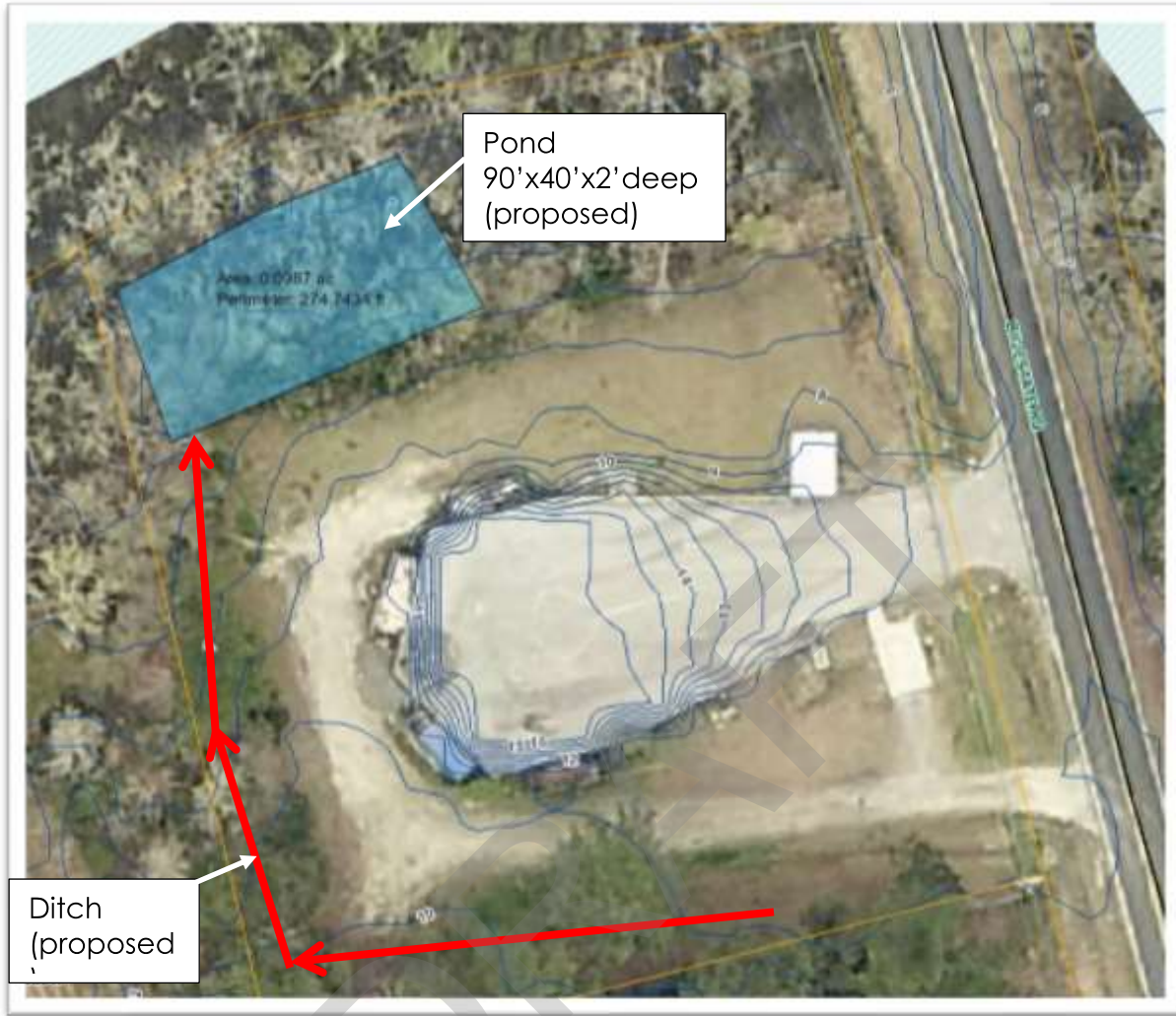
Water quality treatment needed: 6700 ft³

Constraints: Unpaved areas around roll offs make pretreatment infeasible. No stormwater system installed on the site.

BMP Type	Size	Planning Level Cost Estimate
Pond	84' x 40' x 2' deep	\$46,000
Pretreatment	N/A	N/A
Other		
- Drainage ditch	250' in length; ditch to drain	County forces, County equipment

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Figure 1 Big Estate DOC Retrofit Sketch



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Bluffton (104 Simmonsville Rd)

Planning Level Cost Estimate: \$40,000

Site information. The Bluffton facility is a 7.5 acre regional facility with paved traffic lanes, roll-off areas and other collection areas. A storm drain system was observed on the site, with 2 drop inlets near the roll-off containers and a culvert in the grassy area in the middle of the traffic lanes. The County GIS did not include the drop inlets or connecting storm drain pipes. A pond is located between Bluffton Parkway and the DOC. Pretreatment should be considered to treat roll-off leakage before entering the storm drain system and pond.

Retrofit information.

Water quality treatment needed: 15,066 ft³ in existing pond; pretreatment in drop inlets
Constraints: No mapping of the storm drain system near the roll-off bins including the drop inlets was available. If these inlets are connected, it could be that just one NSBB is needed in the lower drop inlet. The planning level cost estimate assumes a worst-case scenario where the drop inlets are on separate lines and treatment is needed in both.

BMP Type	Size	Cost estimate
Pond	Existing pond along Bluffton Pkwy	--
Pretreatment		
- 2- Nutrient Separating Baffle Boxes in the 2 drop inlets	NSBB Model 3-6	\$20,000 each

Figure 2 Bluffton DOC Retrofit Sketch



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Figure 3. Bluffton drop inlet locations



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Coffin Point (20 Cee Cee Rd)

Planning Level Cost Estimate: \$11,000

Site information. Coffin is a local facility with a paved ramp and paved roll-off container pads. The used oil recycling area is at the upgradient end of the site, with the low point on the lower eastern side of the site. Based upon a desktop analysis, there is not enough surface area on the tract to include a pond on the lower end. The southeastern adjacent property appears to be an access road to several properties behind and beside the Coffin site. In addition, the septic holding tank is located beside the ramp on the southeast. The household waste roll-off bin was covered, but the other bins for bulky materials and yard waste were not covered. Pollution prevention training should focus on ensuring proper sorting of all trash before being placed in a roll-off. Also, concrete pads under the roll-offs should be cleaned at least weekly so leaks are more visible and can be cleaned up. Training should focus on the importance of these activities as well as on maintenance needs of any structural pollution prevention practices.

Retrofit information.

Water quality treatment needed: 1140 ft³

Constraints: Low point for property appears to be in the southeast corner of the property, where the surface area for treatment is limited. The septic tank is located on the lower end of the ramp, close to where the pond is suggested. The pond should be set back far enough to allow septic tank servicing. A portion of the adjoining property should be purchased to allow the septic tank maintenance access and installation of the pond and ditch. Land purchase may be difficult due to what appears to be an access road to several properties.

BMP Type	Size	Cost estimate
Pond	30' x 20' x 2' deep	\$8,160
Pretreatment	N/A	
Other		
- Purchase property along eastern property line	200' x 20-30' minimum	@\$14,000/ac, ~\$2000
- install ditch	100'	None; County forces to construct

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Figure 4 Coffin Point Retrofit Sketch



Figure 5 Coffin property with adjacent properties shown



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Cuffy (138 Cuffy Rd)

Planning Level Cost Estimate: \$6,000

Site information. Cuffy is a 1-acre local facility with a paved ramp and paved roll-off pads. Based upon a desktop analysis, the site has 11,000 ft² of impervious surfaces equating to 1700 ft³ of treatment required. An area to the northwest could be retrofitted with a pond to meet the treatment needs. The household waste roll-off bin was covered, but the other bins for bulky materials and yard waste were not covered. Pollution prevention training should focus on ensuring proper sorting of all trash before being placed in a roll-off. Also, concrete pads under the roll-offs should be cleaned at least weekly so leaks are more visible and can be cleaned up. Training should focus on the long term maintenance of absorbent socks and general pollution prevention for the site.

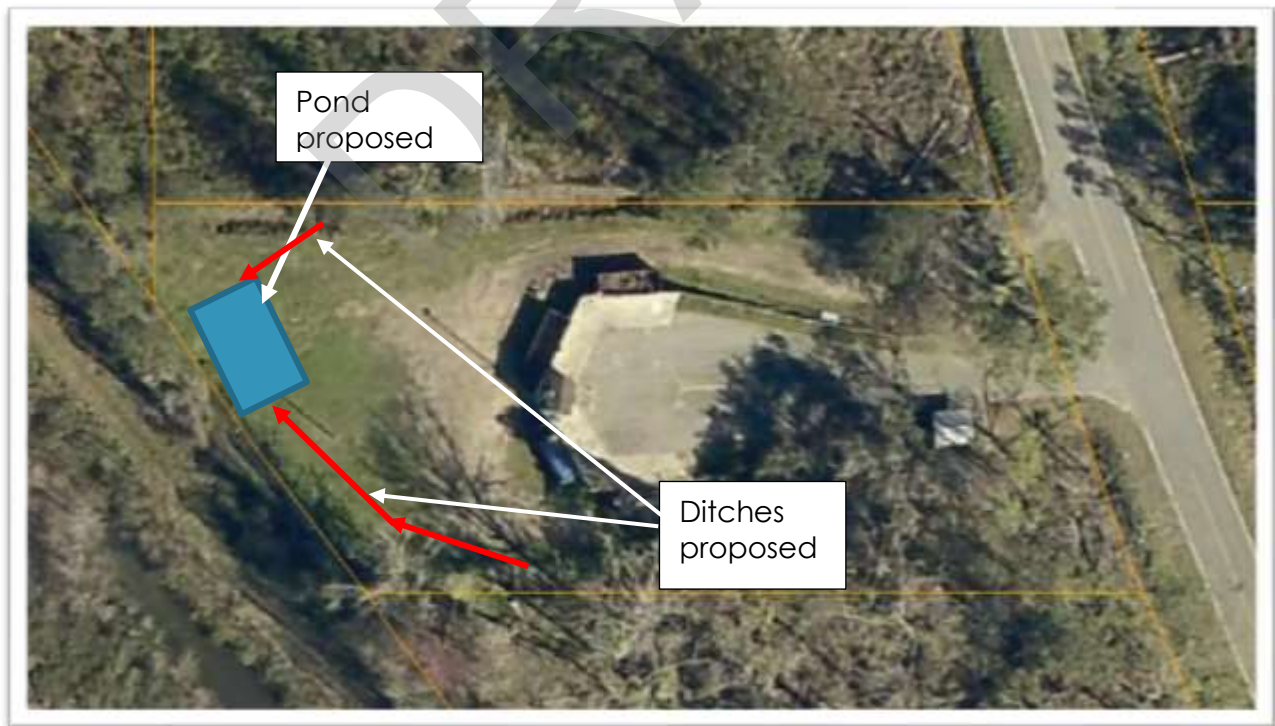
Retrofit information.

Water quality treatment needed: 1700 ft³

Constraints: Roll-off area is mostly unpaved, making pretreatment infeasible. No other known constraints.

BMP Type	Size	Cost estimate
Pond	20' x 43' x 2' deep	\$5,848
Pretreatment	N/A	
Other - ditches	75-100'	To be constructed by County staff

Figure 6 Cuffy Retrofit Sketch



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Gates (316 Castle Rock Rd)

Planning Level Cost Estimate: \$13,700

Site information. Gates is a local facility at the intersection of two roads. The tract of land is 1 acre and triangular in shape. There are two entrances: one off of Castle Rock Rd to the unpaved portion containing the used oil storage area and another on Grober Hill Rd. to the paved drop off ramp. The entrance on Castle Rock needs to have rock placed so mud and dirt isn't tracked onto the roadway. The unpaved portion has a storm drain system in place, with the culvert inlet in the middle and its outlet to the west discharging into a wetland. The household waste roll-off bin was covered, but the other bins for bulky materials and yard waste were not covered. Pollution prevention training should focus on ensuring proper sorting of all trash before being placed in a roll-off. Also, concrete pads under the roll-offs should be cleaned routinely so leaks are more visible and can be cleaned up. A pond could be installed to meet water quality requirements. The treatment volume needed to offset the impervious surfaces on the site is 1550 ft³. Pollution prevention training should focus on trash and debris cleanup and maintenance of any pretreatment device and other pollution prevention practices on the site.

Retrofit information.

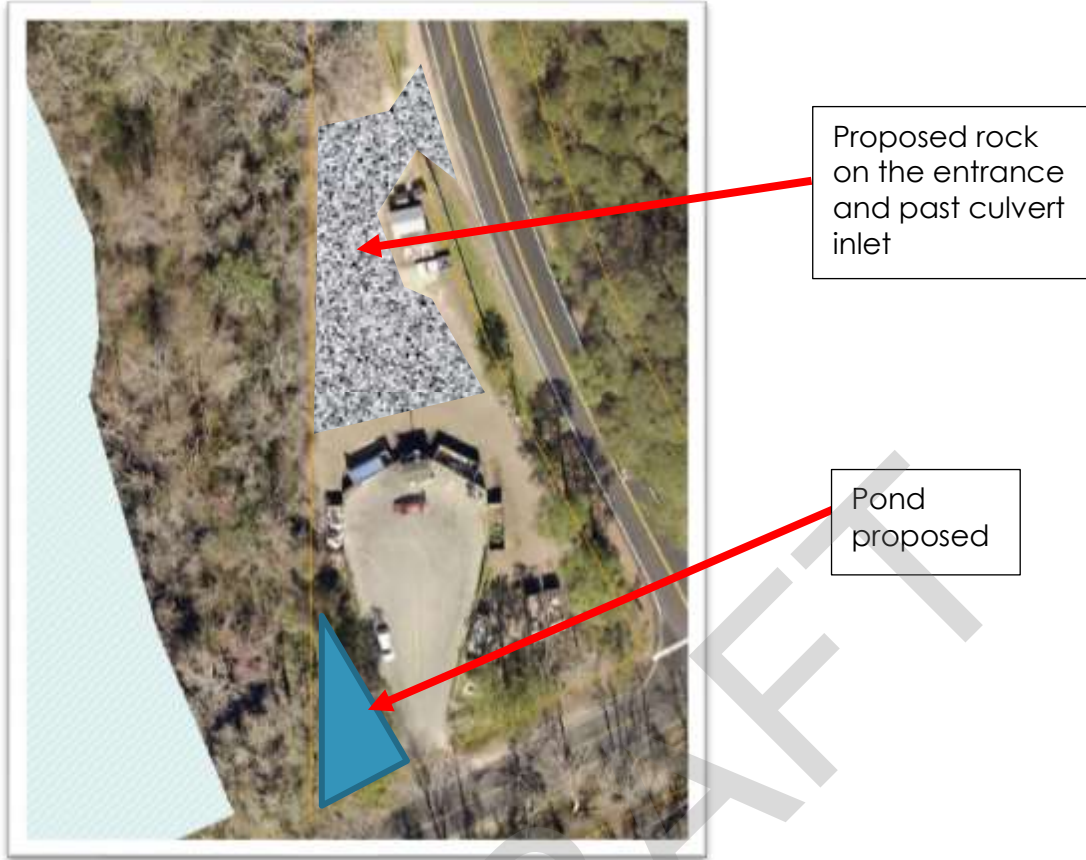
Water quality treatment needed: 1550 ft³

Constraints: Large area around roll-offs and near recyclables is unpaved. A culvert inlet is in the middle of the unpaved area and discharges directly to a wetland. Placing geotextile fabric and at least 6 inches of stone in this area will prevent sediment from entering the culvert and discharging to the wetland. With both garbage trucks and public vehicles accessing the site from Caste Rock Rd, a heavier duty (2400 lb tensile strength) geotextile fabric with 4" of stone should be placed in the area.

BMP Type	Size	Cost estimate
Pond	575 ft ² x 2' deep (triangular 25' x 25' x 70' x 2' deep)	\$7,800
Pretreatment	N/A	
Other		
- Rock area from Castle Rock Rd to around the culvert inlet and in front of recycling area	0.2 acres surface area Geotextile fabric 2" clean stone (No. 4) 4" deep – approximately 100 tons	Geotextile: Mirafi HP270 2400 lb tensile strength or equivalent – 950 yd ² @ \$1.25/yd ² = \$1200 Stone: \$47/ton delivered; \$4,700

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Figure 7 Gates Retrofit Sketch



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Hilton Head (Summit Drive)

Planning Level Cost Estimate: \$20,000

Site information. The Hilton Head DOC is a regional facility located on a portion of a 66-acre parcel near the Hilton Head airport. Based upon a desktop analysis, the DOC site has approximately 35,000 ft² of impervious surfaces. The site also has a storm drain system installed with drop inlets located close to the roll-off bins. Roll-offs are covered; however, evidence of stains from leaks below the roll-offs was present during the annual inspection. No pretreatment of runoff before entering the storm drain system was noted. The storm drain system on the DOC discharges to a pond to the northeast of the site. A pretreatment device in a drop inlet is recommended to remove pollutants from leaking roll-off bins. In addition, training on used oil storage should be provided to the DOC staff to focus on spill cleanup and replacement of the absorbent socks on the tank.

Retrofit information.

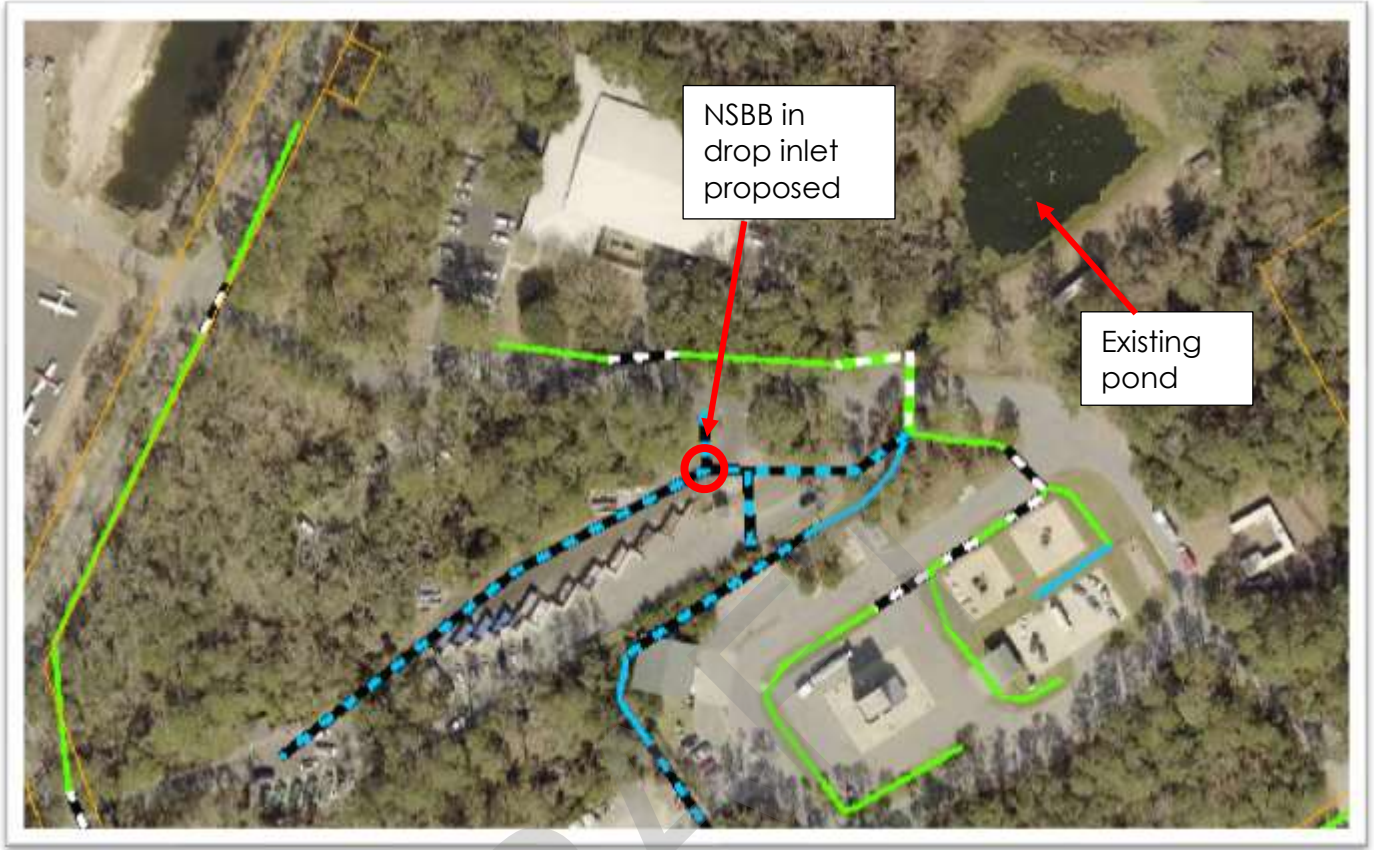
Water quality treatment needed: 5400 ft³

Constraints: No known constraints. The site has numerous drop inlets and a curb inlet. An existing pond is to the northeast of the site, so only pretreatment is needed.

BMP Type	Size	Cost estimate
Pond	N/A – existing pond	N/A
Pretreatment	1 Nutrient Separating Baffle Boxes	\$20,000
Other	N/A	

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Figure 8 Hilton Head Retrofit Sketch



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Lobeco (16 Keans Neck)

Planning Level Cost Estimate: \$8,700

Site information. Lobeco is a local DOC situated on approximately 1 acre. While the site itself doesn't have a storm drain system, there is a drop inlet at the entrance of the site at the bottom of the entrance ramp. However, County GIS includes stormwater piping along the southern and western property lines. It appears these lines tie into the SCDOT system near the road and entrance. The desktop analysis found approximately 8000 ft² of impervious surfaces. To provide stormwater quality treatment, approximately 1276 ft³ of storage is needed. There appears to be plenty of room for a pond towards the south and west of the ramp. In addition, the used oil tank should be changed out to a tank that provides more storage in the reservoir at the bottom of the tank or a properly sized absorbent sock should be installed in the reservoir. During the February inspection, a significant amount of trash was noted on the DOC site and outside of the gate. Pollution prevention training should focus on trash pick up, maintenance of pollution prevention practices and spill clean up. The household waste roll-off bin was covered, but the other bins for bulky materials and yard waste were not covered. Pollution prevention training should focus on ensuring proper sorting of all trash before being placed in a roll-off. Also, concrete pads under the roll-offs should be cleaned at least weekly so leaks are more visible and can be cleaned up.

Retrofit Information.

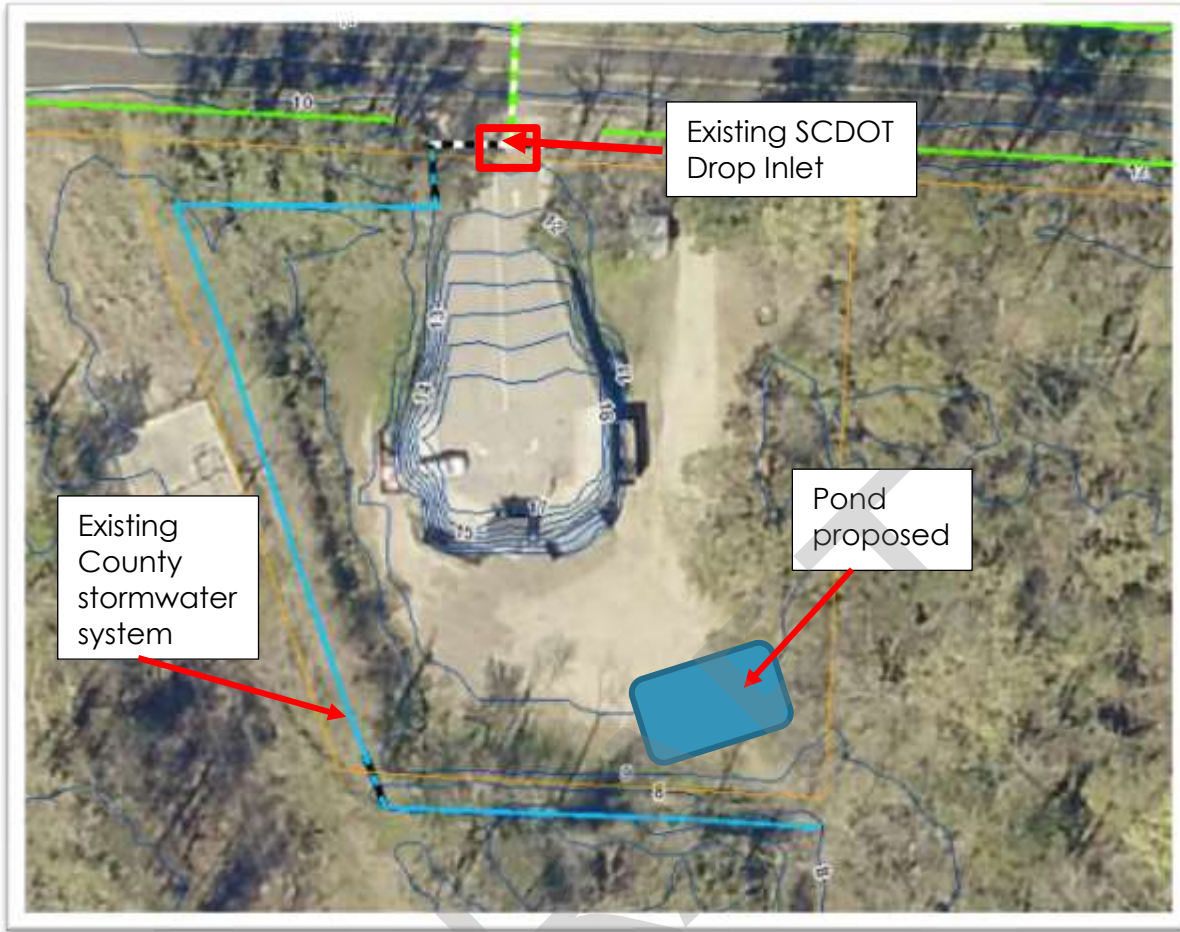
Water quality treatment needed: 1276 ft³

Constraints: The ramp drains towards the road, where there is an existing storm drain drop inlet owned by SCDOT. Based upon the GIS information, it appears that County-owned stormwater drainage culverts connect to the SCDOT system at or near the drop inlet. Since the stormwater system is owned and operated by SCDOT, treatment cannot be placed in the drop inlet at the bottom of the ramp. Emphasis should be placed on educating DOC staff regarding cleanup after spills and trash dumping so these materials do not migrate into the SCDOT stormwater system or off-site. The location of the County stormwater system pipes should be verified before installing the pond. The pond should be constructed near the southeast corner of the property. Comparing the contour lines and wetland area from GIS to field conditions, it appears that the wetland is not on the property and the contours are more realistic. However, before constructing the pond, the wetland boundary should be also verified.

BMP Type	Size	Cost estimate
Pond	20' x 32' x 2' deep	\$8,700
Pretreatment	N/A	
Other	N/A	

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Figure 9 Lobeco Retrofit Sketch



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Pritchardville (54 Gibbet Rd)

Planning Level Cost Estimate: \$9,800

Site information. Pritchardville DOC is a local facility located on 0.8 acres of land. The DOC includes a paved ramp and an unpaved portion containing the oil storage and recyclables. There are 3 entrances: the entrance to the paved roll-off drop off area, the unpaved truck access area to service the bins, and the recyclable area. The entrance to the recyclable area has been stabilized with rock. However, the truck access entrance has not. Rock should be placed on this entrance as well to prevent dirt from being tracked off the site. Based upon a desktop analysis, the site has approximately 8300 ft² of impervious surfaces and needs 1300 ft³ of treatment to meet the stay on volume. The northeast and northwest portions of the site could be retrofitted with a pond to provide this volume of storage. The used oil tank spill reservoir is undersized and barely fits absorbent socks. This tank should be exchanged for a tank with greater storage or a properly sized absorbent sock installed in the reservoir. The household waste roll-off bin was covered, but the other bins for bulky materials and yard waste were not covered. Pollution prevention training should focus on ensuring proper sorting of all trash before being placed in a roll-off. Also, concrete pads under the roll-offs should be cleaned at least weekly so leaks are more visible and can be cleaned up. Training should focus on proper maintenance of entrances to prevent track out, maintenance of the area around the used oil tank and spill clean-up.

Retrofit information.

Water quality treatment needed: 1300 ft³

Constraints: It appears that the wetland is well off the parcel. There are 2 constraints to consider: 1) truck maneuvering and 2) overcoming elevation in the southeast corner to bring runoff to the northeast corner. The storage required is fairly small, and constructing it in a triangular shape should keep the pond mostly out of the way. The estimated pond size is 30'x30'x45', 2' deep.

BMP Type	Size	Cost estimate
Pond	30'x30'x45' by 2 ' deep	\$8,840
Pretreatment	N/A	
Other		
- Drainage ditches	260'	County staff to construct
- Stone at recyclable entrance	Approx 20 tons, 4" deep 2" clean stone Geotextile fabric 20' wide x 50' long	Stone: \$47/ton - \$940 Geotextile: Mirafi HP270 2400 lb tensile strength or equivalent – 110 yd ² @ \$1.25/yd ² ≈\$140

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Figure 10 Pritchardville Retrofit Sketch



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Shanklin (Shanklin Rd)

Planning Level Cost Estimate: \$20,000

Site information. The Shanklin DOC is a regional facility that includes a white goods drop off area. The tract of land is 24 acres with the DOC collocated with the mosquito control center and other County buildings. The main DOC area is paved, though the access roads around the white goods drop-off area are not. A series of 2 dry ponds are at the front of the DOC, as are drop inlets and a connected storm drain system. Perimeter ditches manage runoff around the white goods storage area. Based upon a desktop analysis, the DOC has 2 acres of impervious surfaces and will need 13,400 ft³ of treatment for water quality. The surface area of the 2 dry ponds is roughly 13,400 ft³. The residence time of runoff in the ponds is unknown. The first pond had very notable evidence of high pollutant loads, in that the vegetation on the bottom of the pond appeared to be dead, and the pond bottom was black. Some type of pretreatment MTD should be installed in the storm drain system prior to discharging to the pond.

Retrofit information.

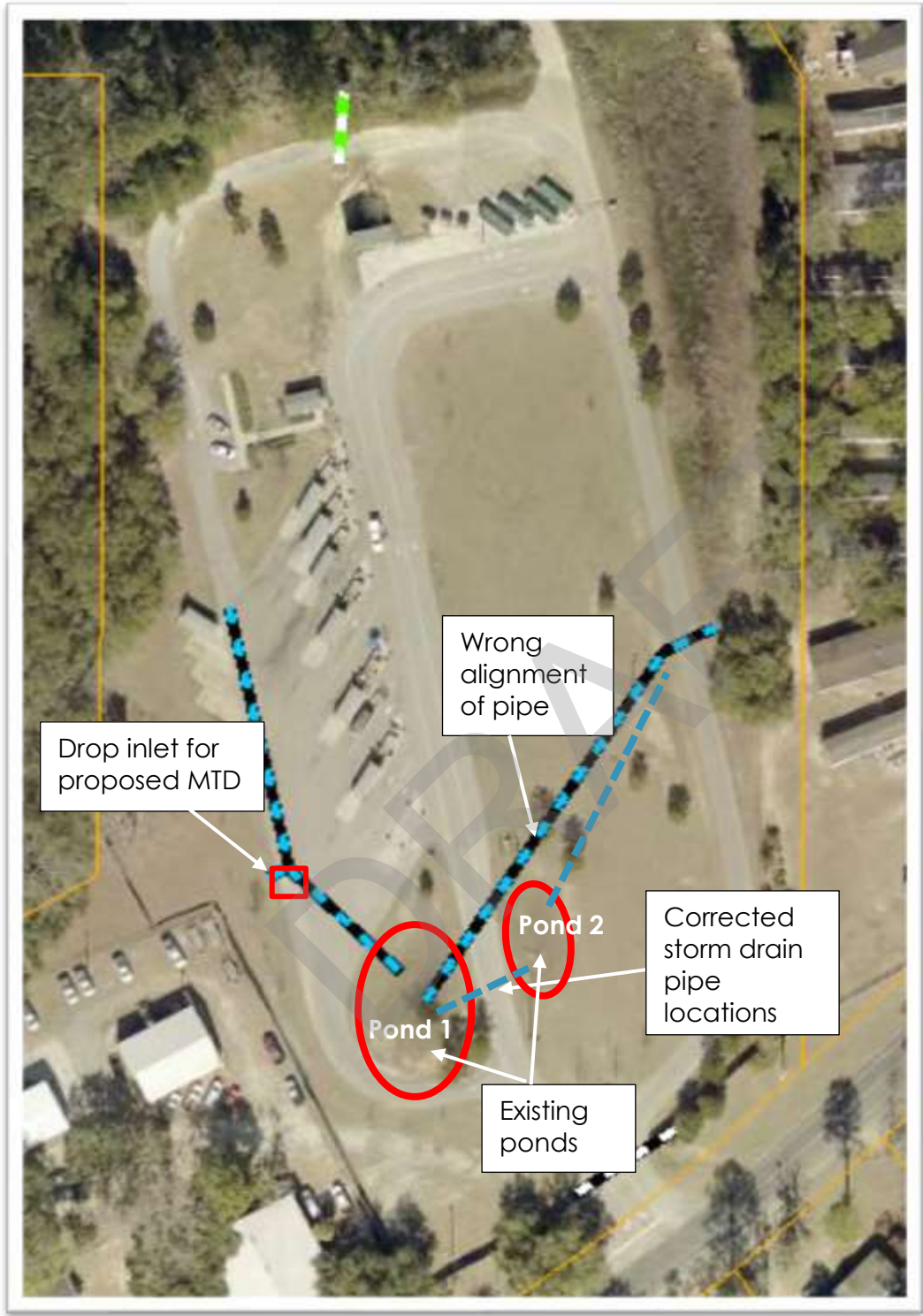
Water quality treatment needed: 13,400 ft³

Constraints: No known constraints. This site already has 2 dry ponds installed towards the entrance of the facility, with the storm drain system around the roll off containers draining to pond 1. Discharge from pond 1 goes to pond 2 and then discharges from the site (note that the County's GIS drainage layer contains incorrect information about the location of drainage pipes on this DOC). The white goods storage area behind the DOC has a drainage ditch dug completely around the area, and if disposal rules are followed, the ditches in place should manage that runoff. The biggest concern for this site is the roll off drainage discharging untreated into the unlined, dry pond. A manufactured treatment device that provides filtering – not just settling - should be installed at the lower drop inlet, if feasible, to provide pretreatment before discharging into pond 1.

BMP Type	Size	Cost estimate
Pond	2 existing, with approximately 9000ft ² of surface area	N/A
Pretreatment	Nutrient separating baffle box or similar	\$20,000
Other	N/A	

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Figure 11 Shanklin Retrofit Sketch



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Sheldon (208 Page Point Rd)

Planning Level Cost Estimate: \$5,200

Site information. Sheldon is a local facility with a paved ramp and paved roll-off pads on 1.25 acres. The site has a porta potty with no plumbing. The used oil storage area pavement appears to be lower than the adjacent ramp so that runoff sheet flows across the pad. Historic spills were evident near the used oil tank, and little storage was available in the used oil tank reservoir. Installation of a curb at the upgradient side of the pad to direct water away will alleviate this issue. In addition, the tank should be replaced with a used oil storage tank with a larger spill reservoir or a properly sized absorbent sock should be placed in the reservoir.. Based upon a desktop analysis, the impervious area on the site is 7000 ft² and the required treatment volume is 1100 ft³. The northern end of the property has space to allow a pond of this size. The household waste roll-off bin was covered, but the other bins for bulky materials and yard waste were not covered. Pollution prevention training should focus on ensuring proper sorting of all trash before being placed in a roll-off. Also, concrete pads under the roll-offs should be cleaned at least weekly so leaks are more visible and can be cleaned up. Training should focus on general pollution prevention, spill clean up, and porta potty maintenance.

Retrofit information.

Water quality treatment needed: 1100 ft³

Constraints: No known constraints. Runoff flows across the waste oil storage concrete pad. A curb should be installed at the upgradient (ramp) side of the waste oil storage area to direct runoff away. Drainage ditch ownership should be investigated, as the drainage ditch to the west and north is tagged in GIS as "drains state". Orient the pond such that it intersects the western drainage ditch and discharges into the northern drainage ditch.

BMP Type	Size	Cost estimate
Pond	40' x 20' by 1.5' deep	\$5,050
Pretreatment	N/A	
Other		
- Curb at waste oil storage	Plastic yellow curbing similar to the one shown below	~\$150

Figure 12. ULINE curb stop example

Parking Stops - 6', Plastic, Yellow



End concrete crumbling and chipping forever.

- 100% recycled material.
- Maintenance free. No painting.
- Weather resistant. Impervious to sunlight or road salt.
- 75% lighter than concrete.
- [H-2310 Asphalt](#) or [H-2311 Concrete Installation Hardware](#) available.

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Figure 13 Sheldon Retrofit Sketch



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St Helena (639 Sea Island Rd)

Planning Level Cost Estimate: \$-0-

Site information. The St Helena DOC site is located on 8 acres, and the drop off area is paved. There is a wet pond at the front of the site (south side) but outside of the site fence. There does not appear to be a storm drain system on the DOC site; it appears all runoff sheet flows untreated to the pond. Based upon a desktop analysis, there is 55,000 ft² of impervious surfaces on the site that will require 8500 ft³ of treatment. The pond's surface area is approximately 6500 ft². The depth of the pond should be verified, as at least 1.5 ft of depth is needed to provide the treatment. Maintain the grass filter strip as a pretreatment device for the pond. In addition, the used oil storage tanks should be replaced with a used oil storage tank with a larger spill reservoir or the absorbent sock should be properly sized for the spill reservoir. Training should focus on spill prevention and cleanup, pond maintenance, materials storage, and trash and debris pick up.

Retrofit information.

Water quality treatment needed: 8500 ft³

Constraints: No stormwater pipes or channels on the DOC. A wet pond exists towards the front of the property. It appears that a drainage channel is part of the outlet. In the County GIS system, that drainage channel is identified as "drains private". However, if it drains the DOC, the drainage should change to "drains County". No pretreatment is recommended as the DOC does not have an internal storm drain system. However, the grassed shoulder between the pond and paved portion of the DOC should be maintained in good condition to act as a filter strip.

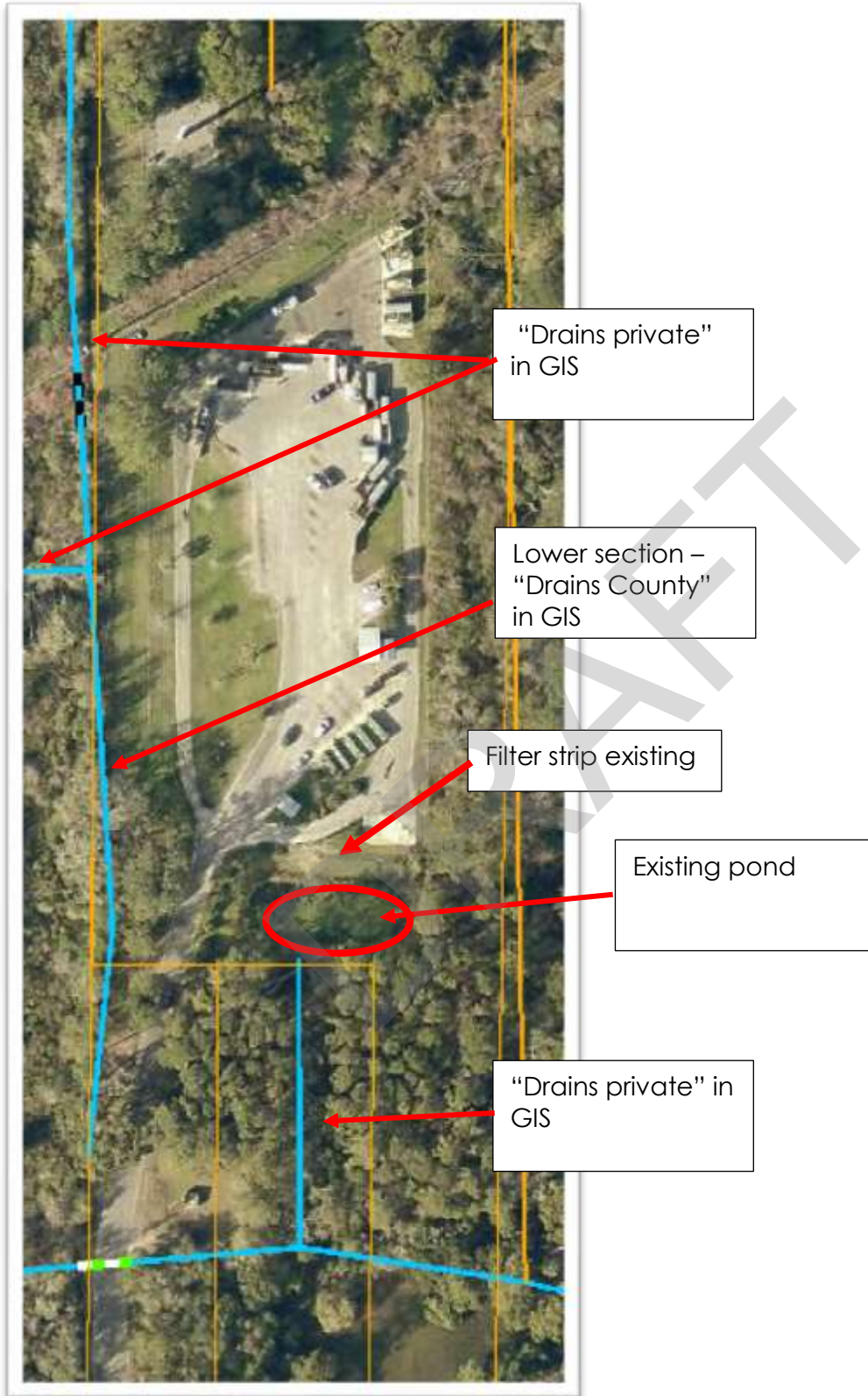
BMP Type	Size	Cost estimate
Pond	Existing pond has 6500 ft ² surface area. If the pond is 1.5' deep, it provides the water quality treatment necessary.	N/A
Pretreatment	Existing grass filter strip	N/A
Other	N/A	

Figure 14. St. Helena – Wet pond on the south side of site, outside fence



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Figure 15 St. Helena Island Retrofit Sketch



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Appendix A: Geotextile information

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Mirafi[®] HP270

Mirafi[®] HP270 geotextile is composed of high-tenacity polypropylene yarns, which are woven into a network such that the yarns retain their relative position. Mirafi[®] HP270 geotextile is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Tensile Strength (at ultimate)	ASTM D 4595	kN/m (lbs/ft)	38.5 (2640)	35.9 (2460)
Tensile Strength (at 2% strain)	ASTM D 4595	kN/m (lbs/ft)	7.0 (480)	8.6 (588)
Tensile Strength (at 5% strain)	ASTM D 4595	kN/m (lbs/ft)	17.7 (1212)	19.8 (1356)
Tensile Strength (at 10% strain)	ASTM D 4595	kN/m (lbs/ft)	34.1 (2340)	35.2 (2412)
Factory Seam Strength	ASTM D 4884	kN/m (lbs/ft)	18.4 (1250)	
Flow Rate	ASTM D 4491	l/min/m ² (gal/min/ft ²)	2037 (50)	
Permeability	ASTM D 4491	cm/sec	0.04	
Permittivity	ASTM D 4491	sec ⁻¹	0.70	
Apparent Opening Size (AOS) ¹	ASTM D 4751	mm (U.S. Sieve)	0.60 (30)	
UV Resistance (at 500 hours)	ASTM D 4355	% strength retained	80	

¹ ASTM D 4751: AOS is a Maximum Opening Diameter Value

NOTE: To obtain Secant Modulus, divide tensile strength by the appropriate strain level
(i.e. Secant Modulus at 5% = 1,212/0.05 = 24,240 lbs/ft)

Physical Properties	Test Method	Unit	Typical Value
Mass/Unit Area	ASTM D 5261	g/m ² (oz/yd ²)	227 (6.7)
Roll Dimensions (width x length)	--	m (ft)	4 (13.1) x 50 (164)
Roll Area	--	m ² (yd ²)	201 (239)
Estimated Roll Weight	---	kg (lbs)	46 (102)

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•••

Appendix B: MTD information

DRAFT



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Nonpoint Pollution Control

Division of Water Quality

401-02B

Post Office Box 420

Trenton, New Jersey 08625-0420

609-633-7021 Fax: 609-777-0432

http://www.state.nj.us/dep/dwq/bnpc_home.htm

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

November 3, 2016

Tom Happel, President
Suntree Technologies, Inc.
798 Clearlake Rd
Cocoa, FL 32922

Re: MTD Lab Certification
Nutrient Separating Baffle Box® (NSBB) with Hydro-Variant Technology Stormwater
Treatment Device by Suntree Technologies, Inc.

TSS Removal Rate 50%

Dear Mr. Happel:

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7 (c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Suntree Technologies Inc. has requested an MTD Laboratory Certification for the Nutrient Separating Baffle Box® with Hydro-Variant Technology (NSBB®) stormwater treatment device.

The verification is subject to the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Laboratory Testing Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated October 2016) for this device is published online at <http://www.njcat.org/verification-process/technology-verification-database.html>.

The NJDEP certifies the use of the Nutrient Separating Baffle Box® with Hydro-Variant Technology (NSBB®) stormwater treatment device by Suntree Technologies, Inc. at a TSS removal rate of 50% when designed, operated, and maintained in accordance with the information provided in the Verification Appendix and the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5.
2. The NSBB® stormwater treatment device shall be installed using the same configuration reviewed by NJCAT and shall be sized in accordance with the criteria specified in item 6 below.
3. This NSBB® stormwater treatment device cannot be used in series with another MTD or a media filter (such as a sand filter) to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.
4. Additional design criteria for MTDs can be found in Chapter 9.6 of the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual which can be found on-line at www.njstormwater.org.
5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the NSBB® stormwater treatment device. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at [http://www.suntreetech.com/files/Documents/Products/Nutrient-Separating-Baffle-Box/O&M%20Manual%20-%20New%20Jersey%20\(3\).pdf](http://www.suntreetech.com/files/Documents/Products/Nutrient-Separating-Baffle-Box/O&M%20Manual%20-%20New%20Jersey%20(3).pdf) for any changes to the maintenance requirements.
6. Sizing Requirements:

The example below demonstrates the sizing procedure for the NSBB®:

Example: A 0.25 acre impervious site is to be treated to 50% TSS removal using a NSBB®. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs.

Maximum Treatment Flow Rate (MTFR) Evaluation:

The site runoff (Q) was based on the following:

time of concentration = 10 minutes

$i=3.2$ in/hr (page 5-8, Fig. 5-3 of the NJ Stormwater BMP Manual)

$c=0.99$ (runoff coefficient for impervious)

$Q=ciA=0.99 \times 3.2 \times 0.25=0.79$ cfs

Given the site runoff is 0.79 cfs and based on Table 1 below, the NSBB® Model 3-6 with an MTFR of 1.4 cfs would be the smallest model approved that could be used for this site that could remove 50% of the TSS from the impervious area without exceeding the MTFR.

The sizing table corresponding to the available system models is noted below. Additional specifications regarding each model can be found in the Verification Appendix under Table A-1 and Table A-2.

Table 1 NSBB®-HVT Models

NSBB-HVT Model No.	Inside Length. (feet)	Inside Width, (feet)	Depth Below Invert, (feet)	Maximum Treatment Flow Rate (MTFR), cfs	50% Maximum Sediment Storage Volume, (ft ³)	Sediment Removal Interval (months)
2-4	4.00	2.00	2.7	0.62	3.88	44.5
3-6	6.00	3.00	3.00	1.40	8.63	44.0
3-8	8.00	3.00	3.00	1.87	11.6	44.5
4-8	8.00	4.00	3.00	2.49	15.0	43.0
5-10	10.00	5.00	4.10	3.89	23.8	43.6
6-12	12.00	6.00	4.80	5.60	34.3	43.7
6-13.75	13.75	6.00	5.40	6.42	39.5	44.0
7-14	14.00	7.00	5.50	7.62	46.7	43.7
7-15	15.00	7.00	5.90	8.17	50.2	43.9
8-14	14.00	8.00	6.20	8.71	53.3	43.7
8-16	16.00	8.00	6.20	9.96	61.3	44.0
9-18	18.00	9.00	6.90	12.60	76.5	43.4
10-17	17.00	10.00	7.60	13.22	80.0	43.2
10-20	20.00	10.00	7.60	15.56	95.0	43.6
12-21	21.00	12.00	9.00	19.60	120	43.7
12-24	24.00	12.00	9.00	22.40	138	44.0

Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8. The plan must include all of the items identified in the Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance of the New Jersey Stormwater Best Management Practices Manual.

If you have any questions regarding the above information, please contact Mr. Titus Magnanao of my office at (609) 633-7021.

Sincerely,



James J. Murphy, Chief
Bureau of Nonpoint Pollution Control

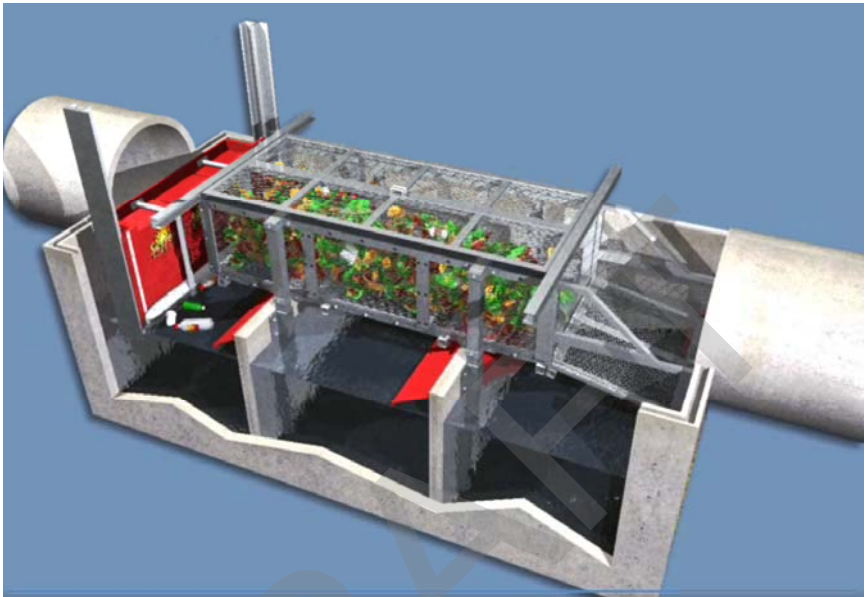
Attachment: Maintenance Plan

cc: Chron File
Richard Magee, NJCAT
Vince Mazzei, DLUR
Ravi Patraju, NJDEP
Gabriel Mahon, BNPC
Titus Magnanao, BNPC

DRAFT

Operation, Maintenance, Inspection and Cleaning Manual - New Jersey

Nutrient Separating Baffle Box[®]



DATE: _____

NSBB MODEL: _____

JOB LOCATION: _____



Suntree Technologies, Inc. ®, 798 Clearlake Road, Suite 2, Cocoa, FL 32922 (321) 637-7552

WWW.SUNTREETECH.COM

READ THE FOLLOWING INFORMATION, WARNINGS AND INSTRUCTIONS BEFORE INSPECTING, PERFORMING MAINTENANCE OR CLEANING THIS STORMWATER TREATMENT DEVICE

This manual is intended to explain the specifics of the Suntree Technologies Inc® Nutrient Separating Baffle Box®, and to review the common aspects of the existing regulations and safety procedures. It is the responsibility of all personnel to familiarize themselves with, understand, and comply with all applicable local, state and federal laws, **BEFORE** attempting to inspect or service this unit.

All precautions and procedures in this manual are current at the time of printing if this manual and are subject to change based on new processes and procedures. Suntree Technologies, Inc. assumes no responsibility and will be held harmless for any injuries, fines, penalties or losses that occur involving any procedure in this manual or other non-addressed actions taken. The Nutrient Separating Baffle Box performance is based on the procedures being followed in this manual. Non-Compliance with these measures will be the responsibility of the owner.

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Section 1	General Information	Pg. 3
Section 2	Inspection Information	Pg. 4
Section 3	Service Information	Pg. 8
Section 4	Parts Information	Pg. 12
Section 5	Warranty Information	Pg. 16

Section 1

GENERAL INFORMATION

The Nutrient Separating Baffle Box is a key component of your stormwater management program. To maintain proper operation, maintenance of these units is important. The Nutrient Separating Baffle Box manufactured by Suntree Technologies, Inc. contains patented and patent pending technologies to effectively treat stormwater. The NSBB is highly effective in capturing total suspended solids (TSS), total phosphorus (TP), total nitrogen (TN), organics, trash, litter, oils and grease. Independent testing has shown the NSBB is capable of capturing up to 95% trash and litter, up to 95% of TSS, up to 90% Organics and up to 60% TP.

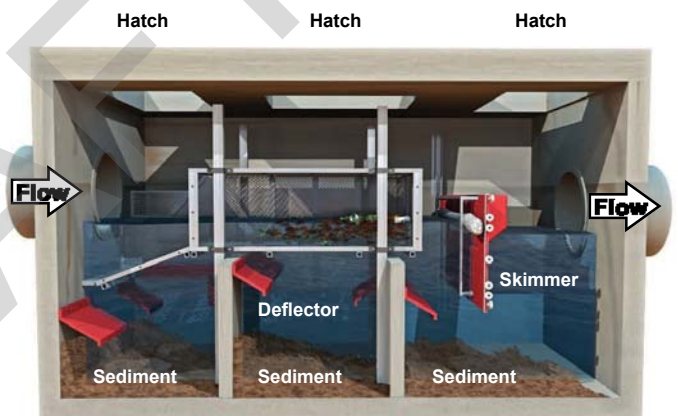
Local and State regulations may require inspections and cleanings every 90 days for any BMP (Best Management Practice). Suntree Technologies, Inc. recommends inspections be conducted four (4) times a year. This will allow the NSBB to obtain the best pollutant removal efficiency.

Functional Description

DURING THE STORM EVENT

The inflow pipe is recommended to be the same size as the outflow pipe.

Turbulence deflectors prevent captured sediment from re-suspending.



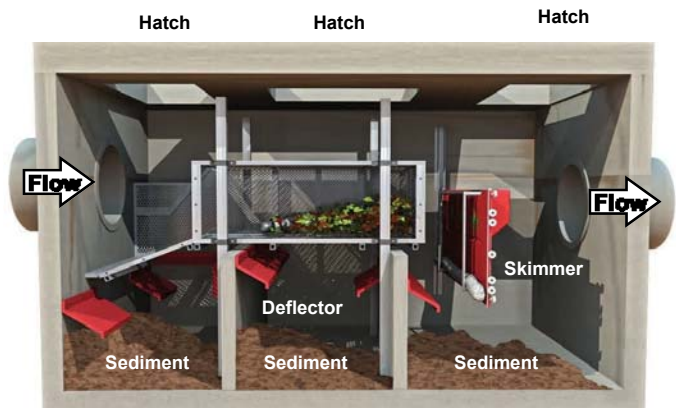
Nutrient rich vegetation and litter are captured in filtration screen system.

THE SYSTEM STAYS HEALTHY!

AFTER THE STORM EVENT

Nutrient pollutant load is not lost to static water and flushed out during the next storm event.

Separating organic matter from the static water prevents bacterial buildup.



Vegetation and litter is stored above the static water and dries out between storm events.

With the organic pollutant load separated from the water, the system does not go septic.

* During servicing, the screen system has hinged doors to give easy access to the sediment collected in the lower chambers.

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Section 2

INSPECTION INFORMATION

Suntree Technologies recommends the following inspection guidelines: After installation and the site has stabilized inspections should be conducted after every runoff event for the first Thirty (30) days. To insure that the Nutrient Separating Baffle Box obtains optimal pollutant removal efficiencies, subsequent inspections of sediment accumulation should be conducted a minimal of four (4) times per year. In the event the sediment accumulation equals or exceeds 50% of the Minimum Sediment Storage Volume (fig 2.1) then all accumulated sediment must be removed. All inspections must be documented (fig 2.2).

Typical Inspection Procedures:

- 1: Visually inspect the unit from the surface.
- 2: Open access points (i.e. Manhole Covers or Hatches) and secure properly.
- 3: A visual inspection should be made of the basket screen system to determine the capacity of debris.
- 4: A visual inspection should be done of the sediment chambers. This may require opening the bottom doors of the screen system (if possible).
- 5: A visual inspection should be made of the overall condition of the vault. Typically joint areas as well as inflow and outflow pipe grout areas.

Section 2

2.1 Approximate Dimensions and Characteristics of New Jersey NSBB Models

NSBB-HVT Model No.	Inside Length (L), ft	Inside Width (W), ft	Partition Height (PH), ft	Partition Thickness (PT), in	Floor Area (FA) ¹ , ft ²	Maximum Sediment Storage Volume, ft ³	Depth from Top of Baffles to Maximum Sediment Storage Depth, ft.	Depth from Top of Baffles to Maximum Sediment Storage Depth, in.
2-4	4.00	2.00	2.70	0.75	7.75	7.75	1.7	20.4
3-6	6.00	3.00	3.00	1.50	17.3	17.3	2.0	24.0
3-8	8.00	3.00	3.00	1.50	23.3	23.3	2.0	24.0
4-8	8.00	4.00	3.00	3.00	30.0	30.0	2.0	24.0
5-10	10.00	5.00	4.10	3.00	47.5	47.5	3.1	37.2
6-12	12.00	6.00	4.80	3.50	68.5	68.5	3.8	45.6
6-13.75	13.75	6.00	5.40	3.50	79.0	79.0	4.4	52.8
7-14	14.00	7.00	5.50	4.00	93.3	93.3	4.5	54.0
7-15	15.00	7.00	5.90	4.00	100	100	4.9	58.8
8-14	14.00	8.00	6.20	4.00	107	107	5.2	62.4
8-16	16.00	8.00	6.20	4.00	123	123	5.2	62.4
9-18	18.00	9.00	6.90	6.00	153	153	5.9	70.8
10-17	17.00	10.00	7.60	6.00	160	160	6.6	79.2
10-20	20.00	10.00	7.60	6.00	190	190	6.6	79.2

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Section 2

2.2 Inspection Checklist and Maintenance Guidance

Nutrient Separating Baffle Box

(To be completed at time of inspection or maintenance)

Location: _____

Owner Name: _____

Address: _____

Phone: _____

Date _____ Time _____ Site Conditions _____

Inspection Items	Condition	Recommended Interval	Comments
1. Access Openings		Quarterly	
2. Screen System		Quarterly	
3. Rear Skimmer and Storm Boom		Quarterly	
4. Sediment Chambers		Quarterly	
5. Vault Condition		Quarterly	

1. Inspection items are to determine accessibility into Nutrient Separating Baffle Box.
2. Visually inspect screen system for volume of debris and broken or missing parts.
3. Visually inspect sediment chambers for estimated quantity.
4. Visually inspect general condition of vault for any clogged areas.

Maintenance Items	Approximate Volume Collected	Date	Comments
1. Screen System			
2. Sediment Chambers			

1. After opening access vacuum out screen system—estimate volume collected.
2. After cleaning screen system—open bottom doors and vacuum out sediment chambers—estimate volume collected.

Notes

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Section 3

CAUTION!! ANY SERVICE WORK CONDUCTED IN TRAFFIC AREAS MUST MEET ALL DOT GUIDELINES FOR ROADWAY WORK AND ADDITIONAL SAFETY PROCEDURES WILL BE NECESSARY

SERVICE INFORMATION

Maintenance activities including the removal of captured sediment and debris. Maintenance can be performed from outside the NSBB through access points such as manhole covers or hatches installed in the vault surface above the sediment chambers. During maintenance, the screen system may have either SunGlide® Sliding Top Doors or SunGlide® Hinged Doors. These top doors open to gain access to the debris captured by the screen system. The screen system also has bottom doors that open to give access to the sediment collected in the settling chambers. A vacuum truck is required for debris removal. Although not every circumstance can be covered in this manual, a situation may arise when the structure needs to be entered. Servicing can be performed without the need for specialized tools.

CAUTION!! All OSHA confined space requirements should be met while cleaning NSBB structures.

TYPICAL SERVICE PROCEDURES:

Step 1: Open the access openings on top of the Baffle Box. These access openings are typically manhole covers, hatches, or grates.

Step 2: Vacuum the debris captured by the screen system to expose the sediment collection chambers.

Step 3: Open the bottom doors to the basket system to expose the sediment collection chambers. These doors are provided with eyebolts to attach a hook to lift open the doors which will hinge off to the side (fig 3.1).

Step 4: Vacuum each of the lower sediment chambers until they are empty.

Step 5: After cleaning the sediment chambers close the bottom screen doors of the screen system. Lower / Slide the top doors and assure they lock correctly (if equipped with SunGlide® Lids).

Step 6: When all maintenance work is completed, close the access covers or hatches.

Section 3

Minimum Equipment Requirements:

A standard vacuum truck is required for the servicing of the Nutrient Separating Baffle Box. Safety equipment will be determined by local, state and federal guidelines.

Structural Components:

The structural components are designed to have a life span of several decades. Structural inspections are not required unless stipulated in guidelines set by the local municipality, state, or federal agencies.

Replacement Parts:

All interior components are designed and sized to be unassembled and removed from the Nutrient Separating Baffle Box for servicing or replacement. For replacement parts and instructions please contact us at:

Suntree Technologies, Inc.®

798 Clearlake Road, Suite 2

Cocoa, FL 32922

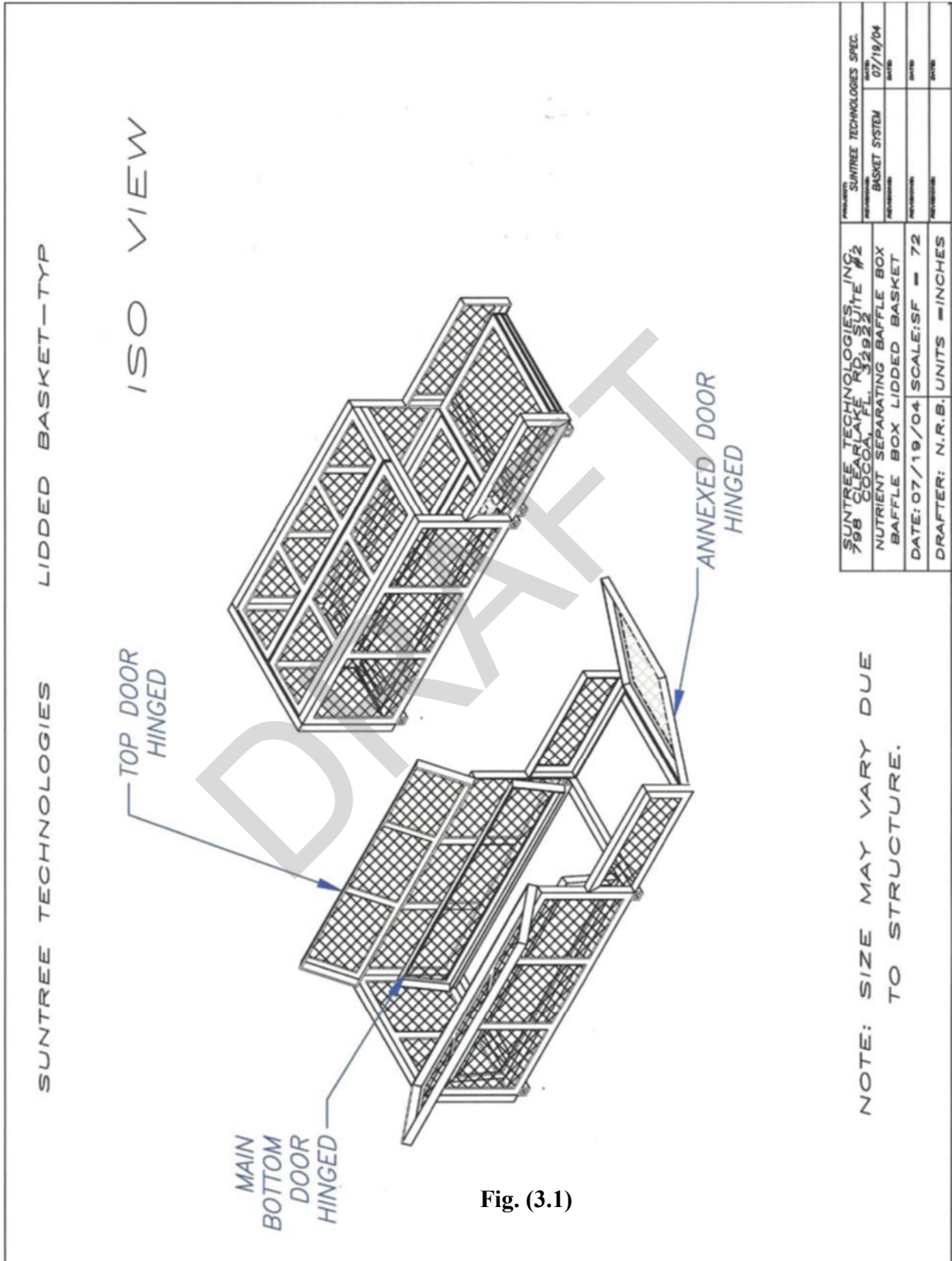
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Section 3



Section 4

PARTS INFORMATION

Job Specific Information

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Section 4

PARTS INFORMATION

Job Specific Information

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PARTS INFORMATION

Job Specific Information

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Suntree Technologies, Inc.® 798 Clearlake Road, Suite 2 Cocoa, FL 32922
(321) 637-7552

PARTS INQUIRIES

Contact Information:

Contact Person: Martin Koivu
Tel: (321) 637-7552
Fax: (321) 637-7554
Mobile (321) 288-7249
Email: martin@suntreetech.com

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Section 5

WARRANTY INFORMATION

Suntree Technologies, Inc.® products are engineered and manufactured with the intent of being a permanent part of the infrastructure. Suntree Technologies warrants its products to be free from manufacturing defects for a period of five (5) years from the date of purchase. Suntree Technologies warrants that the materials used to manufacture its products will be able to withstand and remain durable to environmental conditions for a period of five (5) years from the date of purchase. If a warranty claim is made and determined to be valid, Suntree Technologies will replace or repair the product, at the discretion of Suntree Technologies. Warranty claims must be submitted, evaluated, and approved by Suntree Technologies for the claim to be determined to be valid. All warranty work and/or corrective actions must be authorized by Suntree Technologies prior to work beginning not covered by this warranty. There are no warranties either expressed or implied other than what is specifically specified herein. Abusive treatment, neglect, or improper use of the Nutrient Separating Baffle Box manufactured by Suntree Technologies will not be covered by this warranty.

Below is the list of products covered by this warranty:

- Grate Inlet Skimmer Box®
- Nutrient Separating Baffle Box®
- Nutrient Separating Screen System
- Turbulence Deflector System
- Curb Inlet Basket®
- Hydrocarbon Flume Filter
- Trash Flume Filter
- Golf Green Filter



Suntree Technologies, Inc.® 798 Clearlake Road, Suite 2 Cocoa, FL 32922
(321) 637-7552

WARRANTY INQUIRIES

Contact Information:

Contact Person: Martin Koivu

Tel: (321) 637-7552

Fax: (321) 637-7554

Mobile (321) 288-7249

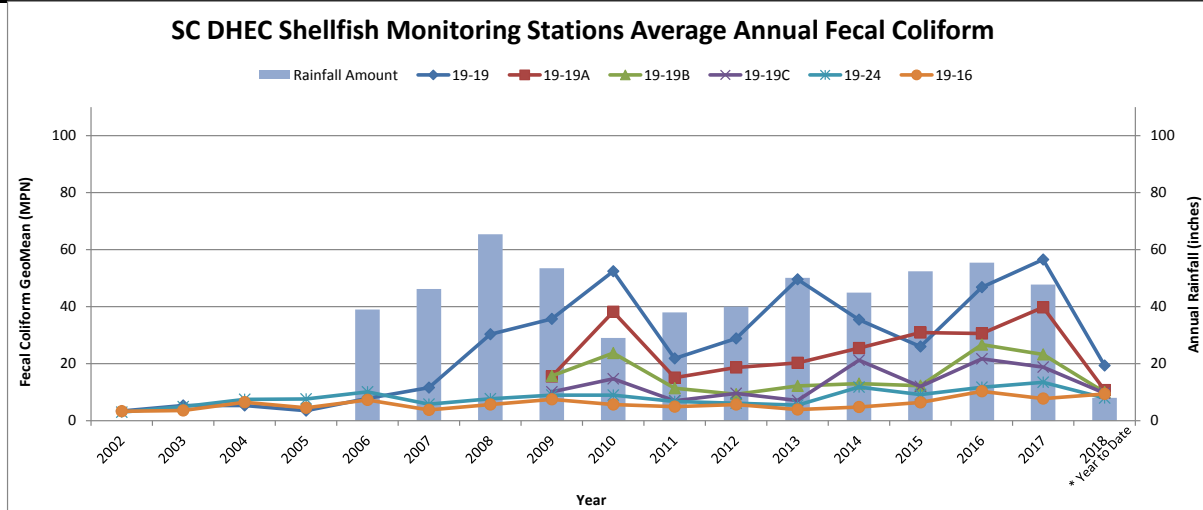
Email: martin@suntreetech.com

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	19-19				19-19A				19-19B				19-19C				19-24				19-16			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)	Fecal Coliform (MPN)
December	110.0	79.0	1600.0		33.0	23.0	920.0		27.0	49.0	540.0		7.8	33.0	240.0		6.8	7.8	220.0		4.5	23.0	49.0	
November	NS	33.0	49.0		NS	13.0	33.0		NS	7.8	7.8		NS	14.0	31.0		NS	13.0	2.0		NS	33.0	2.0	
October	23.0	NS	22.0		49.0	NS	49.0		4.5	NS	33.0		23.0	NS	23.0		7.8	NS	6.8		4.5	NS	2.0	
September	46.0	23.0	17.0		17.0	110.0	7.8		9.3	23.0	11.0		17.0	13.0	4.5		23.0	4.5	2.0		4.5	7.8	1.8	
August	6.8	NS	79.0		17.0	NS	70.0		13.0	NS	21.0		13.0	NS	33.0		24.0	NS	33.0		4.0	NS	33.0	
July	17.0	79.0	350.0		7.8	17.0	110.0		6.8	22.0	130.0		11.0	17.0	49.0		2.0	49.0	49.0		4.5	13.0	22.0	
June	33.0	79.0	23.0		46.0	130.0	49.0		11.0	70.0	13.0		14.0	110.0	17.0		4.5	33.0	7.8		11.0	23.0	4.5	
May	NS	70.0	17.0	17.0	NS	23.0	23.0	33.0	NS	49.0	7.8	17.0	6.8	49.0	2.0	13.0	6.8	14.0	23.0	23.0	23.0	17.0	4.5	13.0
April	1.8	23.0	7.8	33.0	33.0	23.0	23.0	13.0	17.0	13.0	4.5	17.0	17.0	13.0	7.8	17.0	13.0	7.8	13.0	49.0	17.0	1.8	4.5	17.0
March	170.0	33.0	350.0	22.0	130.0	33.0	11.0	21.0	49.0	33.0	33.0	4.5	17.0	17.0	13.0	11.0	13.0	11.0	13.0	7.8	6.8	7.8	33.0	9.3
February	13.0	23.0	13.0	17.0	14.0	17.0	7.8	7.8	1.8	13.0	13.0	17.0	1.8	11.0	9.3	17.0	7.8	6.8	4.5	2.0	2.0	1.8	1.8	7.8
January	79.0	110.0	95.0	13.0	79.0	33.0	79.0	2.0	49.0	49.0	31.0	4.5	33.0	17.0	49.0	2.0	17.0	7.8	27.0	1.8	7.8	17.0	33.0	4.5
Additional Samples																								
Average Annual GeoMean	26.0	46.8	56.5	19.4	30.9	30.6	39.8	10.7	12.3	26.7	23.3	10.0	12.0	21.7	18.8	9.6	9.2	11.7	13.5	7.9	6.4	10.3	7.7	9.4
** Truncated GeoMetric Mean	37.0	37.0	44.0	42.0	21.0	30.0	36.0	30.0	11.0	16.0	20.0	22.0	11.0	16.0	16.0	17.0	7.0	9.0	10.0	10.0	4.0	6.0	7.0	8.0
** Truncated 90th Percentile	205.0	105.0	203.0	197.0	95.0	89.0	133.0	139.0	51.0	69.0	83.0	84.0	55.0	65.0	57.0	65.0	30.0	29.0	37.0	50.0	13.0	21.0	29.0	32.0

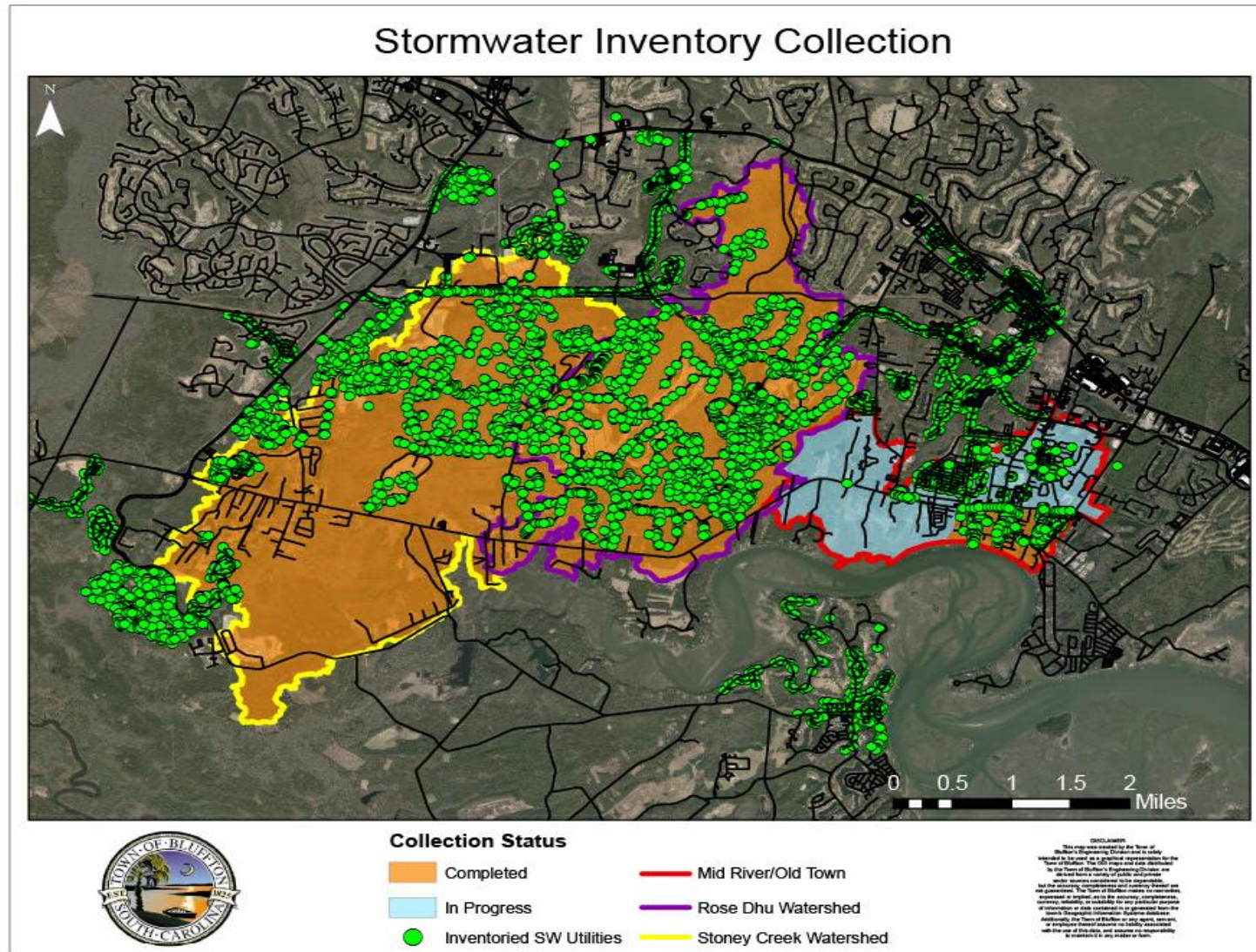
NS = No Sample
 AS = Additional Samples
 ** Town staff calculations utilizing DHEC statistics



ACTIVITY - POLICY	STATUS
<p>May River Watershed Action Plan Update (Grant award of \$55,000 in 2017)</p>	<p>To be completed with direction and input from staff, the public, Water Quality Technical Advisory Committee, May River Watershed Advisory Committee, and Town Council. Action Plan Update is a FY19-20 priority of WAPAC and Council. WAPAC scope direction provided 2/22/18 to include watershed health indicators of bacteria, biotic & abiotic parameters and social/cultural/economic indicators. Staff met with SCDHEC to confirm hybrid 5R and traditional watershed-based plan approach will be accepted.</p>
<p>Sewer Connection & Extension Policy</p>	<p>Council adopted the Sewer Connection & Extension Policy on 9/26/17. WAPAC proposed prioritization phases for sewer extension in Historic District for FY 19-23 and recommended revisions to Sewer Connection Ordinance on 2/22/18. Staff has initiated septic system maintenance education via personally and with Lowcountry Stormwater Partners. Town Council considered WAPAC recommended amendments to Sewer Connection Program on 4/10/18. Will consider for 2nd & Final Reading on upon Septic to Sewer Conversion Program establishment. Town Council Workshop anticipated 7/17/18.</p>
ACTIVITY - PROJECTS	STATUS
<p>Sanitary Sewer Extension</p>	<p>Buck Island/Simmonsville Road (BIS) Phases I, II, III and IV are completed. Toy Fields is completed. Six phases of sewer extension are proposed in the 5-year Capital Improvement Program. Current project updates are included in Engineering Consent Agenda under "Sewer & Water."</p>
<p>May River 319 Grant Phase 1 - New Riverside Pond (Grant award of \$483,500 in 2009)</p>	<p>Completed in 2013. Per water quality tests, a statistically significant reduction in fecal coliform bacteria concentration exists pre-pond versus post-pond. However, bacteria levels re-load prior to discharging into the May River, leading to additional BMP installation of Filtrex proprietary filter socks. Installed 12/12/17 to maintain bacteria reduction. Downstream failing septic system was located by Staff and reported to County & SCDHEC for remediation.</p>
<p>May River 319 Grant Phase 2 - Pine Ridge (Grant award of \$290,000 in 2011)</p>	<p>Completed in 2016. In post-construction monitoring phase to assess project efficacy.</p>
<p>May River 319 Grant Phase 3 - Town Hall Parking Retrofit (Grant award of \$231,350 in 2016)</p>	<p>Staff a workplan amendment for this grant award to include stormwater retrofits at Town Hall was approved by SCDHEC & EPA . Current project updates are included in Engineering Consent Agenda.</p>
<p>Stoney Creek Wetlands Restoration: Preliminary Design Phase</p>	<p>Wetlands restoration project with the goal to reduce stormwater volume reaching the May River. Conceptual design completed and approved by property owners. Current project updates are included in Engineering Consent Agenda.</p>
<p>May River Watershed Water Quality Model</p>	<p>Preliminary 2002 Palmetto Bluff Duck Pond Drainage area watershed model complete. Completed New Riverside BMP model for comparison to field observations. Rose Dhu Creek sub-watershed "Existing Conditions" portion of the Headwaters Water Quality Model is underway. Staff is re-evaluating this project having received County Master Plan Update in April 2018.</p>

ACTIVITY - FINANCIAL	STATUS
Additional Funding Opportunities	Exploring partnership opportunities with BJWSA for future sewer phases. WAPAC FY19-20 priority to assess Stormwater Utility Fee structure to support initiatives.
ACTIVITY - PROGRAMS	STATUS
Public Outreach/Participation/Involvement (MS4 Minimum Control Measure #1 & 2)	Outreach and involvement efforts continue through county-wide partnership with Carolina Clear as Lowcountry Stormwater Partners - Neighbors for Clean Water and through local cleanups and civic engagements and the May River Watershed Action Plan Advisory Committee. Current updates are included in Engineering Consent Agenda and Attachment 3.
Infrastructure Mapping/GIS (MS4 Minimum Control Measure #3)	Data points continue to be collected with new development to meet MS4 requirements & populate water quality model. Current updates are included in Engineering Consent Agenda Attachment 4a.
Water Quality Monitoring Program (MS4 Minimum Control Measure #3)	<ol style="list-style-type: none"> 1. SCDHEC Shellfish monitoring results 2. Fecal coliform bacteria "hot spot" concentrations 3. Microbial Source Tracking of human sources of bacteria 4. Illicit Discharge investigation and monitoring 5. BMP efficacy monitoring 6. MS4 monitoring Current updates are included in Engineering Consent Agenda Attachments 1, 4b, 4c, and 4d.
Construction Site Stormwater Runoff Control Program (MS4 Minimum Control Measure #4)	Sediment and erosion control inspections with escalating enforcement response. Current updates are included in Engineering Consent Agenda Attachment 5.
Stormwater Plan Review & Related Activity Program (MS4 Minimum Control Measure #5)	SCDHEC delegated plan review-related activities. Current updates are included in Engineering Consent Agenda Attachment 6.
Ditch Inspection/Maintenance Program (MS4 Minimum Control Measure #6)	Continued coordination with SCDOT, Beaufort County and Town Public Works to inspect and maintain ditches within the Town's jurisdiction. Current updates are included in Engineering Consent Agenda Attachment 7 and under "Public Works."
Septic System Maintenance Program	FY18 funding is \$10,000 and administered by Growth Management via the Neighborhood Assistance Program (NAP). On-going assistance offered to Town residents regardless of financial status through Neighborhood Assistance Program. Current updates, as reported by NAP, are included in Engineering Consent Agenda Attachment 8.
Sewer Connection Program	In FY18 Council allocated \$200,000 for a Sewer Connection Program as well as \$10,000 for assistance to connect income-qualified individuals to existing sanitary sewer as part of the Neighborhood Assistance Program. Council adopted the Sewer Connection & Extension Policy at 9/26/17 meeting. CIP projects will be prioritized as part of FY19 Budgeting Process. Sewer Connection Ordinance changes anticipated following Connection Program development. Septic to Sewer Conversion Program will be for Council's discussion at Quarterly Workshop 7/17/18.

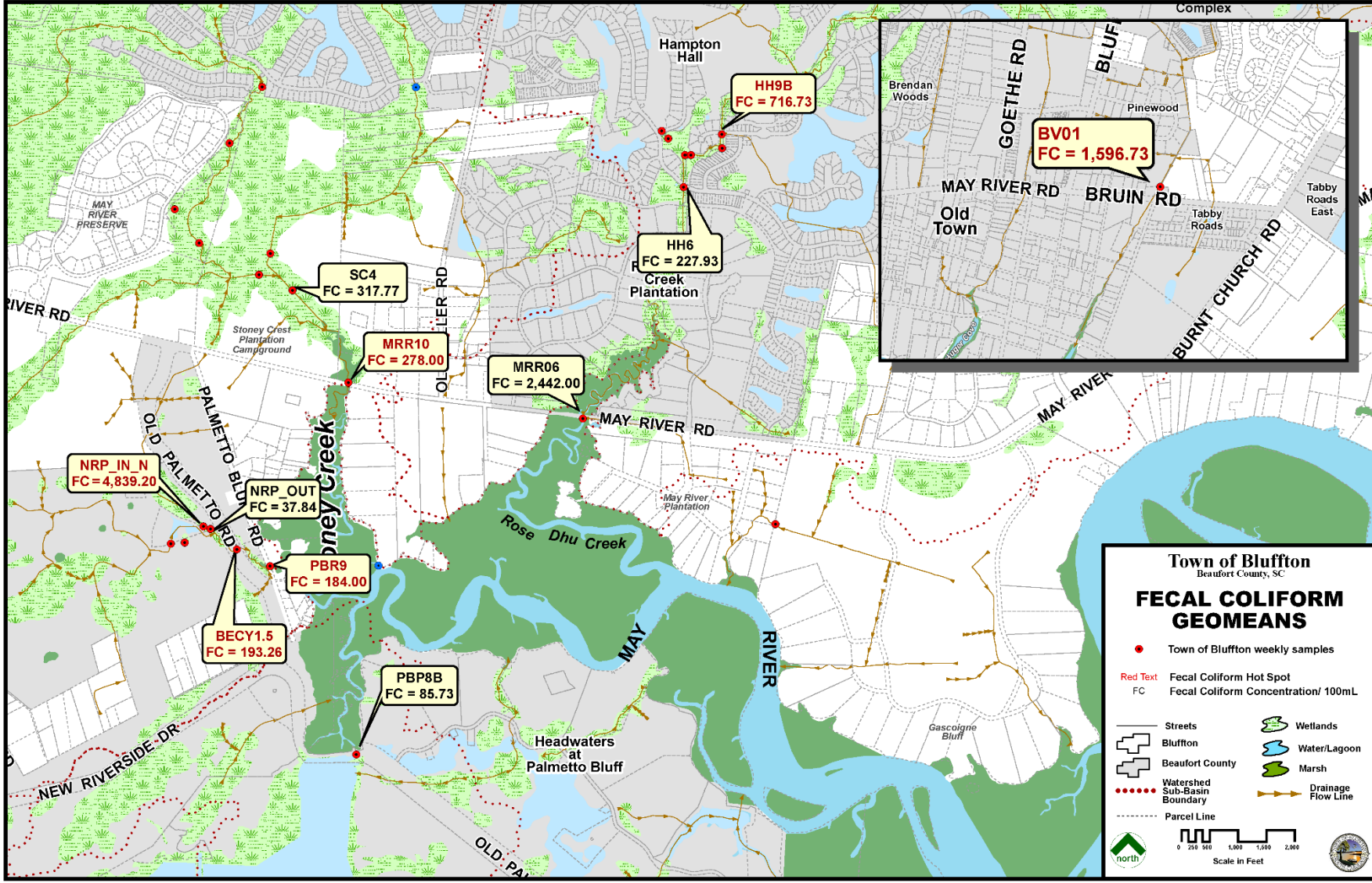
MS4 Minimum Control Measure #3 – IDDE (Illicit Discharge Detection & Elimination): Stormwater Infrastructure Inventory



Stormwater Infrastructure Inventory Collection Status

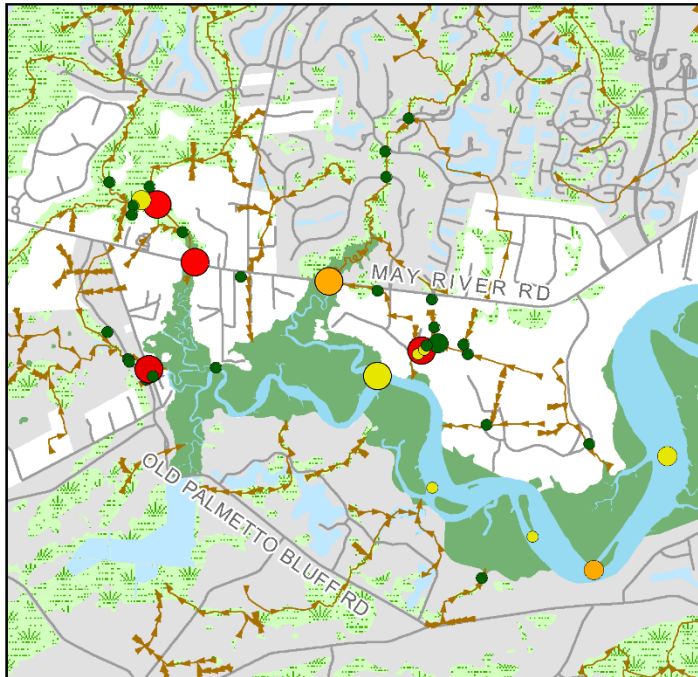
FY 2018 YTD Collection Totals	3,798
FY 2017 Collection Totals	3,874

MS4 Minimum Control Measure #3 – IDDE: Fecal Coliform Concentrations Trend Map

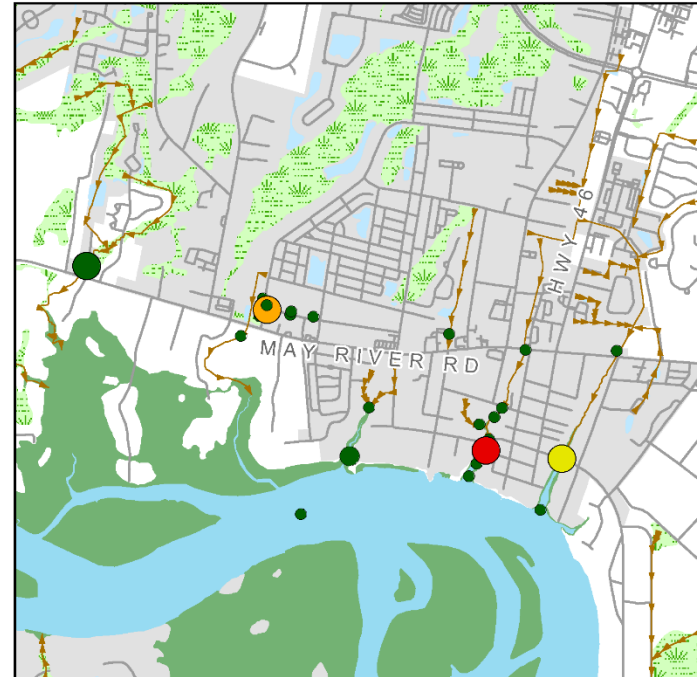


fecal_coliform_geomeans_workfile_S14118

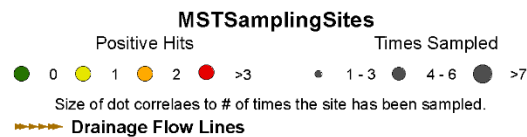
MS4 Minimum Control Measure #3 – IDDE: Microbial Source Tracking (MST) Trend Map



Microbial Source Tracking Trend Map
Headwaters May River



Microbial Source Tracking Trend Map
Old Town May River

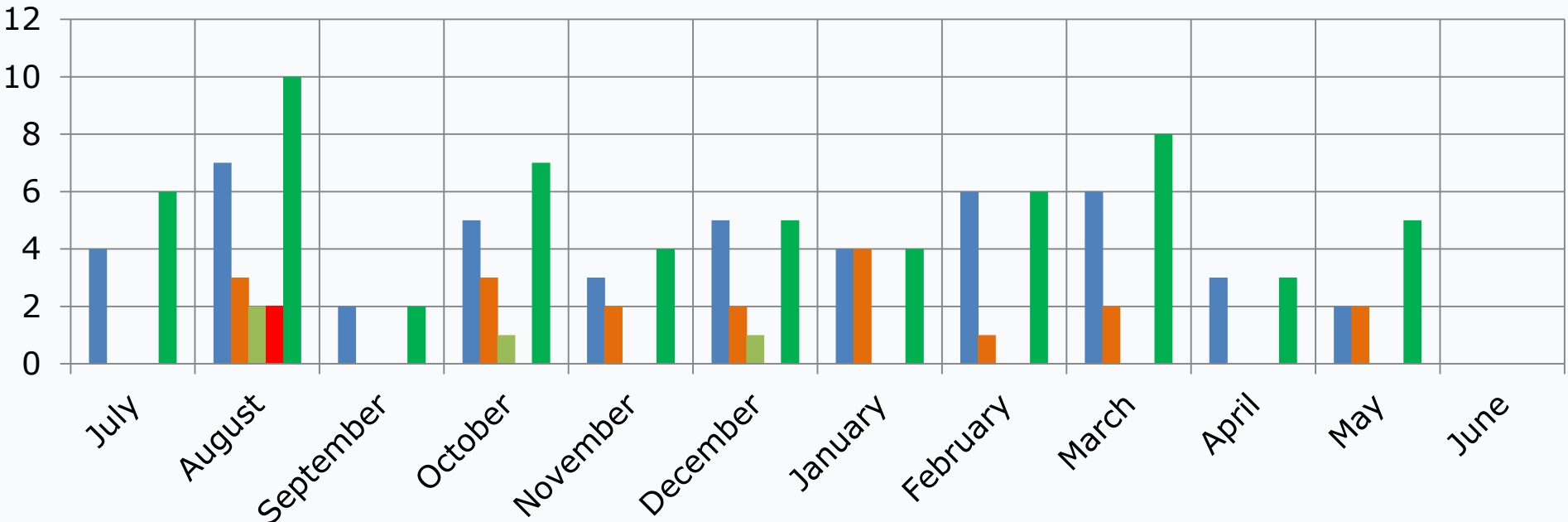


Updated: 05/16/2018



MS4 Minimum Control Measure #3 – IDDE: Illicit Discharge Investigations

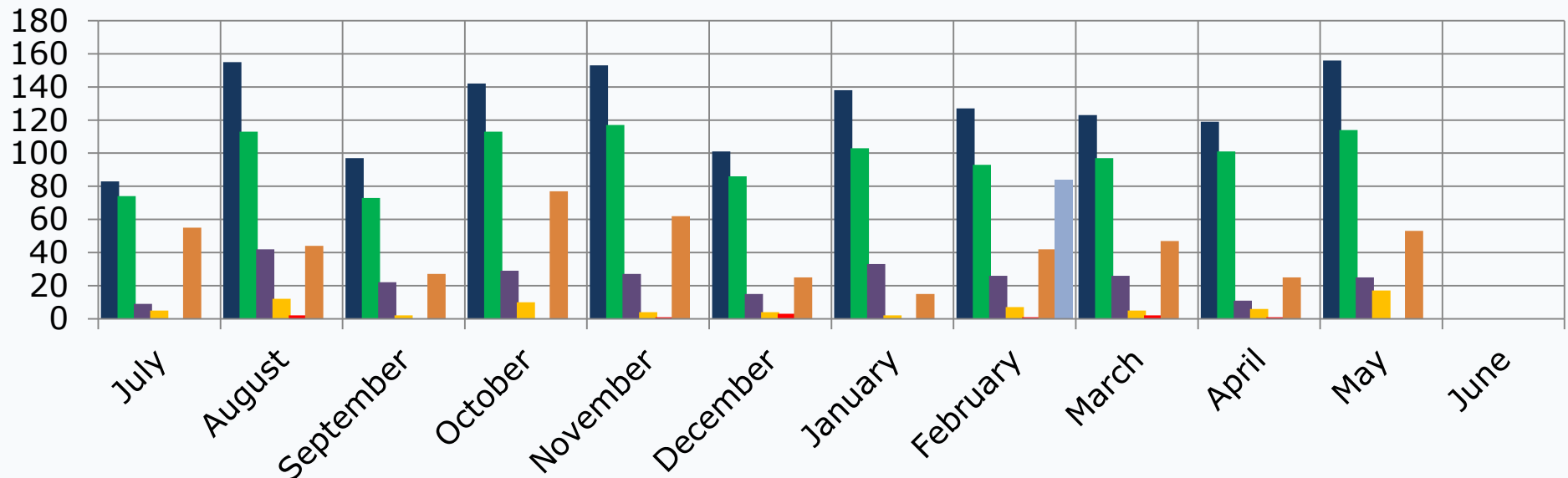
- Number of Illicit Discharge Investigations
- Notice To Comply
- Meetings
- Notice of Violation
- Notice of Violation Resulting in Fines



	Number of Illicit Discharge Investigations	Number of Notices To Comply Issued	Number of Notices of Violation Issued	Number of NOV Enforcement Actions	Number of Meetings
FY 2018 YTD Totals	47	19	4	2	60
FY 2017 Totals	50	19	8	13	67

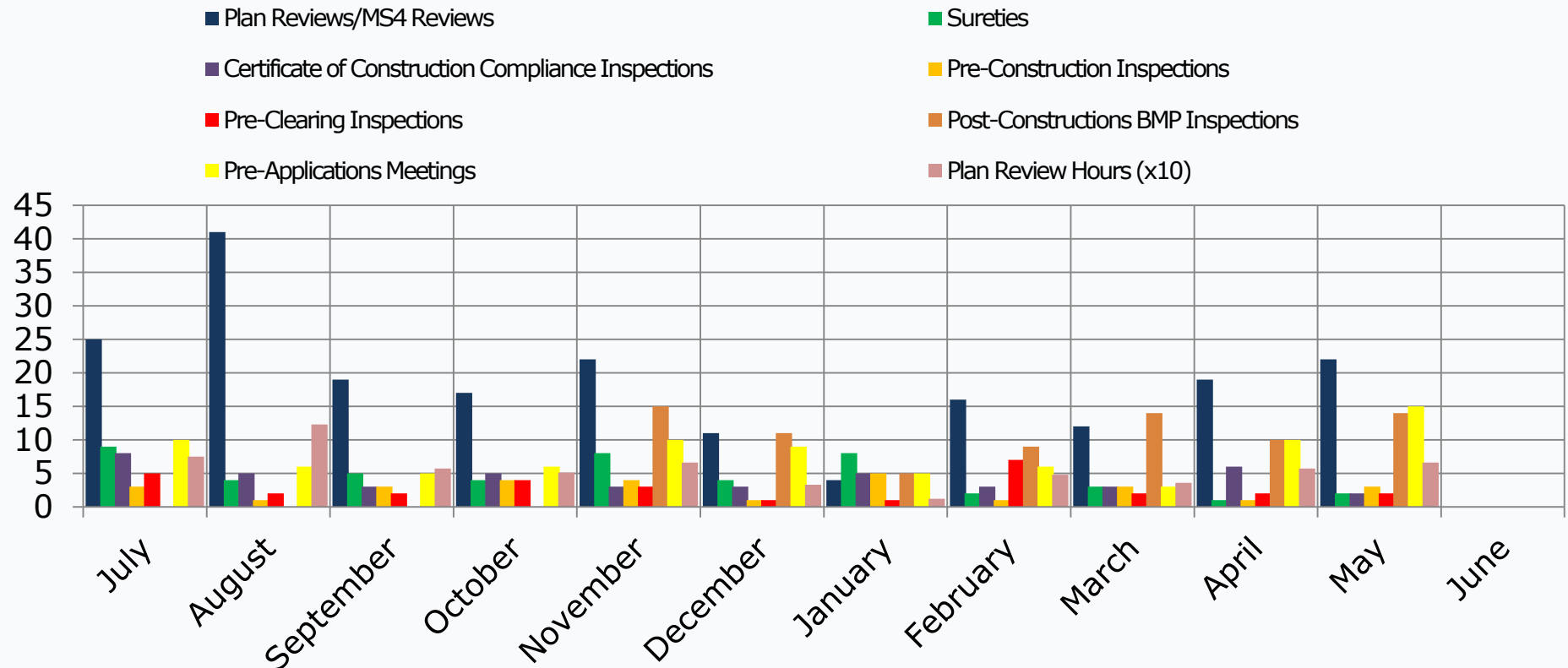
MS4 Minimum Control Measure #4 - Construction Site Stormwater Runoff Control

- Erosion & Sediment Control Inspections (E&SC)
- Number of Notice To Comply (NTC)
- Number of Fines for Notice of Violation
- Number of Inspections Passed
- Number of Notice of Violation (NOV)
- Number of Erosion & Sediment Control Meetings



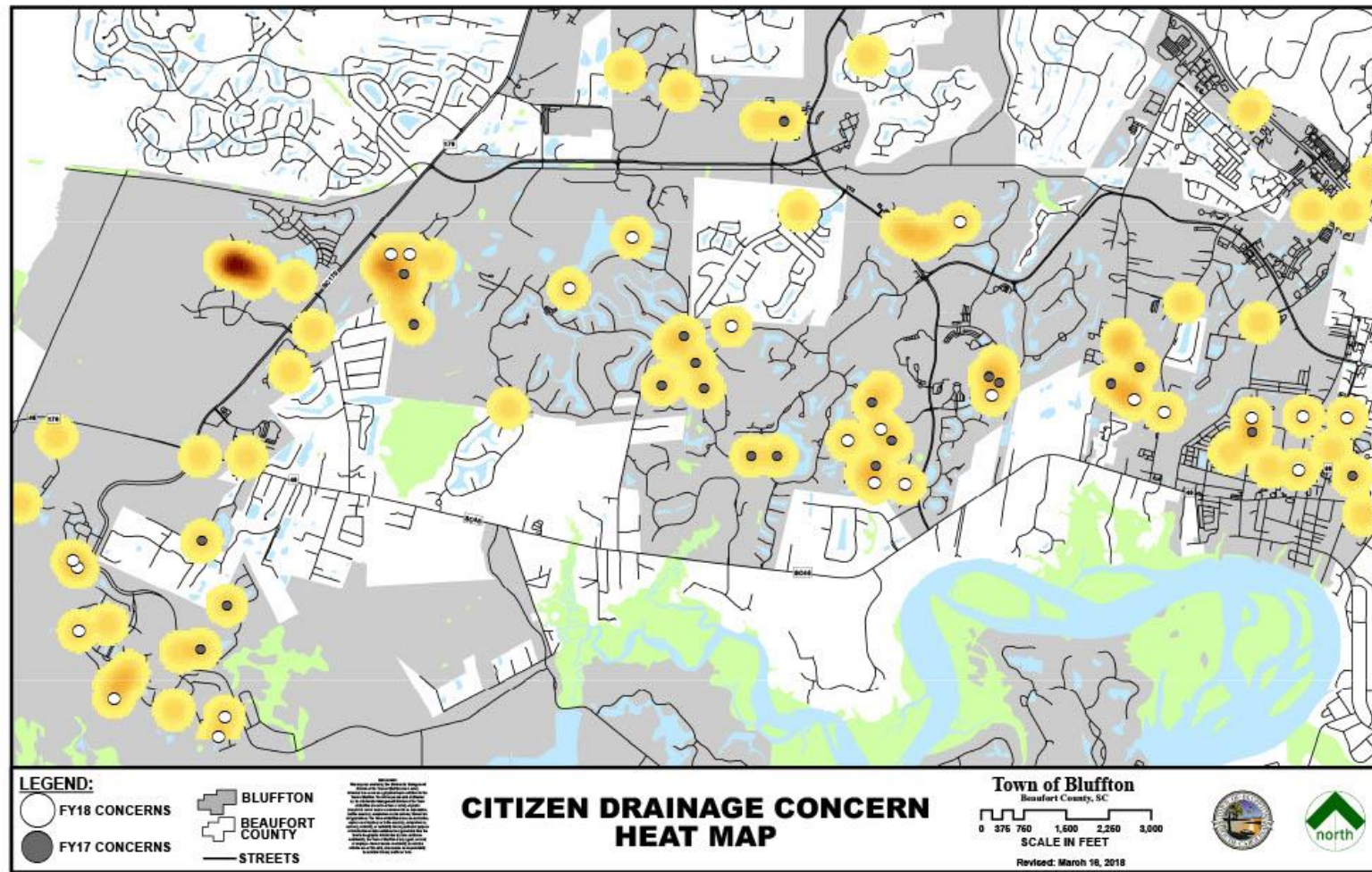
	Number of Sediment & Erosion Control Inspections	Number of Inspections Passed	Number of NTC Issued	Number of NOVs Issued	Number of NOV Enforcement Actions	Number of E&SC Meetings
FY 2018 YTD Totals	1395	1084	265	74	10	472
FY 2017 Totals	1,219	862	233	58	10	237

MS4 Minimum Control Measure #5 Stormwater Plan Review & Related Activity



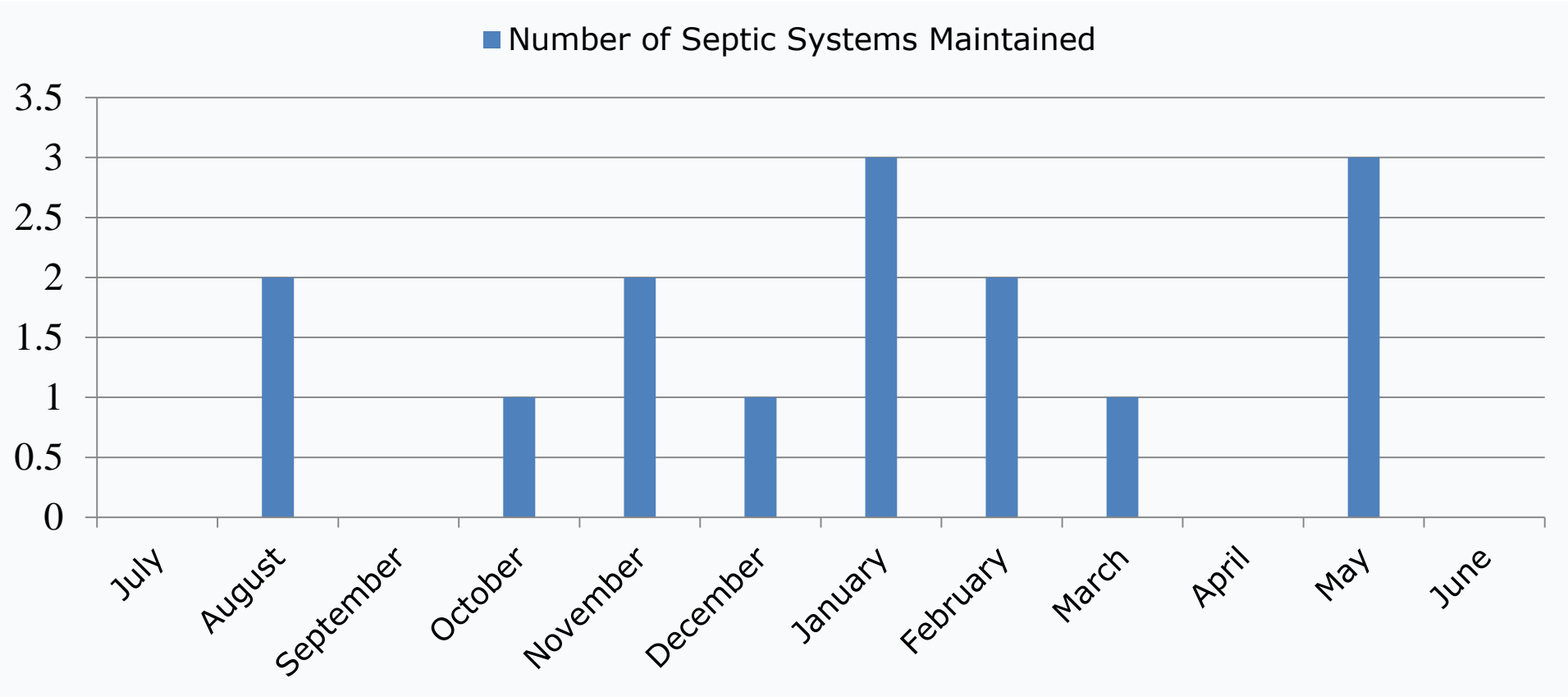
	Plan Reviews MS4 Reviews	Sureties	Certificate of Construction Compliance Inspections	Pre-Construction Meetings	Pre-Clearing Inspections	Post Construction BMP Inspections	Pre-Application Meetings	Total Plan Review Hours
FY 2018 YTD Totals	208	50	46	29	31	78	85	1040 Hrs.
FY 2017 Totals	253	62	96	47	45	7	23	1,265 Hrs.

Citizen Drainage Concern Heat Map (Drainage, Maintenance and Inspections)



	Number of Drainage Concerns Investigated	Number of Meetings
FY 2018 YTD Totals	47	72
FY 2017 Totals	72	80

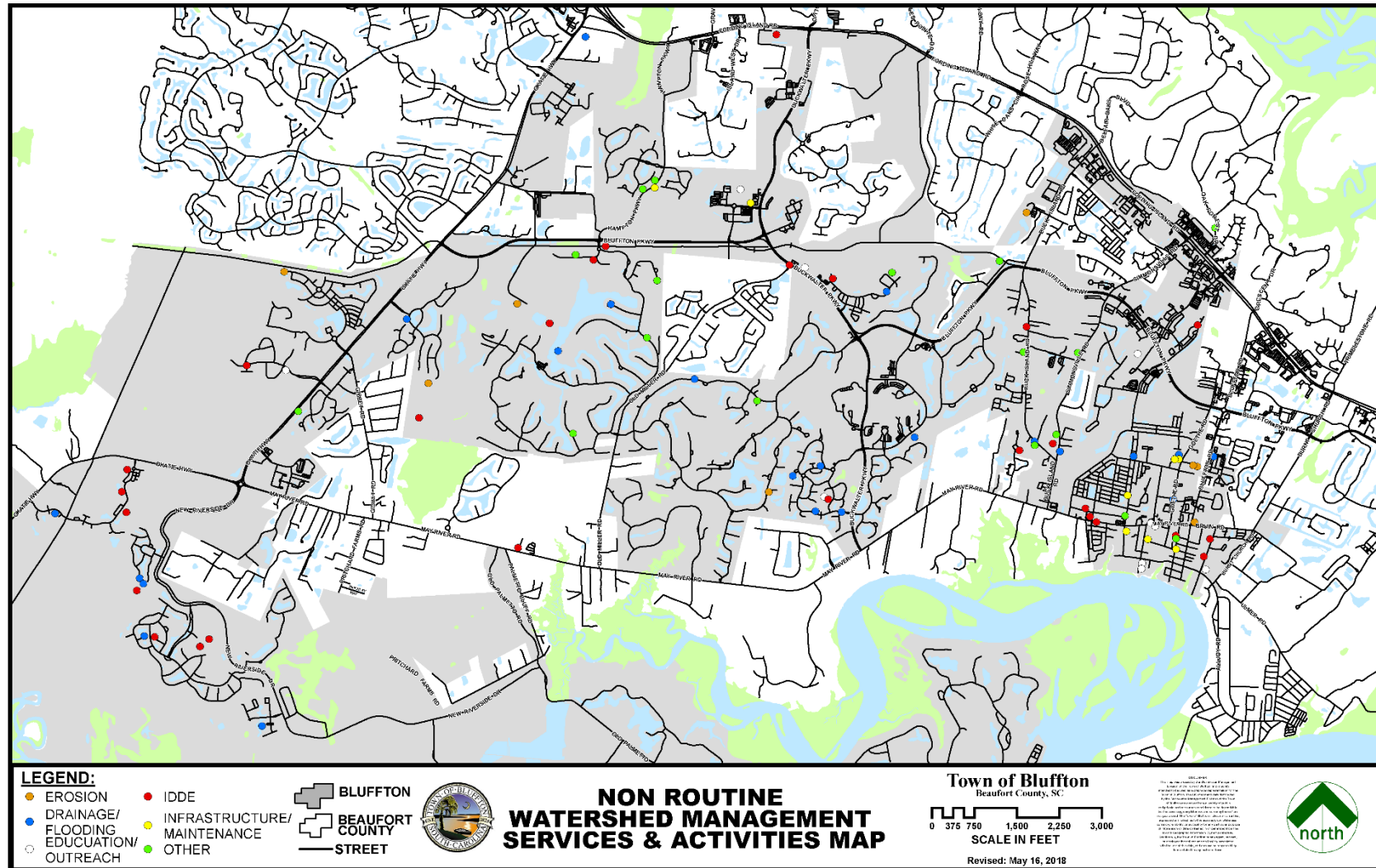
Septic System Maintenance Assistance



	Number of Septic Systems Maintained
FY 2018 YTD Totals	15
FY 2017 Totals	18

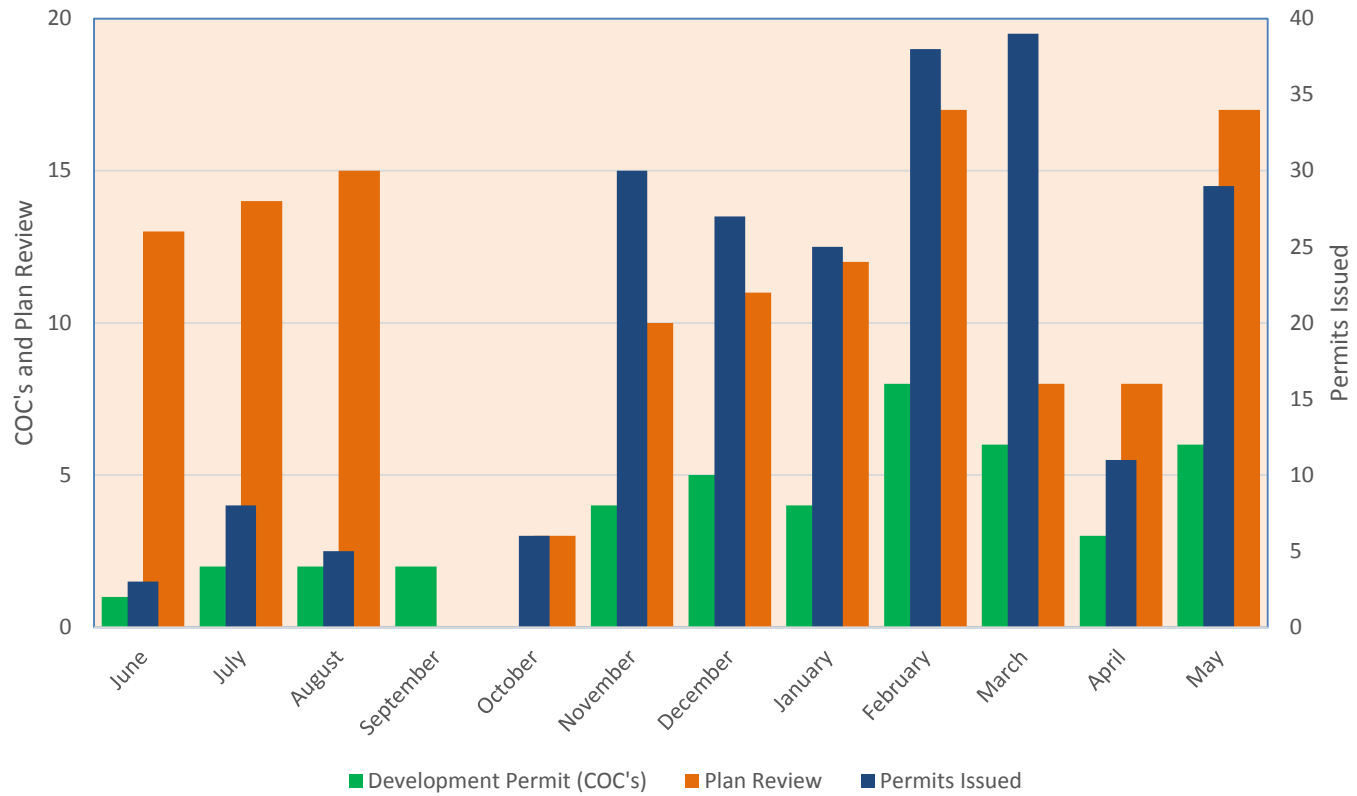
Requests for septic system maintenance are down due to completed connections along on Buck Island Road and Simmonsville Road as part of the Phase #3/4 BIS Sewer projects.

Citizen Request for Watershed Mngt. Services & Activities Map



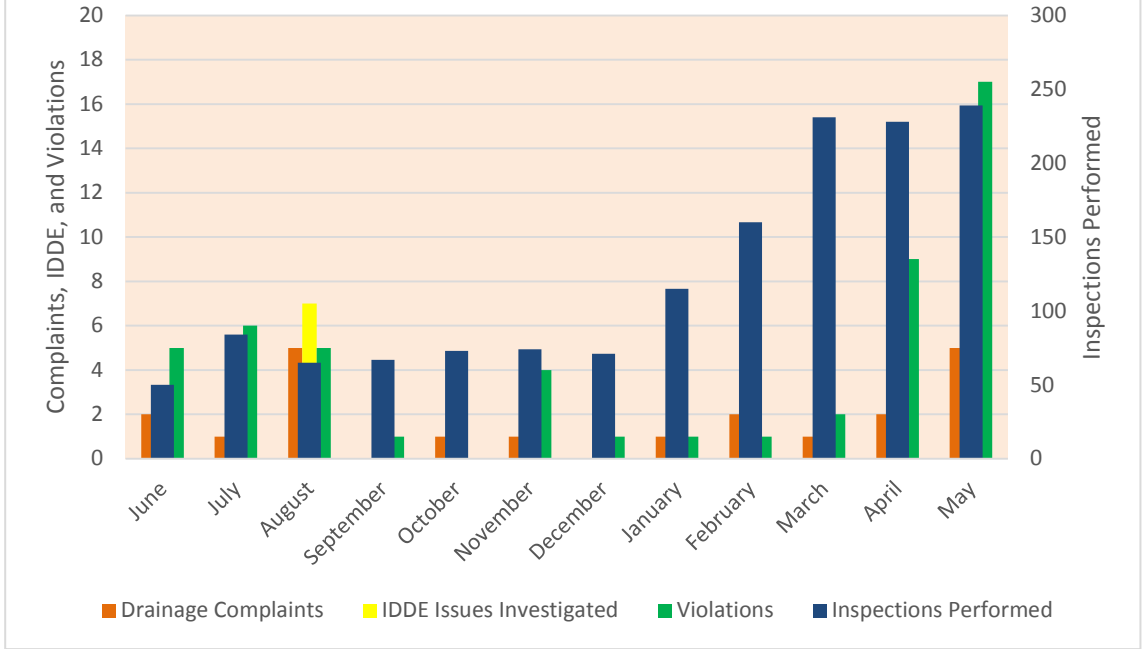
	Number of Citizen Requests Investigated	Number of Meetings
FY 2018 YTD Totals	72	75
FY 2017 Totals	53	82

MS4 Minimum Control Measure #5 Stormwater Plan Review



TYPE	June	July	August	September	October	November	December	January	February	March	April	May	Last 12 Months
Development Permit (COC's)	1	2	2	2	0	4	5	4	8	6	3	6	43
Plan Review	13	14	15	0	3	10	11	12	17	8	8	17	128
Permits Issued	3	8	5	0	6	30	27	25	38	39	11	29	221

MS4 Minimum Control Measure #4 Erosion Sediment Control Inspections



TYPE	June	July	August	September	October	November	December	January	February	March	April	May	Last 12 Months
Inspections Performed	50	84	65	67	73	74	71	115	160	231	228	239	1457
Drainage Complaints	2	1	5	0	1	1	0	1	2	1	2	5	21
IDDE Issues Investigated	3	3	7	1	1	3	2	0	1	0	0	1	22
Violations	5	6	5	1	0	4	1	1	1	2	9	17	52



MEMORANDUM

Date: June 13, 2018

To: Stormwater Management Utility Board

From: David Wilhelm, P. E., Public Works Director

Re: **Maintenance Project Report**

This report will cover six minor projects. The Project Summary Reports are attached.

Minor or Routine Projects:

- **Hickory Hill Road – St. Helena Island (SWUD 8):** This project improved 3,820 feet of drainage system. The scope of work included cleaning out 3,820 feet of roadside ditch and hydroseeding for erosion control. The total cost was **\$13,500.87.**
- **H.E. McCracken Circle - Bluffton (SWUD 4):** This project improved 1,515 feet of drainage system. The scope of work included cleaning out 1,515 feet of roadside ditch, (1) catch basin, jetting out (1) crossline pipe and (5) driveway pipes. The total cost was **\$10,347.04.**
- **Cleveland Drive Radio Tower - Port Royal Island (SWUD 6):** This project improved 0.75 acres of drainage system. The scope of work included grubbing and clearing 0.75 acres of workshelf. The total cost was **\$9,445.81.**
- **Honeysuckle Lane – Lady’s Island (SWUD 7):** This project improved 430 feet of drainage system. The scope of work included cleaning out 422 feet of roadside ditch, jetting out 8 feet of channel pipe, (1) crossline pipe and (2) driveway pipes. The total cost was **\$2,010.89.**
- **County Shed Road – Port Royal Island (SWUD 6):** This project improved 1,272 feet of drainage system. The scope of work included cleaning out 1,272 feet of channel. The total cost was **\$1,555.15.**
- **Murray Drive – Port Royal Island (SWUD 6):** This project improved 140 feet of drainage system. The scope of work included cleaning out 140 feet of channel. The total cost was **\$985.59.**



Beaufort County Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Hickory Hill Road

Activity: Routine/Preventive Maintenance
Duration: 12/11/17-1/31/18

Narrative Description of Project:

Project improved 3,820 L.F. of drainage system. Cleaned out 3,820 L.F. of roadside ditch. Hydroseeded for erosion control.

2018-554 / Hickory Hill Road	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$10.90	\$0.00	\$0.00	\$0.00	\$0.00	\$10.90
HAUL / Hauling	65.5	\$1,437.76	\$617.01	\$247.32	\$0.00	\$843.57	\$3,145.66
RSDCL / Roadside Ditch - Cleanout	195.0	\$4,276.91	\$1,119.27	\$2,527.79	\$0.00	\$2,382.42	\$10,306.39
UTLOC / Utility locates	1.0	\$24.70	\$0.00	\$0.00	\$0.00	\$13.23	\$37.93
2018-554 / Hickory Hill Road Sub Total	262.0	\$5,750.26	\$1,736.28	\$2,775.11	\$0.00	\$3,239.22	\$13,500.87
Grand Total	262.0	\$5,750.26	\$1,736.28	\$2,775.11	\$0.00	\$3,239.22	\$13,500.87

Before



During



After



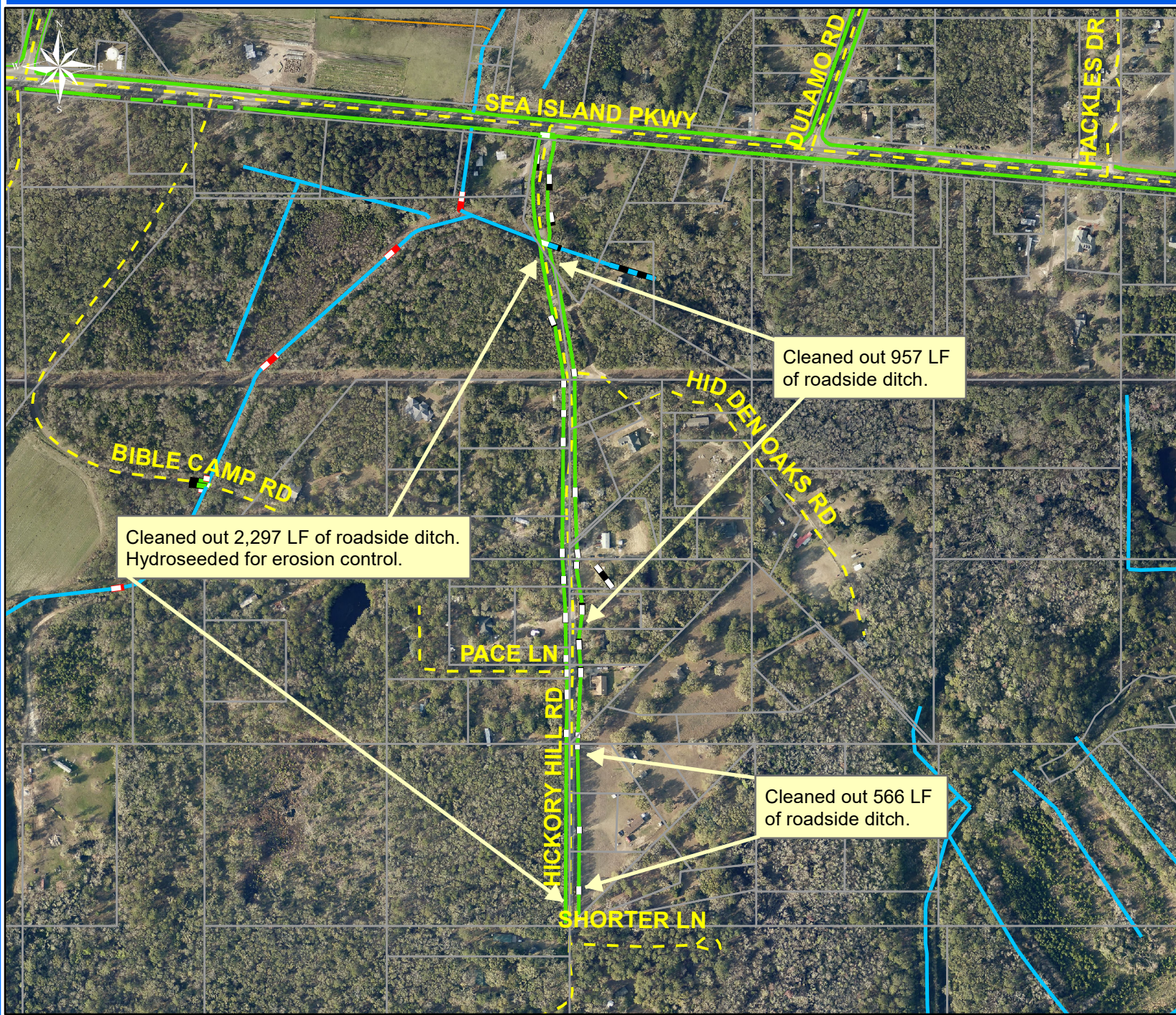
Project: Hickory Hill Road

Activity: Routine/ Preventive Maintenance

Project #: 2018-554

Township/SW Dist: St. Helena Island/8

Completed: January 2018



Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 500 feet

Prepared By: BC Stormwater Management Utility
Date Print: 04/11/18
File: C:\project summaries map\Hickory Hill Road_2018-554



Beaufort County Public Works
Stormwater Infrastructure
Project Summary

Project Summary: H.E. McCracken Circle

Activity: Routine/Preventive Maintenance

Duration: 10/10/17-11/14/17

Narrative Description of Project:

Project improved 1,515 L.F. of drainage system. Cleaned out 1,515 L.F. of roadside ditch and (1) catch basin. Jetted (1) crossline pipe and (5) driveway pipes.

2018-534 / H E McCracken Circle	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$10.90	\$0.00	\$0.00	\$0.00	\$0.00	\$10.90
DPJT / Driveway Pipe - Jetted	16.0	\$356.48	\$69.44	\$37.30	\$0.00	\$229.44	\$692.66
HAUL / Hauling	43.0	\$956.17	\$405.06	\$247.53	\$0.00	\$576.80	\$2,185.56
RSDCL / Roadside Ditch - Cleanout	210.0	\$4,380.60	\$612.53	\$213.03	\$0.00	\$2,175.90	\$7,382.06
UTLOC / Utility locates	2.0	\$49.40	\$0.00	\$0.00	\$0.00	\$26.46	\$75.86
2018-534 / H E Mccracken Circle Sub Total	271.5	\$5,753.55	\$1,087.03	\$497.86	\$0.00	\$3,008.60	\$10,347.04
Grand Total	271.5	\$5,753.55	\$1,087.03	\$497.86	\$0.00	\$3,008.60	\$10,347.04

Before

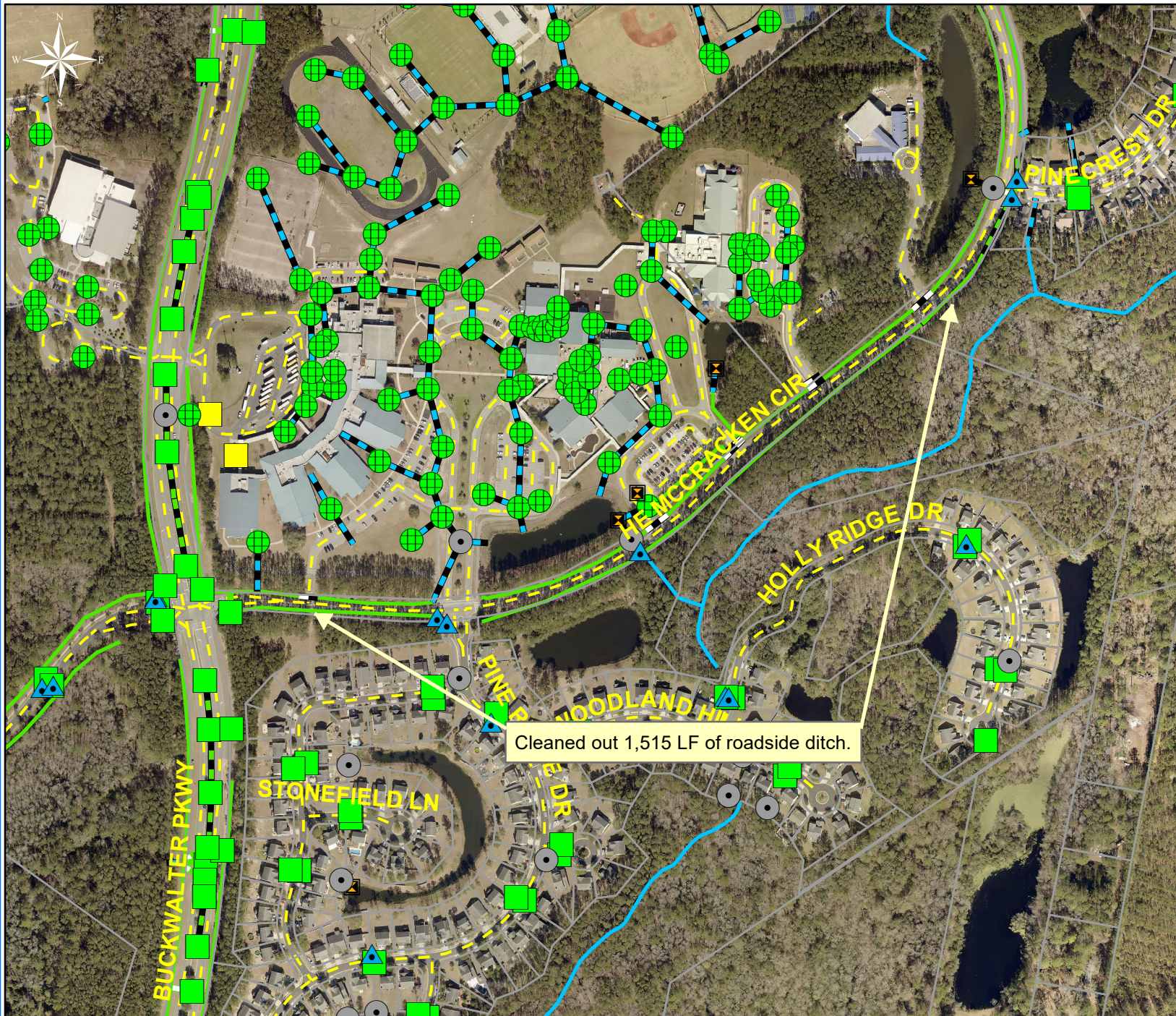


During



After





Project: H.E. McCracken Circle Map #1

Activity: Routine/ Preventive Maintenance

Project #: 2018-534

Township/SW Dist: Bluffton/4

Completed: November 2017

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe

Cleaned out 1,515 LF of roadside ditch.



1 inch = 420 feet

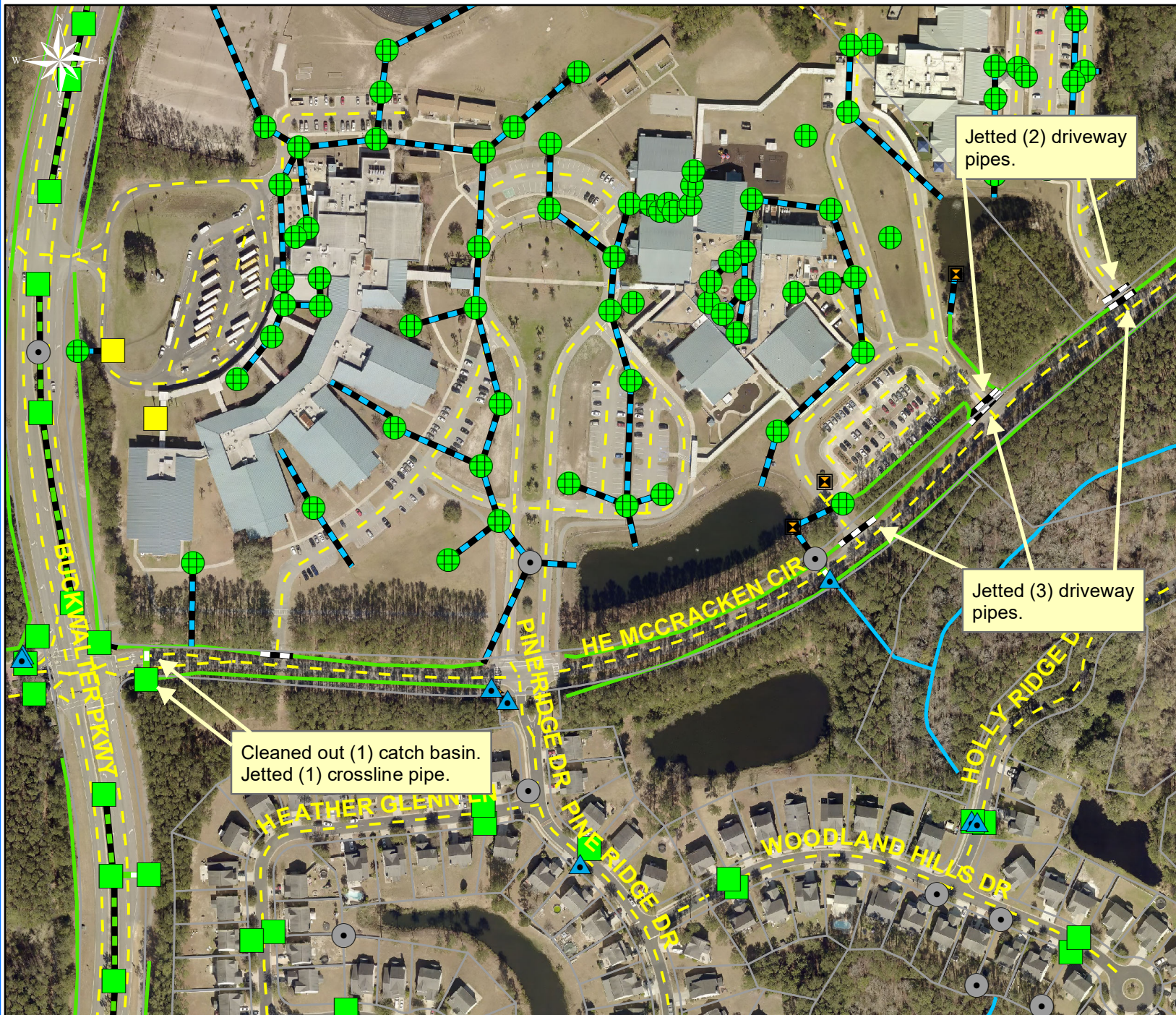
Project: H. E. McCracken Circle Map #2

Activity: Routine/ Preventive Maintenance

Project #: 2018-534

Township/SW Dist: Bluffton/4

Completed: November 2017



Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 250 feet

Prepared By: BC Stormwater Management Utility
 Date Print: 04/11/18
 File: C:\project summaries map\HE McCracken Circle Map#2_2018-534



Beaufort County Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Cleveland Drive-Radio Tower

Activity: Pond Maintenance

Duration: 07/18/17-07/27/17

Narrative Description of Project:

Grubbed and cleared .75 acres of workshelf.

2018-508 / Cleveland Drive-Radio Tower	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$10.90	\$0.00	\$0.00	\$0.00	\$0.00	\$10.90
HAUL / Hauling	6.5	\$144.76	\$61.23	\$41.40	\$0.00	\$93.73	\$341.12
WSGRB / Workshelf - Grubbed	158.0	\$3,638.54	\$2,891.27	\$563.28	\$0.00	\$2,000.71	\$9,093.80
2018-508 / Cleveland Drive-Radio Tower Sub Total	165.0	\$3,794.19	\$2,952.50	\$604.68	\$0.00	\$2,094.44	\$9,445.81
Grand Total	165.0	\$3,794.19	\$2,952.50	\$604.68	\$0.00	\$2,094.44	\$9,445.81

Before



During



After





Project: Cleveland Drive- Radio Tower

Activity: Routine/ Preventive Maintenance

Project #: 2018-508

Township/SW Dist: Port Royal Island/6

Completed: July 2017

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 210 feet

Prepared By: BC Stormwater Management Utility
 Date Print: 04/11/18
 File: C:\project summaries map\Cleveland Drive- Radio Tower_2018-508



Beaufort County Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Honeysuckle Lane

Activity: Routine/Preventive Maintenance

Duration: 12/07/17-02/21/18

Narrative Description of Project:

Project improved 430 L.F. of drainage system. Cleaned out 422 L.F. of roadside ditch. Jetted 8 L.F. of channel pipe, (1) crossline pipe and (2) driveway pipes.

2018-548 / Honeysuckle Lane

	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$10.90	\$0.00	\$0.00	\$0.00	\$0.00	\$10.90
CLPJT / Crossline Pipe - Jetted	10.0	\$222.80	\$43.40	\$31.66	\$0.00	\$143.40	\$441.26
HAUL / Hauling	5.0	\$108.95	\$47.10	\$42.84	\$0.00	\$0.00	\$198.89
HEQ / Haul equipment	16.0	\$336.79	\$48.48	\$89.49	\$0.00	\$134.00	\$608.76
RSDCL / Roadside Ditch - Cleanout	20.0	\$403.20	\$103.89	\$36.78	\$0.00	\$188.25	\$732.12
UTLOC / Utility locates	0.5	\$12.35	\$0.00	\$0.00	\$0.00	\$6.62	\$18.97
2018-548 / Honeysuckle Lane Sub Total	52.0	\$1,094.99	\$242.87	\$200.77	\$0.00	\$472.26	\$2,010.89
Grand Total	52.0	\$1,094.99	\$242.87	\$200.77	\$0.00	\$472.26	\$2,010.89

Before

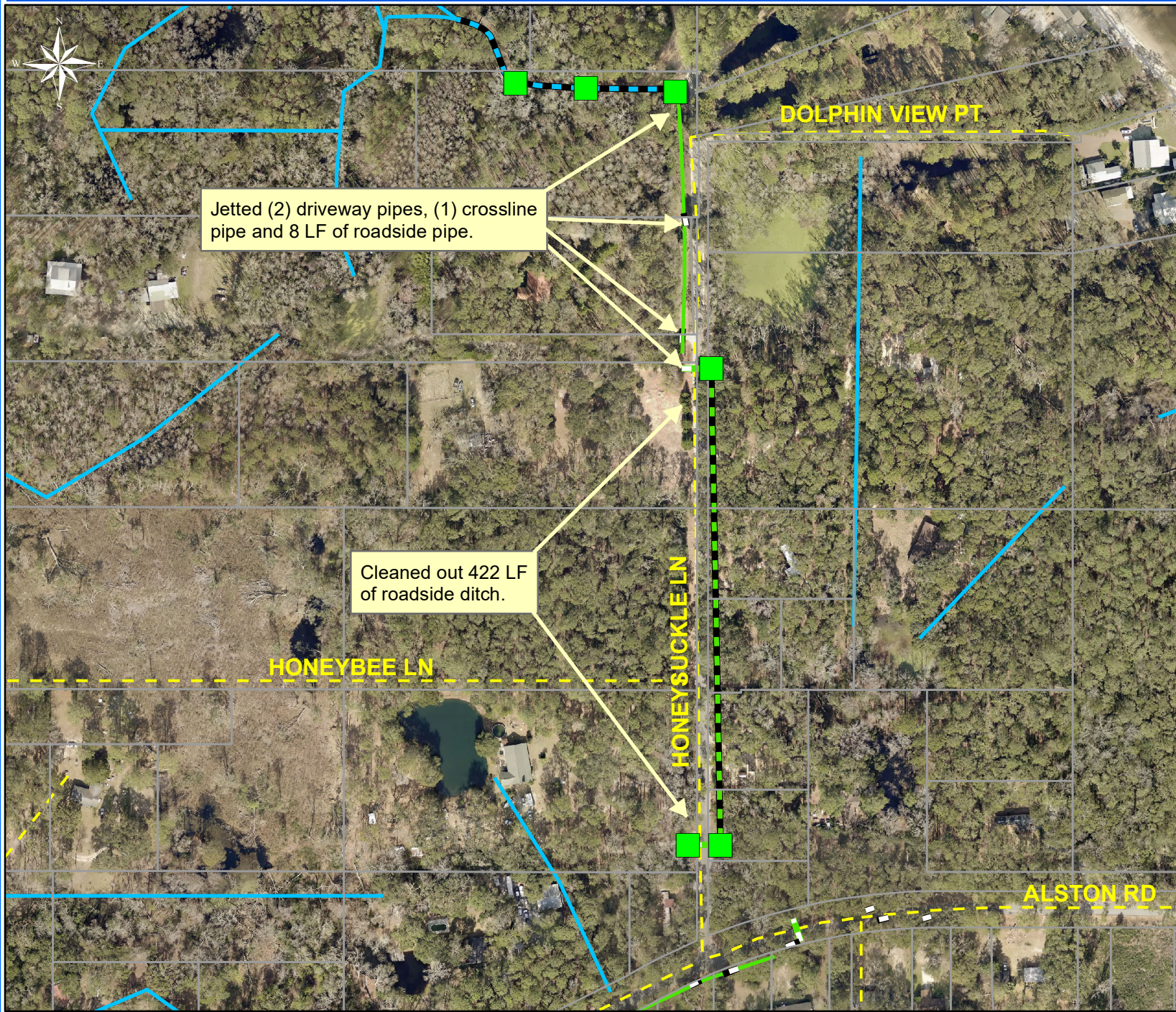


During



After





Jetted (2) driveway pipes, (1) crossline pipe and 8 LF of roadside pipe.

Cleaned out 422 LF of roadside ditch.

Project:
Honeysuckle Lane

Activity: Routine/
Preventive
Maintenance

Project #:
2018-548

Township/SW Dist:
Lady's Island/7

Completed:
February 2018

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 250 feet

Prepared By: BC Stormwater Management Utility
Date Print: 04/11/18
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Beaufort County Public Works
Stormwater Infrastructure
Project Summary

Project Summary: County Shed Road

Activity: Routine/Preventive Maintenance

Duration: 8/22/17-8/23/17

Narrative Description of Project:

Project improved 1,272 L.F. of drainage system. Cleaned out 1,272 L.F. of channel.

2018-521 / County Shed Road Channel #2	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$10.90	\$0.00	\$0.00	\$0.00	\$0.00	\$10.90
CCO / Channel - cleaned out	28.0	\$640.73	\$248.56	\$35.72	\$0.00	\$415.80	\$1,340.81
HAUL / Hauling	4.0	\$89.08	\$37.68	\$19.00	\$0.00	\$57.68	\$203.44
2018-521 / County Shed Road Channel #2 Sub Total	32.5	\$740.71	\$286.24	\$54.72	\$0.00	\$473.48	\$1,555.15
Grand Total	32.5	\$740.71	\$286.24	\$54.72	\$0.00	\$473.48	\$1,555.15

(Pictures Not Available)



Cleaned out 1,272 LF of channel.

Project: County Shed Road

Activity: Routine/ Preventive Maintenance

Project #: 2018-521

Township/SW Dist: Port Royal Island/6

Completed: August 2017

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 210 feet



Beaufort County Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Murray Drive

Activity: Routine/Preventive Maintenance

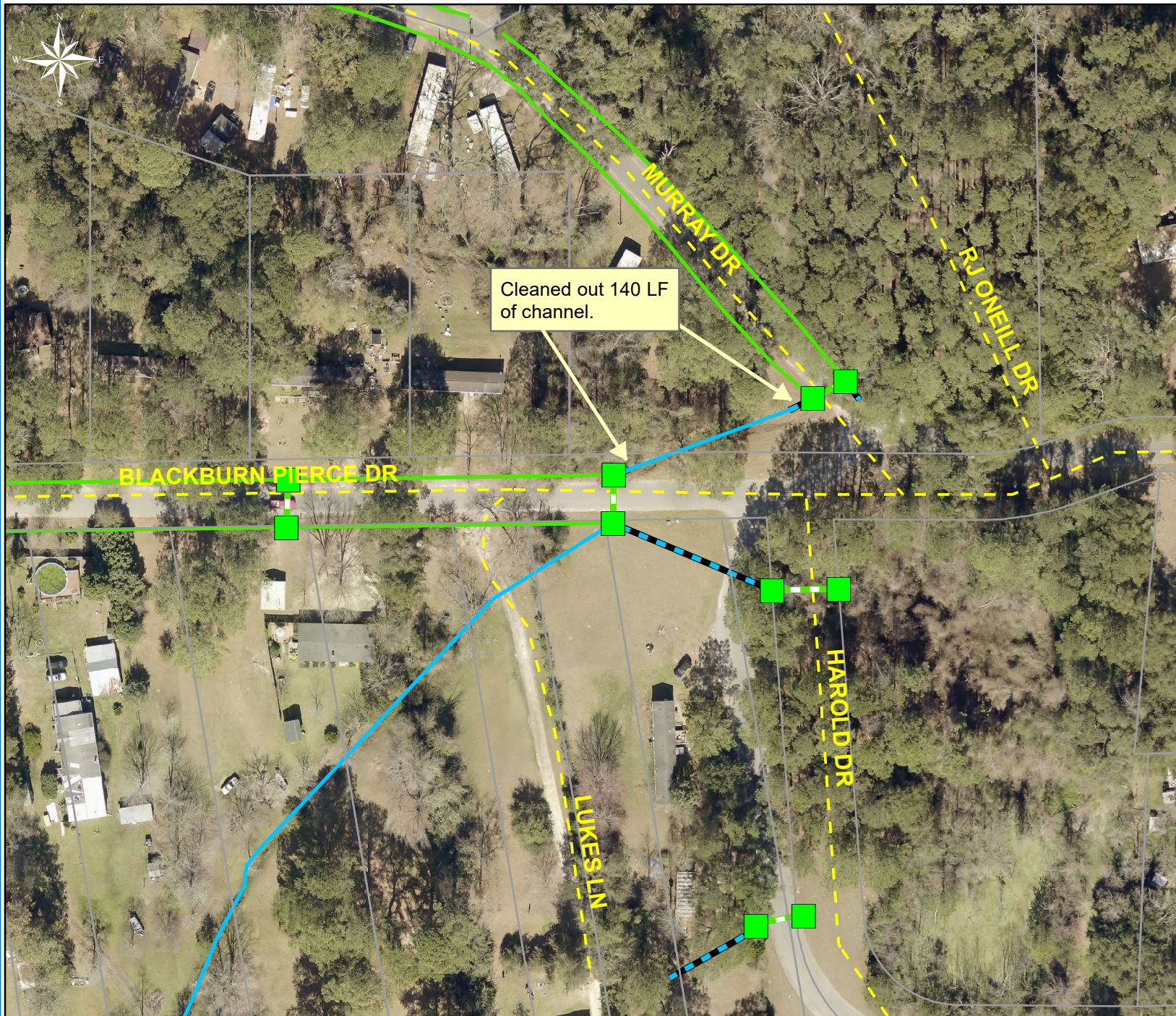
Duration: 11/2/17

Narrative Description of Project:

Project improved 140 L.F. of drainage system. Cleaned out 140 L.F. of channel.

2018-527 / Murray Drive	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$10.90	\$0.00	\$0.00	\$0.00	\$0.00	\$10.90
CCO / Channel - cleaned out	20.0	\$423.25	\$75.26	\$8.92	\$0.00	\$195.45	\$702.88
HAUL / Hauling	5.0	\$111.35	\$47.10	\$22.30	\$0.00	\$72.10	\$252.85
UTLOC / Utility locates	0.5	\$12.35	\$0.00	\$0.00	\$0.00	\$6.62	\$18.97
2018-527 / Murray Drive Sub Total	26.0	\$557.85	\$122.36	\$31.22	\$0.00	\$274.17	\$985.59
Grand Total	26.0	\$557.85	\$122.36	\$31.22	\$0.00	\$274.17	\$985.59

(Pictures Not Available)



Project: Murray Drive

Activity: Routine/
Preventive
Maintenance

Project #:
2018-527

Township/SW Dist:
Port Royal Island/6

Completed:
November 2017

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 100 feet

Prepared By: BC Stormwater Management Utility
Date Print: 03/07/18
File: C:\project summaries map\Murray Drive_2018-527



BEAUFORT COUNTY
STORMWATER MANAGEMENT UTILITY BOARD AGENDA
Wednesday, July 11, 2018
2:00 p.m.
Executive Conference Room, Administration Building
Beaufort County Government Robert Smalls Complex
100 Ribaut Road, Beaufort, South Carolina
843.255.2805

In accordance with South Carolina Code of Laws, 1976, as amended, Section 30-4-80(d), all local media was duly notified of the time, date, place and agenda of this meeting.

1. CALL TO ORDER – 2:00 p.m.
 - A. Approval of Agenda
 - B. Approval of Minutes – June 13, 2018 ([backup](#))
2. INTRODUCTIONS
3. PUBLIC COMMENT
4. REPORTS
 - A. Utility Update – Eric Larson, P.E. ([backup](#))
 - B. Monitoring Update – Eric Larson, P.E. ([backup](#))
 - C. Stormwater Implementation Committee Report – Eric Larson, P.E. ([backup](#))
 - D. Stormwater Related Projects – Eric Larson, P.E. ([backup](#))
 - E. Upcoming Professional Contracts Report – Eric Larson, P.E. ([backup](#))
 - F. Regional Coordination – Eric Larson, P.E. ([backup](#))
 - G. Municipal Reports – Eric Larson, P.E. ([backup](#))
 - H. MS4 Update – Eric Larson, P.E. ([backup](#))
 - I. Maintenance Projects Report – David Wilhelm, P.E. ([backup](#))
5. UNFINISHED BUSINESS
6. NEW BUSINESS
 - A. Special Presentation – TBD
7. PUBLIC COMMENT
8. NEXT MEETING AGENDA
 - A. August 8, 2018 ([backup](#))
9. ADJOURNMENT