STATE OF SOUTH CAROLINA
IN THE COURT OF APPEALS

APPEAL FROM THE ADMINISTRATIVE LAW COURT
John D. McLeod, Administrative Law Judge

Case No. 08-ALC-07-0221-CC
Appellate Case No. 2009-135686

Deerfield Plantation Phase IIB Property Owners Association ..... Appellant,

vs.

South Carolina Department of Health and Environmental Control,
Deertrack Golf, Inc., and Bill Clark Homes of Myrtle Beach, LLC ..... Respondents,

vs.

Bill Clark Homes of Myrtle Beach, LLC ..... Respondents.

RECORD ON APPEAL
VOLUME II OF II

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INDEX

Page

ORDERS:

ORDERS FROM THIS CASE

Order on Respondent's and Intervenor's Motion in Limine by Administrative Law Court, February 26, 2009 1

Final Order and Decision by Administrative Law Court, June 9, 2009 5

Order by Court of Appeals, January 12, 2012 43

Order of Remand by Administrative Law Court, February 21, 2012 45

ORDERS FROM RELATED CASES

Order Affirming Decision of Horry County Planning Commission, July 7, 2010, Civil Action No.: 2008-CP-26-7692 46

Order by the Honorable Steven H. John, Circuit Court Judge, June 24, 2013, Civil Action No. 2008-CP-26-7692 57

PLEADINGS:

Petitioner's Amended Prehearing Statement, January 15, 2009 77

Petitioner's Motion for New Trial and to Alter or Amend, June 22, 2009 85

TRANSCRIPTS:

Contested Case Hearing, March 10, 2009 90

Frank Yelinko:
Direct examination by Mr. Chandler 91
Voir dire examination by Ms. Shahid 201
Continued direct examination by Mr. Chandler 209
Cross examination by Ms. Shahid 221
Cross examination by Mr. Barnett 263
Re-direct examination by Mr. Chandler 277

Contested Case Hearing, March 11, 2009 278
Steve Powell
Direct examination by Mr. Chandler 281
Cross examination by Ms. Shahid 284
Cross examination by Mr. Barnett 286

John Duncan
Direct examination by Mr. Chandler 287

Mike Couture
Direct examination by Mr. Chandler 294

Jeff Farrell
Direct examination by Mr. Barnett 296
Cross examination by Ms. Shahid 299

Contested Case Hearing, March 12, 2009 301

Tom Garigen:
Direct examination by Ms. Shahid 302
Cross examination by Mr. Chandler 338
Re-direct examination by Ms. Shahid 347
Re-cross examination by Mr. Chandler 349

Thomas Bevins:
Direct examination by Ms. Shahid 352
Cross examination by Mr. Chandler 416
Re-direct examination by Ms. Shahid 455
Cross examination by Mr. Barnett 460
Re-cross examination by Mr. Chandler 464

EXHIBITS:

Petitioner's Exhibit Number 1, stormwater permit approval letter 469

Petitioner's Exhibit Number 2, coastal zone consistency certification approval letter . 473

Petitioner's Exhibit Number 3, stormwater application form 475

Petitioner's Exhibit Number 4, DHEC/OCRM worksheet for consistency certification 477

Petitioner's Exhibit Number 12, NPDES general permit for stormwater discharges .. 479

Petitioner's Exhibit Number 85, deposition of Shannon M. Hicks 532

Petitioner's Exhibits Numbers 19 (Photo No. 55) and 26, photos 551

Respondents' Exhibit Number 9, aerial from Horry County GIS 554

Respondents' Exhibit Number 15, sheet 10 of plans approved by OCRM 555

Respondents' Exhibit Number 16, email correspondence 556

Respondents' Exhibit Number 19A and B, redevelopment representations 573

Respondents' Exhibit Number 26, LPA 2000 drainage study report 575

OTHER MATERIALS:

Appellant's Return to Respondent's Motion Seeking Establishment of an Appellate Briefing Schedule and Motion to Remand, December 8, 2011 661

Respondent Deertrack Golf Inc.'s Reply to Appellant's Return to Petition for Rehearing, September 16, 2013 701

CERTIFICATE OF COUNSEL 704

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South Carolina Department of Health and Environmental Control

www.scdhec.gov/water

South Carolina

NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES

In compliance with the provisions of the SC Pollution Control Act (S.C. Code Sections 48-1-10 *et seq.*, 1976) and with the provisions of the Clean Water Act, 33 U.S.C. §1251 et. seq., (hereafter CWA or the Act), as amended by the Water Quality Act of 1987, P.L. 100-4, Operators of large and small construction activities that are described in Subpart 1.3 of this National Pollutant Discharge Elimination System (NPDES) general permit, except for those activities excluded from authorization of discharge in Subpart 1.3.C of this permit, are authorized to discharge pollutants to Surface Waters of the State in accordance with the conditions and requirements set forth herein. Permit coverage is required from the "commencement of construction activities" until "final stabilization" as defined in Appendix A.

M. Rheta Geddings, Assistant Chief

Bureau of Water

Permit No.: SCR100000

Issued: August 1, 2006

Effective: September 1, 2006

PETITIONER'S EX. 12

Expires: August 31, 2011

NPDES General Permit for Storm Water Discharges From Construction Activities

Table of Contents

PART 1: COVERAGE UNDER THIS PERMIT 1

1.1 Introduction 1
1.2 Permit Area 1
1.3 Eligibility 1
1.4 Waivers for Certain Small Construction Activities 3

PART 2: AUTHORIZATION FOR DISCHARGES OF STORM WATER FROM CONSTRUCTION ACTIVITY 4

2.1 Authorization to Discharge Date 4
2.2 Notice of Intent Contents and Other Required Information 5
2.3 Submission Deadlines 7
2.4 Where to Submit 8

PART 3: STORM WATER POLLUTION PREVENTION PLANS (SWPPPS) 8

3.1 Storm Water Pollution Prevention Plan Framework 8
3.2 Requirements for Different Types of Operators 9
3.3 Pollution Prevention Plan Contents: Site and Activity Description 12
3.4 Pollution Prevention Plan Contents: Controls to Reduce Pollutants 13
3.5 Management of Non-Storm Water Discharges Allowed Under Part 1.3.B 16
3.6 Maintenance of Controls 16
3.7 Reserved 16
3.8 Copy of Permit Requirements 17
3.9 Applicable State, Tribal, or Local Programs 17
3.10 Inspections 17
3.11 Maintaining an Updated Plan 21
3.12 Signature, Plan Review and Making Plans Available 21
3.13 Management Practices 22
3.14 Documentation of Permit Eligibility Related to Total Maximum Daily Loads That Are Effective and Applicable to Stormwater Construction Discharges 23

PART 4: SPECIAL CONDITIONS, MANAGEMENT PRACTICES AND OTHER NON-NUMERIC LIMITATIONS 24

4.1 Continuation of the Expired General Permit 24
4.2 Requiring an Individual Permit or an Alternative General Permit 24
4.3 Releases in Excess of Reportable Quantities 25
4.4 Attainment of Water Quality Standards After Authorization 26

PART 5: TERMINATION OF COVERAGE 26

5.1 Requirements 26
5.2 Submitting a Notice of Termination 26

000480

5.3 WHERE TO SUBMIT 27
PART 6: RETENTION OF RECORDS 27
PART 7: REOPENER CLAUSE 28
7.1 PROCEDURES FOR MODIFICATION OR REVOCATION 28
7.2 WATER QUALITY PROTECTION 28
7.3 TIMING OF PERMIT MODIFICATION 28
PART 8: STANDARD PERMIT CONDITIONS 28
APPENDIX A - DEFINITIONS AND ACRONYMS DEFINITIONS 29
APPENDIX B - SMALL CONSTRUCTION WAIVERS AND INSTRUCTIONS 36
A. RAINFALL EROSIVITY WAIVER 36
B. TMDL WAIVER 37
C. EQUIVALENT ANALYSIS WAIVER 38
D. WAIVER DEADLINES AND SUBMISSIONS 39
APPENDIX C – SECTIONS 122.41 AND 122.22 OF SC REGULATION 61-9 40

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PART 1: COVERAGE UNDER THIS PERMIT

1.1 Introduction

This Construction General Permit (CGP) authorizes storm water discharges from large and small construction activities where those discharges enter Surface Waters of the State or a municipal separate storm sewer system (MS4) leading to Surface Waters of the State subject to the conditions set forth in this permit. This permit also authorizes storm water discharges from any other construction activity designated by DHEC where DHEC makes that designation based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to Surface Waters of the State. This permit replaces the storm water construction general permit (NPDES # SCR100000) issued January 15, 1998. Any references to the 1998 CGP in this permit refer to that permit.

This permit is presented in a reader-friendly, plain language format. This permit uses the terms "you" and "your" to identify the person(s) who owns or operates a "facility" or "activity" as defined in Appendix A and who must comply with the conditions of this permit. This format should allow you, the permittee and Operator of a large or small construction activity, to easily locate and understand applicable requirements. The goal of this permit is to reduce or eliminate storm water pollution from construction activity by requiring that you plan and implement appropriate pollution control practices to protect water quality.

1.2 Permit Area

This permit covers all areas of South Carolina including Indian lands.

1.3 Eligibility

Permit eligibility is limited to discharges from "large" and "small" construction activity as defined in Appendix A. This general permit contains eligibility restrictions, as well as permit conditions and requirements. You may have to take certain actions to be eligible for coverage under this permit. In such cases, you must continue to satisfy those eligibility provisions to maintain permit authorization. If you do not meet the requirements that are a pre-condition to eligibility, then resulting discharges constitute un-permitted discharges. By contrast, if you do not comply with the requirements of the general permit, you may be in violation of the general permit for your otherwise eligible discharges.

A. Allowable Storm Water Discharges

Subject to compliance with the terms and conditions of this permit, you are authorized to discharge pollutants in:

1. Storm water associated with large and small construction activity as defined in Appendix A;

2. Storm water discharges designated by DHEC as needing a storm water permit under §122.26(a)(1)(v) or §122.26(b)(15)(ii) of SC Regulation 61-9;

3. Discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:

   a. The support activity is directly related to the construction Site required to have NPDES permit coverage for discharges of storm water associated with construction activity;

   b. The support activity is not a commercial operation serving multiple unrelated construction Projects by different Operators, and does not operate beyond the completion of the construction activity at the last construction Project it supports; and

   c. Appropriate controls and measures are identified in a Storm Water Pollution Prevention Plan (SWPPP) covering the discharges from the support activity areas.

4. Discharges composed of allowable discharges listed in Subparts 1.3.A and 1.3.B commingled with a discharge authorized by a different NPDES permit and/or a discharge that does not require NPDES permit authorization.

B. Allowable Non-Storm Water Discharges

You are authorized for the following non-storm water discharges, provided the non-storm water component of the discharge is in compliance with Subpart 3.5 (Non-Storm Water Discharge Management):

1. Discharges from fire-fighting activities;
2. Fire hydrant flushings;
3. Waters used to wash vehicles where detergents are not used;
4. Water used to control dust in accordance with Subpart 3.4.J;
5. Potable water including uncontaminated water line flushings;
6. Routine external building wash down that does not use detergents;
7. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
8. Uncontaminated air conditioning or compressor condensate;
9. Uncontaminated ground water or spring water;
10. Foundation or footing drains where flows are not contaminated with process materials such as solvents;
11. Uncontaminated excavation dewatering;

12. Landscape irrigation.

C. Limitations on Coverage

1. This permit does not authorize post-construction discharges that originate from the Site after construction activities have been completed and the Site has achieved final stabilization, including any temporary support activity. Post-construction storm water discharges from industrial sites may need to be covered by a separate NPDES permit.

2. This permit does not authorize storm water discharges associated with construction activity that have been covered under an individual permit or required to obtain coverage under an alternative general permit in accordance with Subpart 4.2.

3. This permit does not authorize discharges that DHEC, prior to authorization under this permit, determines will cause, have the reasonable potential to cause, or contribute to a violation of any applicable water quality standard. Where such a determination is made prior to authorization, DHEC may notify you that an individual permit application is necessary in accordance with Subpart 4.2. However, DHEC may authorize your coverage under this permit after you have included appropriate controls and implementation procedures in your SWPPP designed to bring your discharge into compliance with water quality standards.

4. Discharging into Receiving Waters With an Approved Total Maximum Daily Load Analysis

   a. You are not eligible for coverage under this permit for discharges of pollutants of concern to waters for which there is a total maximum daily load (TMDL) in effect that is applicable stormwater construction discharges unless you incorporate into your SWPPP measures or controls that are consistent with the assumptions and requirements of such TMDL. To be eligible for coverage under this general permit, you must incorporate into your SWPPP any conditions applicable to your discharges necessary for consistency with the assumptions and requirements of such TMDL. If a specific wasteload allocation has been established that would apply to your discharge, you must incorporate that allocation into your SWPPP and implement necessary steps to meet that allocation.

   b. In a situation where a TMDL has specified a general wasteload allocation applicable to construction storm water discharges, but no specific requirements for construction Sites have been identified in the TMDL, you should consult with the Department to confirm that adherence to a SWPPP that meets the requirements of the CGP will be consistent with the TMDL. Where a TMDL has not specified a wasteload allocation applicable to construction storm water discharges, but has not specifically excluded these discharges, adherence to a SWPPP that meets the requirements of the CGP will generally be assumed to be consistent with the approved TMDL. If the TMDL specifically precludes such discharges, the Operator is not eligible for coverage under the CGP.

1.4 Waivers for Certain Small Construction Activities

Three scenarios exist under which small construction activities (see definition in Appendix A) may be waived from the NPDES permitting requirements detailed in this CGP. These exemptions are predicated on certain criteria being met and proper notification procedures being followed. Details of the waiver options and procedures for requesting a waiver are provided in Appendix B.

PART 2: AUTHORIZATION FOR DISCHARGES OF STORM WATER FROM CONSTRUCTION ACTIVITY

Except for Projects that are located in Horry, Georgetown, Berkeley, Charleston, Dorchester, Colleton, Beaufort, or Jasper County and disturb 0.5 acres or less, to obtain coverage under this CGP, you, the Owner or Operator, must prepare and submit a complete and accurate Notice of Intent (NOI) and the other required information, as described in this Part. Discharges will not be authorized if your NOI is incomplete or inaccurate or if you are not eligible for permit coverage. Unless the Department specifically requests that an NOI be submitted, all Projects that are located in Horry, Georgetown, Berkeley, Charleston, Dorchester, Colleton, Beaufort, or Jasper County and disturb 0.5 acres or less are not required to submit an NOI, but are automatically granted coverage under this general permit provided the appropriate Best Management Practices are being used.

2.1 Authorization to Discharge Date

This permit is effective on September 1, 2006 and is effective for five years, expiring at midnight on August 31, 2011.

A. **For all Projects except for SC Department of Transportation Projects.**

1. When your SWPPP is reviewed and approved by an implementing entity under SC Regulation 72-300 (if applicable); another local government program acceptable to DHEC; or, when applicable, the owner of the municipal separate storm sewer system that receives your storm water discharges, and if DHEC does not send a letter within 7 business days of the receipt of a complete NOI authorizing coverage, denying coverage, requesting additional information or advising you that DHEC has decided to also review the SWPPP, coverage under this CGP is automatically granted.

2. When DHEC reviews your SWPPP, if DHEC does not send a letter authorizing coverage, denying coverage, or requesting additional information within 20 days of the receipt of the complete NOI, coverage under this CGP is automatically granted.

B. **For SC Department of Transportation Projects,** your SWPPP must be submitted to DHEC. DHEC may require review and approval of your SWPPP prior to granting you coverage under this CGP. If DHEC does not send a letter authorizing coverage, denying coverage, or advising that a review of the SWPPP will take place within 10 business days of receipt of the NOI, coverage will automatically be granted.

C. If a US Army Corps of Engineers' 404 Permit is required by Section 404 of the CWA Act for permanent or temporary storm water control structures, DHEC may not grant you coverage under this CGP until the 404 Permit has been issued and is effective.

1. In situations where the 404 Permit decision will not affect the implementation of the SWPPP, the Department will issue approval of the SWPPP and grant coverage under this permit before the 404 Permit decision is effective.
2. In situations where the 404 Permit decision will affect only a portion of the "Project Area", the Department may grant the unaffected portion of the "Project Area" coverage under this permit. The remaining portion of the "Project Area" will be considered after the 404 Permit is issued and effective.

3. In situations where the entire "Project Area" is affected by the 404 Permit decision, the Department will not grant coverage under this general permit until the 404 Permit decision is issued and effective.

D. When permanent or temporary structures will be placed in State Navigable Waters, the Department will address any issues related to State Navigable Waters' Program under SC Regulation 19-450 during the review of the SWPPP rather than requiring a separate State Navigable Waters Permit.

E. DHEC may deny or delay your coverage based on eligibility considerations of Subpart 1.3 (e.g., TMDL concerns).

2.2 Notice of Intent Contents and Other Required Information

A. You must use the NOI form (or a photocopy thereof) provided by the Department. This form will be made available on our WEB site at:

http://www.scdhec.net/eqc/admin/html/eqforms.html#Water

If DHEC makes other NOI forms available (either directly, by public notice, or by making information available on the Internet), you may take advantage of any of those options to satisfy the NOI use requirements of this Subpart.

B. You must provide the following information on the NOI form:

1. Operator name, address, telephone number, and Employer Identification Number (EIN) as established by the U.S. Internal Revenue Service;

2. Project/Site name, address, county or similar governmental subdivision, and latitude/longitude of your construction Project or Site;

3. Whether your Site is located in Indian country and if so, the name of the Reservation, if applicable;

4. Whether the SWPPP has been prepared in accordance with this CGP;

5. Name of the Water(s) of the State into which your Site discharges;

6. Indication whether your discharge is consistent with the assumptions and requirements of applicable TMDLs;

7. Estimated dates of commencement of construction activity and final stabilization (i.e., Project start and completion dates);

8. Total acreage (to the nearest tenth acre) to be disturbed for which you are requesting permit coverage; and

9. A certification statement, signed and dated by an authorized representative as defined in §122.22 of SC Regulation 61-9 (see Appendix C of this permit), and the name and title of that authorized representative.

C. The following information must also be submitted with the NOI form for the NOI application to be complete:

1. The fee for coverage under this CGP. A check made payable to SC DHEC must be submitted. SC Regulation 61-30, Environmental Protection Fees, governs this fee. At the time of issuance of this CGP the fee was $125.

2. a. For Projects not owned or managed by the SC Department of Transportation:

i. If approval of the SWPPP is required under either SC Regulation 72-300 or an applicable MS4 Program or other local program acceptable to DHEC:

(1) A copy of the State, MS4, or local application;

(2) For non-linear Projects, a copy of the approved SWPPP with the supporting documents and calculations. For linear Projects, this is only applicable if specifically requested. This information is not required if there is a written agreement or memorandum of understanding between DHEC and the Operator of the applicable MS4 or other local program acceptable to DHEC that addresses the availability of the approved SWPPP to DHEC through the local entity that maintains a copy of the approved SWPPP;

(3) A copy of the approval of the SWPPP from the entity implementing SC Regulation 72-300 or an applicable MS4 Program or other local program acceptable to DHEC; and

(4) If DHEC's Bureau of Water also reviews your SWPPP prior to granting coverage under this CGP, the NPDES plan review fee of $100 per disturbed acre not to exceed $2,000.

ii. If approval of the SWPPP is not required under SC Regulation 72-300 or an applicable MS4 program or other local program acceptable to DHEC:

(1) Three copies of the SWPPP;

(2) For non-linear Projects, the supporting calculations and documents. Linear Projects must submit supporting calculations and documents when requested; and

(3) The plan review fee of $100 per disturbed acre not to exceed $2,000.

b. For SC Department of Transportation Projects:

i. The SWPPP;

ii. The supporting calculations and documents, when requested; and

iii. The plan review fee of $100 per disturbed acre not to exceed to $2000. The plan review fee is applicable only if DHEC reviews your SWPPP prior to granting coverage under this CGP.

3. For Projects located in Horry, Georgetown, Berkeley, Charleston, Dorchester, Colleton, Beaufort, or Jasper County, a copy of a letter from DHEC's Office of Ocean and Coastal Resource Management that states the proposed Project is consistent with the Coastal Zone Management Plan.

2.3 Submission Deadlines

A. New Projects: Except as given in the first paragraph of Part 2, to obtain coverage under this permit, you must submit a complete and accurate NOI with the other required information and be authorized consistent with Subpart 2.1 prior to your commencement of construction activities.

B. Permitted Ongoing Projects: If you previously received authorization to discharge for the current phase of your Project under the 1998 CGP, you are automatically covered under this permit without resubmitting an NOI.

1. You must comply with the terms and conditions of the 1998 CGP under which you were previously authorized.

2. Future phases of the Project must submit an NOI to be covered under this CGP.

C. Un-permitted Ongoing Projects (only applicable for first 90 days after this permit is issued): If you previously did not receive authorization to discharge for your Project under the 1998 CGP and you wish to obtain coverage under this permit:

1. Except as noted in 2.3.C.2, you must:

a. Submit an NOI with the required other information within 90 days of the issuance date of this permit; and

b. Until you are authorized under this permit consistent with Subpart 2.1, comply with an interim Storm Water Pollution Prevention Plan (SWPPP) consistent with the 1998 CGP.

2. If you meet the termination of coverage requirements in accordance with Subpart 5.1 within 90 days of the issuance date of this permit (e.g., construction will be finished and final stabilization achieved) you must comply with an interim Storm Water Pollution Prevention Plan (SWPPP) consistent with the 1998 CGP until permit coverage is no longer required.

D. *Late Notifications*: Operators are not prohibited from submitting NOIs after initiating clearing, grading, excavation activities, or other construction activities. When a late NOI is submitted, authorization for discharges occurs consistent with Subpart 2.1. DHEC may take enforcement for any unpermitted discharge or violations of laws or regulations that occur between the time construction commenced and discharge authorization.

2.4 Where to Submit

You must send your complete and accurate NOI application to DHEC at the following address:

Construction Storm Water Notice of Intent
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

PART 3: STORM WATER POLLUTION PREVENTION PLANS (SWPPPS)

3.1 Storm Water Pollution Prevention Plan Framework

A. A SWPPP must be prepared prior to submission of an NOI as required in Part 2. At least one SWPPP must be developed for each construction Project covered by this permit and a qualified individual in accordance with good engineering practices must prepare such SWPPP. For Projects that disturb more than 2 acres, the SWPPP must be prepared, amended when necessary, certified, and stamped by a qualified individual who is licensed as follows:

1. Registered professional engineers as described in Title 40, Chapter 22;

2. Registered landscape architects as described in Title 40, Chapter 28, Section 10, item (b);

3. Tier B land surveyors as described in Title 40, Chapter 22; or

4. Federal government employees as described by Title 40, Chapter 22, Section 280(A)(3).

B. The SWPPP must:

1. Identify all potential sources of pollution which may reasonably be expected to affect the

quality of storm water discharges from the construction Site;

2. Describe practices to be used to reduce pollutants in storm water discharges from the construction Site; and

3. Assure compliance with the terms and conditions of this permit when properly implemented.

C. Once a definable area has been finally stabilized, you may mark this on your SWPPP and no further SWPPP or inspection requirements apply to that portion of the Site (e.g., earth-disturbing activities around one of three buildings in a complex are done and the area is finally stabilized, one mile of a roadway or pipeline Project is done and finally stabilized, etc).

D. You must implement the SWPPP as written from commencement of construction activity until final stabilization is complete.

3.2 Requirements for Different Types of Operators

You may meet one or both of the operational control components in the definition of Operator found in Appendix A. Subpart 3.2.C applies to all permittees having control over only a portion of a construction Site.

A. If you have "operational control over construction plans and specifications" as defined in the definition of "Operator" in Appendix A, you must ensure that:

1. The specifications for the BMPs meet the minimum requirements of this Subpart and all other applicable permit conditions;

2. The SWPPP indicates the areas of the Site where the Operator has operational control over specifications, including the ability to make modifications in specifications and plans including the SWPPP;

3. All other co-permittees implementing portions of the SWPPP (or their own SWPPP) who may be impacted by a change to the construction plan are notified of such changes in a timely manner;

4. The SWPPP indicates the name(s) of the Operator(s) with day-to-day operational control of those activities necessary to ensure compliance with the SWPPP or other permit conditions; and

5. For non-linear Projects that disturb 10 acres or more, you must conduct a pre-construction conference with each co-permittee and contractor who is not a co-permittee in person at the Site prior to that co-permittee or contractor performing construction related work intended to disturb soils at the Site that may affect the implementation of the SWPPP unless it is justified in the SWPPP and approved by the Department to conduct the conference off-site. This pre-construction conference can be with all contractors or the pre-conference may be conducted separately with one or more contractors present so that all contractors who perform land

disturbing activity or construction activity are aware of the requirements of the SWPPP before they start construction.

6. For linear construction of roads or utilities (such as roads built by the SC Department of Transportation and utility construction including electrical power lines, gas lines, main sewer trunk lines, and water distribution lines that are not part of a development) neither of which are a part of a subdivision of other type of development, the conferences with each co-permittee and contractors who are not co-permittees may be conducted off-site unless specifically required by the Department in writing to be conducted onsite. The purpose of the conference is for the preparer of the SWPPP, someone with a registration equivalent to that of the preparer of the SWPPP, or the person with operational control of the plans and specifications to explain the whole SWPPP to the co-permittees and contractors who are not co-permittees and to specifically go over the areas of the SWPPP that are related to the work to be performed by the co-permittee and contractor who is not a co-permittee.

B. If you have "operational control over day-to-day activities" as defined in the definition of "Operator" in Appendix A at the Project that are necessary to ensure compliance with the SWPPP or other Permit conditions, you must ensure that:

1. The SWPPP identifies the parties responsible for implementation of control measures identified in the plan;

2. The SWPPP indicates areas of the Project where you have operational control over day-to-day activities;

3. The SWPPP indicates the name of the party(ies) with operational control over Project specifications (including the ability to make modifications in specifications); and

4. All appropriate contractors have signed either the Co-permittee or non Co-permittee certification and copies of these certifications are in the SWPPP.

C. If you have operational control over only a portion of a larger Project (e.g., one of four homebuilders in a subdivision), you are responsible for compliance with all applicable terms and conditions of this permit as it relates to your activities on your portion of the construction Site, and implementation of best management practices (BMPs) and other controls required by the SWPPP. You must ensure either directly or through coordination with other permittees, that your activities do not render another party's pollution control ineffective. You must either implement your portion of a common SWPPP or develop and implement your own SWPPP.

For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different Operators at a Site to prepare and participate in a comprehensive SWPPP is encouraged. Individual Operators at a Site may, but are not required to, develop separate SWPPPs that cover only their portion of the Project provided reference is made to other Operators at the Site. In instances where there is more than one SWPPP for a Site, cooperation between the permittees is encouraged to ensure the storm water discharge controls and other measures are consistent with one another.

D. Contractor Certifications and Co-permittee Status.

1. The Owner of a Project, as the applicant for the NPDES permit, is responsible for compliance with all the terms and conditions of this permit and the SWPPP. The Owner may rely on other Persons to assist in compliance with this permit and the SWPPP. As such, the Project Owner and contractors and subcontractors who will conduct construction activities intended to disturb soils may elect to be Co-permittees. Further, all contractors who will conduct construction related work intended to disturb soils at the Site that may affect implementation of the SWPPP, regardless of whether or not they are Co-permittees, must be listed in the SWPPP and attend a pre-construction conference before they can conduct construction activity at the Site.

2. All contractors and subcontractors identified in the plan as Co-permittees must sign a copy of the certification statement given below:

   "I certify by my signature below that: a) for Sites that disturb 10 or more acres, I participated in a pre-construction conference onsite or, when allowed, offsite with the individual who is responsible for the operational control of the Storm Water Pollution Prevention Plan (SWPPP); and b) I accept the terms and conditions of SWPPP as required by the general National Pollutant Discharge Elimination System (NPDES permit number SCR100000) issued to the Owner/Operator of the construction activity for which I have been contracted to perform construction related professional services. Further, by my signature below, I understand that I am becoming a Co-permittee with the Owner/Operator and other contractors that have become Co-permittees to the general NPDES permit issued to the Owner/Operator of the facility for which I have been contracted to perform professional construction services. As a Co-permittee, I understand that I, and my company, as the case may be, am legally accountable to the SC Department of Health and Environmental Control (DHEC), under the authorities of the CWA and the SC Pollution Control Act, to ensure compliance with the terms and conditions of the SWPPP. I also understand that DHEC enforcement actions may be taken against any specific Co-permittee or combination of Co-permittees if the terms and conditions of the SWPPP are not met. Therefore, having understood the above information, I am signing this certification and am receiving Co-permittee status to the aforementioned general NPDES permit."

3. All contractors and subcontractors identified in the plan to perform construction related work intended to disturb soils at the Site that may affect the implementation of the SWPPP but who will not be Co-permittees must sign the certification statement given below:

   "I certify by my signature below that: a) for Sites that disturb 10 or more acres, I participated in a pre-construction conference onsite or, when allowed, offsite with the individual who is responsible for the operational control of the Storm Water Pollution Prevention Plan (SWPPP); and b) I understand the terms and conditions of SWPPP as required by the general National Pollutant Discharge Elimination System Permit (NPDES permit number SCR100000) issued to the Owner/Operator of the construction activity for which I have been contracted to perform construction related professional services. I understand that I, and my company, as the case may be, may be legally accountable to the SC Department of Health and Environmental Control (DHEC), under the authorities of the CWA and the SC Pollution Control Act, to ensure

compliance with the terms and conditions of the SWPPP."

4. The date of the signature, the title of the Person providing the signature, and the name, address, and telephone number of the contracted firm, shall also be provided. In the event the owner amends the SWPPP, such amendments should be incorporated to the plan and the contractors and subcontractors should acknowledge by signature. Co-permittees who have completed their work prior to the amendments do not have to sign the amendments.

5. The signatory requirements of §122.22 of South Carolina Regulation 61-9 (see Appendix C of this permit) are applicable to each contracted entity that must sign one of the contractor's certification statements. Upon signing the Co-pemittee certification, the contractor is a Co-permittee and becomes accountable to DHEC to ensure the terms and conditions of this permit are implemented. All Co-permittees are subject to DHEC enforcement actions if permit conditions are not met. Enforcement actions may be taken against any specific Co-permittee or combination of Co-permittee, with consideration given to the party responsible for the violation. The Owner/Operator submitting the NOI shall retain all contractor certifications for at least three years after a contractor has completed work at the Site. Contractors who sign the certification for being a Co-permittee may be liable to DHEC enforcement actions related to their work at the Site. All certifications must be included in the storm water pollution prevention plan.

6. Copies of all contractor certifications and a copy of this permit shall be kept with the SWPPP. For construction Sites that disturb 10 acres or more, the first monthly report or copies of the first month's inspection forms (refer to Part 3.10.H) submitted by the Owner/Operator to the Department after construction begins on the facility must include the original and one copy of all Co-permittee and other contractor certifications. If additional Co-permittees or other contractors are added later on, the original and one copy of the additional Co-permittee or contractor certifications must be submitted along with the monthly reports or copies of the inspection forms submitted after the signing of the certification. For construction Sites that disturb less than 10 acres, the Owner/Operator of the facility covered by this permit shall make all contractor certifications available to DHEC upon request. The Department may on a case-by-case basis require the submittal of the Co-permittee and other contractor certifications.

3.3 Pollution Prevention Plan Contents: Site and Activity Description

A. The SWPPP must identify all Operators for the Project Site, and the areas of the Site over which each Operator has control.

B. The SWPPP must describe the nature of the construction activity, including:

1. The function of the Project (e.g., low density residential, shopping mall, highway, etc.);

2. The intended sequence and timing of planned major activities that disturb soils such as clearing and grubbing, initial and final grading, and cut and fill activities at the Site (except for SC Department of Transportation Projects, unless known at the time the SWPPP is prepared);

3. Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas; and

4. A general location map (e.g., USGS quadrangle map, a portion of a city or county map, or other map) with enough detail to identify the location of the construction Site and Surface Waters of the State within one mile of the Site.

C. The SWPPP must contain a legible Site map, showing the entire Site, identifying:

1. Direction(s) of storm water flow and approximate slopes anticipated after major grading activities;

2. Areas of soil disturbance and areas that will not be disturbed;

3. Locations of structural and nonstructural BMPs identified in the SWPPP;

4. Locations where stabilization practices are expected to occur;

5. Locations of off-site material, waste, borrow or construction equipment storage areas, excluding rolloff containers (not applicable to SC Department of Transportation Projects);

6. Locations of all Surface Waters of the State (including wetlands);

7. Locations where storm water discharges to a surface water; and

8. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.

D. The SWPPP must describe and identify the location and description of any storm water discharge associated with industrial activity other than construction at the Site. This includes storm water discharges from dedicated asphalt plants and dedicated concrete plants, that are covered by this permit.

3.4 Pollution Prevention Plan Contents: Controls to Reduce Pollutants

A. The SWPPP must include a description of all pollution control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges. For each major activity identified in the Project description, the SWPPP must clearly describe control measures necessary to comply with this permit and applicable laws and regulations, the general sequence during the construction process in which the measures will be implemented, and which Operator is responsible for the control measure's implementation.

B. The SWPPP must include a description of interim and permanent stabilization practices for the Site, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where possible and that disturbed portions of the Site are stabilized. Use of impervious surfaces for stabilization should be avoided.

C. For Sites with storm water discharges to a receiving water that is listed as impaired in South Carolina's 303(d) List of Impaired Waters the following requirements apply:

1. If a TMDL that is applicable to stormwater construction discharges has been established and is in effect, the requirements of Part 1.3.C.4 must be met.

2. If a TMDL has not been established or is not in effect, you must ensure that your SWPPP does not allow storm water discharges that will contribute to the violations of the water quality standards. To accomplish this, you must:

   a. First determine whether or not your discharge may contain any pollutant that has caused the impairment.

   b. If your storm water discharges will not contain the pollutant(s) of concern, no additional requirements are necessary.

   c. If your discharge will contain the pollutant(s) of concern, you must carefully evaluate your selected BMPs and their performance to ensure that stormwater discharges will not contribute to or cause a violation of water quality standards. For Projects that disturb 25 acres or more, your SWPPP must contain a written quantitative and qualitative assessment that the BMPs selected will control your stormwater discharges so that they will not contribute to or cause a violation of water quality standards. For more information on this subject, please see the DHEC publication entitled "Antidegradation for Activities Contributing to NonPoint Source Pollution to Impaired Waters." This publication can be downloaded at the following DHEC WEB site:

      www.scdhec.gov/eqc/water/pubs/antidegnps.pdf

3. A copy of the most current 303(d) List of Impaired Waters can be obtained from:

   Water Quality Division
   Bureau of Water
   SC DHEC
   2600 Bull Street
   Columbia, SC 29201

   or it can be downloaded at the following DHEC WEB site:

   http://www.scdhec.gov/water/tmdl/

D. The following records must be maintained as part of the SWPPP:

1. Dates when major grading activities as identified in Part 3.3.B occur;

2. Dates when construction activities temporarily or permanently cease on a portion of the Site.

Notes: Temporarily ceasing construction means ceasing construction on a portion of the Site for more than 14 days. A portion of the Site, means but is not limited to, portions of the Site with dedicated controls (see also Subpart 3.13.D of this permit); and

3. Dates when stabilization measures are initiated.

Electronic storage of the above mentioned information is acceptable provided that it is referenced in the SWPPP and it is readily available.

E. The SWPPP must include a description of structural practices: to divert flows from exposed soils; to retain/detain flows; or to otherwise limit runoff and the discharge of pollutants from exposed areas of the Site. Placement of structural practices in floodplains must be in accordance with applicable regulations.

F. The SWPPP must include a description of all post-construction storm water management measures that will be installed during the construction process to control pollutants in storm water discharges after construction operations have been completed.

G. Structural measures should be placed on upland soils to the degree practicable. Such measures must be designed and installed in compliance with applicable federal, local, state or tribal requirements.

1. Permanent structural controls can only be placed in Surface Waters of the State (including wetlands and ephemeral and intermittent streams) if the US Army Corps of Engineers issues a permit for the activity under Section 404 of the CWA. When State Navigable Waters may be affected, the SWPPP must include appropriate requirements applicable to State Navigable Waters under SC Regulation 19-450.

2. Temporary structural controls can only be placed in perennial Surface Waters of the State if the US Army Corps of Engineers issues a permit for the activity under Section 404 of the CWA. When State Navigable Waters may be affected, the SWPPP must include appropriate requirements applicable to State Navigable Waters under SC Regulation 19-450. All temporary structural controls placed in perennial streams must be removed after final stabilization has been accomplished.

3. Temporary structural controls may only be placed in ephemeral and intermittent streams when there is no other feasible alternative. All temporary structural controls placed in ephemeral and intermittent streams must be removed after final stabilization has been accomplished. After removal of the temporary structural controls, the ephemeral or intermittent stream must be restored to its original condition.

H. The SWPPP must describe measures to prevent the discharge of building or other similar materials to Surface Waters of the State, except as authorized by a permit issued under section 404 of the CWA.

I. The SWPPP must describe measures to minimize, to the extent practicable, off-site vehicle

tracking of sediments onto paved surfaces and the generation of dust.

J. The SWPPP must include a description of construction and waste materials expected to be stored on-site with updates as appropriate. The SWPPP must also include a description of controls, including storage practices such as rolloff containers, to minimize exposure of the materials to storm water, and spill prevention and response practices.

K. The SWPPP must include a description of pollutant sources from areas other than construction (including storm water discharges from dedicated asphalt plants and dedicated concrete plants), and a description of controls and measures that will be implemented at those Sites to minimize pollutant discharges. If these areas are located off the construction area on property not owned by the owner of the Project, they can be either included in the SWPPP for the construction Site with the owner of the dedicated facility being a Co-permittee under the construction general permit or the owner of the dedicated facility can obtain: 1) his own construction general permit coverage to build the dedicated facility; and 2) his own coverage under the Stormwater General Permit for Industrial Activity, Permit # SCR000000 or other appropriate permit. The method(s) selected to deal with dedicated facility areas must be addressed in the SWPPP.

3.5 Management of Non-Storm Water Discharges Allowed Under Part 1.3.B

The SWPPP must identify all allowable sources of non-storm water discharges listed in Subpart 1.3.B of this permit, except for flows from fire fighting activities, that are combined with storm water discharges associated with construction activity at the Site. Non-storm water discharges should be eliminated or reduced to the extent feasible. The SWPPP must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge allowed under Part 1.3.B.

3.6 Maintenance of Controls

A. All erosion and sediment control measures and other protective measures identified in the SWPPP must be maintained in effective operating condition. If Site inspections required by Subpart 3.10 identify BMPs that are not operating effectively, maintenance must be performed as soon as practical or as reasonably possible and before the next storm event whenever practicable to maintain the continued effectiveness of storm water controls.

B. If existing BMPs need to be modified or if additional BMPs are necessary to comply with the requirements of this permit and/or SC's Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP and alternative BMPs must be implemented as soon as reasonably possible.

C. Sediment from sediment traps or sedimentation ponds must be removed as indicated in the SWPPP or when the design capacity has been reduced by 50 percent, which ever occurs first.

3.7 Reserved

3.8 Copy of Permit Requirements

Copies of this permit, the signed and certified NOI form that was submitted to DHEC, the Co-permittee certifications required by Subpart 3.2.D, and, if applicable, any local approval must be included in the SWPPP. Also, upon receipt, a copy of the letter from the DHEC authorizing your coverage under this CGP must also be included as a component of the SWPPP.

3.9 Applicable State, Tribal, or Local Programs

The SWPPP must be consistent with all applicable federal, state, tribal, or local requirements for soil and erosion control and storm water management, including updates to the SWPPP as necessary to reflect any revisions to applicable federal, state, tribal, or local requirements for soil and erosion control. Except for Projects exempted from the requirements of SC Regulation 72-300 by Section 72-302 of SC Regulation 72-300, all Projects located outside MS4s must after June 30, 2006 meet the minimum standards and criteria of South Carolina Regulation 72-300.

3.10 Inspections

A. After construction begins, inspections must be conducted at a minimum in accordance with one of the two schedules listed below and you must specify in your SWPPP which schedule you will be following.

   1. At least once every 7 calendar days, or

   2. At least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

B. Inspection frequency may be reduced to at least once every month if the entire Site is temporarily stabilized.

C. The Department on a case-by-case basis may require any permittee who has coverage under this CGP to conduct inspections on a more frequent basis than prescribed in this CGP. Examples include, but are not limited to, permittees who have compliance problems and permittees whose Site's stormwater discharges to environmental sensitive waters (such as waters classified as Trout Waters, Outstanding Resource Waters, Shellfish Harvesting Waters, etc.).

D. Inspections must be conducted by qualified personnel (provided by the Operator or cooperatively by multiple Operators). For Projects that disturb more than 2 acres, "Qualified personnel" means a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction Site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity. After June 30, 2006, this person must be either the preparer of the SWPPP or an individual who is under the direct supervision of the preparer of the approved SWPPP and who meets the requirements in this paragraph or an individual who has been certified through a Construction Site Inspector Certification Course that has been approved by DHEC. Inspections may also be conducted by a

person with a registration equivalent to the registration of the preparer of the SWPPP and who meets the qualifications of this paragraph or an individual who is under the direct supervision of the person with an equivalent registration and who meets the requirements in this paragraph. For Projects that disturb 2 acres or less, the permittee or his designee may perform these inspections provided the preparer of the SWPPP or someone with a registration equivalent to that of the preparer of the SWPPP explains the SWPPP including implementation along with the inspection requirements to the person who will be conducting the inspections.

E. Inspections must include all areas of the Site disturbed by construction activity and areas used for storage of materials that are exposed to precipitation. Inspectors must look for evidence of, or the potential for, pollutants entering the storm water conveyance system. Sedimentation and erosion control measures identified in the SWPPP must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective in preventing violations to SC's Water Quality Standards, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the Site must be inspected for evidence of off-site sediment tracking.

F. Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may limit the access of inspection personnel to the areas described in Subpart 3.10.E above. Inspection of these areas could require that vehicles compromise temporarily or even permanently stabilized areas, cause additional disturbance of soils, and increase the potential for erosion. In these circumstances, controls must be inspected on the same frequencies as other construction Projects, but representative inspections may be performed. For representative inspections, personnel must inspect controls along the construction Site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction Site and allows access to the areas described above. The conditions of the controls along each inspected 0.25 mile segment may be considered as representative of the condition of controls along that reach extending from the end of the 0.25 mile segment to either the end of the next 0.25 mile inspected segment, or to the end of the Project, whichever occurs first. Representative inspections must include any areas where stormwater discharges to environmental sensitive waters (such as waters classified as Trout Waters, Outstanding Resource Waters, Shellfish Harvesting Waters, etc.).

G. For each inspection required above, you must complete an inspection report. At a minimum, the inspection report must include:

1. The inspection date;

2. Names, titles, and, if not previously given in an inspection report, the qualifications of personnel making the inspection, unless those qualifications change;

3. Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether you know if any discharges occurred;

4. Weather information and a description of any discharges occurring at the time of the inspection;

5. Location(s) of discharges of sediment or other pollutants from the Site;

6. Location(s) of BMPs that need maintenance;

7. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;

8. Location(s) where additional BMPs are needed that did not exist at the time of inspection; and

9. Corrective action required including any changes to the SWPPP necessary and implementation dates.

A record of each inspection and of any actions taken in accordance with this Part must be retained as part of the SWPPP for at least three years from the date that permit coverage expires or is terminated. The report must be signed in accordance with §122.22 of SC Regulation 61-9 (see Appendix C of this permit).

H. For construction Sites disturbing 10 acres or more, a monthly report must be submitted to DHEC and, if applicable, the appropriate MS4. The report must be signed in accordance with §122.22 of SC Regulation 61-9 (see Appendix C of this permit). In lieu of submitting monthly reports, the reports may be stored electronically in a manner in which DHEC personnel will have access to review this data, such as on a dedicated website that DHEC personnel will have unlimited access to. Other forms of electronic storage of monthly reports may be utilized once arrangements have been made with DHEC. For construction Sites that disturb less than 10 acres, DHEC may require monthly reports to be submitted on either a Project-by-Project basis or Operator-by-Operator basis. If the information required in this Subpart is already included on the inspection forms, only copies of the inspection forms need to be submitted to DHEC. If the information required in this Subpart is not included on the inspection form, then the monthly reports must include, at a minimum, the following additional information:

1. A summary of the results of the inspections conducted during the month;

2. A listing of all deficiencies noted during inspections with the date the deficiency was noted;

3. For each deficiency noted that required corrective action:

   a. A listing of the name(s), address(es), and telephone number(s) of the party or parties responsible; and

   b. A statement whether this deficiency was previously listed in a monthly report;

4. A listing of the corrective actions that were taken to remedy any deficiencies noted and the date

the corrective actions were completed;

5. A statement on whether or not the SWPPP was updated to deal with any deficiencies noted; and

6. A copy of each inspection conducted during the month attached in an appendix to the monthly report.

I. For construction Sites disturbing 10 acres or more, in addition to the information required in subpart 3.10.H above, the first monthly report submitted after construction has started must include the original and one copy of the Co-permittee and contractor certifications. Subsequent monthly reports on construction Sites that disturb 10 acres or more must include the original and a copy of the certification for the Co-permittees and contractors added after construction has started. For each Co-permittee and contractor certification submitted to the Department, the preparer of the SWPPP or someone with a registration equivalent to that of the preparer of the SWPPP must certify that either an on-site or, when applicable, off-site pre-construction conference was held with the Co-permittee or contractor in accordance with this permit. This certification must give the date of the conference and the responsibilities of each Co-permittee and contractor.

J. For construction Sites disturbing less than 10 acres, the Owners/Operators may be required to submit the Co-permittee and contractor certifications on a case-by-case basis. When the Owner/Operator is required to submit the Co-permittee and contractor certifications, the preparer of the SWPPP or someone with a registration equivalent to that of the preparer of the SWPPP must certify that either an on-site or off-site pre-construction conference was held with the Co-permittees and contractors in accordance with this permit. This certification must give the date of the conference and the responsibilities of each Co-permittee and contractor.

K. Each monthly report with one copy must be submitted to DHEC on or before the 28th day of the month following the reporting period. For example, the monthly report for July 2006 is due after July 31, 2006 and on or before August 28, 2006.

L. Until construction starts, the monthly report may just state that construction activity has not started.

M. Monthly reports, when required, must be submitted until the Notice of Termination is submitted to DHEC. When the Notice of Termination is submitted, it must contain a signed statement by the preparer of the SWPPP or a person with a registration equivalent to that of the preparer of the SWPPP that all work was completed to the best of his or her knowledge and belief in accordance with the approved SWPPP and this CGP. For Projects disturbing more than 2 acres, the certifying person's knowledge and belief must be based on the results of the periodic inspections conducted by the preparer of the SWPPP (or a person with an equivalent registration) or by a qualified individual under his or her direct supervision in accordance with this CGP or by an individual certified through a Construction Site Inspector Certification Course that has been approved by DHEC.

N. Copies of inspection forms and monthly reports (reports required only if information requested in Part 3.10.H is not included on the inspection form) must be submitted to DHEC at the following address:

Compliance Assurance Division
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

or to a designated DHEC email address, when available.

A copy of the inspection forms or monthly reports must be submitted to the MS4 that receives your stormwater discharges when requested in writing by the MS4.

3.11 Maintaining an Updated Plan

A. The SWPPP, including the Site map, must be amended whenever there is a change in design, construction, operation, or maintenance at the construction Site that will result in discharges that will cause, have the reasonable potential to cause, or contribute to violations to SC's Water Quality Standards.

B. The SWPPP must be amended if during inspections or investigations by Site staff, or by local, state, tribal or federal officials, it is determined that the SWPPP is ineffective in either eliminating, when reasonably possible, or significantly minimizing pollutants in storm water discharges from the construction Site.

C. Based on the results of an inspection, the SWPPP must be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection. Implementation of these additional or modified BMPs must be accomplished as described in Subpart 3.6.B.

D. All design modifications of the SWPPP must be made in accordance with Subpart 3.1.A.

3.12 Signature, Plan Review and Making Plans Available

A. A copy of the SWPPP (including a copy of the permit), NOI, and CGP coverage letter from DHEC must be retained at the construction Site (or other location easily accessible during normal business hours to: DHEC, EPA, tribal or local agency approving sediment and erosion plans, grading plans, or storm water management plans; local government officials; and the Operator of a Municipal Separate Storm Sewer System (MS4) receiving discharges from the Site) from the date of commencement of construction activities to the date of final stabilization. If you have day-to-day operational control over SWPPP implementation, you must have a copy of the SWPPP available at a central location on-site for the use of all those identified as having responsibilities under the SWPPP whenever they are on the construction Site. If an on-site location is unavailable to store the SWPPP when no personnel are present, notice of the plan's location must be posted near the main entrance at the construction Site. For linear construction of roads or utilities (such as roads built by the SC Department of Transportation and utility construction including electrical power lines, gas lines, main sewer trunk lines, and water distribution lines that are not part of a development)

neither of which are a part of a subdivision or other type of development Projects, the updated copies of the approved SWPPP must be sent to the appropriate EQC Regional Office in situations where it is not practical to have the approved SWPPP on location. For SC Department of Transportation Projects where there is no construction trailer on Site, the SWPPP may be kept in the office of the SC DOT resident engineer.

B. SWPPPs must be made available upon request by EPA; DHEC; a tribal or local agency approving sediment and erosion plans, grading plans, or storm water management plans; local government officials; and the Operator of a Municipal Separate Storm Sewer System (MS4) receiving discharges from the Site to the requestor. The copy of the SWPPP that is required to be kept on-site or locally available must be made available, in its entirety, to DHEC or the EPA staff for review and copying at the time of an on-site inspection.

C. All SWPPPs must be signed and certified in accordance with §122.22 of SC Regulation 61-9 (see Appendix C of this permit).

3.13 Management Practices

A. All control measures must be properly selected, installed, and maintained in accordance with any relevant manufacturer specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the Operator must replace or modify the control for Site situations as soon as practicable.

B. If sediment escapes the construction Site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts unless: access to the off-site property cannot be reasonably obtained from the property owner and DHEC is also unable to get permission for you to access the off-site property; or DHEC agrees that it is appropriate to leave the off-site accumulations in place.

C. Litter, construction debris, oils, fuels, and building products with significant potential for impact (such as stockpiles of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from becoming a pollutant source in storm water discharges.

D. Except as provided below, stabilization measures must be initiated as soon as practicable in portions of the Site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the Site has temporarily or permanently ceased.

1. Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practicable.

2. Where construction activity on a portion of the Site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the Site.

E. A combination of sediment and erosion control measures is required to achieve maximum pollutant

removal.

1. Sediment Basins: For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from the drainage area from at least a 10-year, 24-hour storm, or equivalent control measures, must be provided where attainable until final stabilization of the Site. Where no such calculation has been performed, a temporary (or permanent) sediment basin providing at least 3,600 cubic feet of storage per acre drained, or equivalent control measures, must be provided where attainable until final stabilization of the Site. When computing the number of acres draining into a common location, it is not necessary to include flows from off-site areas and flows from on-site areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. In determining whether installing a sediment basin is attainable, the Operator may consider factors such as Site soils, slope, available area on-site, etc. In any event, the Operator must consider public safety as a design factor for the sediment basin, and alternative sediment controls must be used where Site limitations would preclude a safe design.

2. For drainage locations that serve 10 or more disturbed acres at one time and where a temporary sediment basin or equivalent controls are not attainable, smaller sediment basins and/or sediment traps should be used. Silt fences, vegetative buffer strips, or a combination of sediment controls that are equivalent to sediment basins and/or sediment traps are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual Site conditions).

3. For drainage locations serving less than 10 acres, smaller sediment basins and/or sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual Site conditions) of the construction area unless a sediment basin providing storage for a calculated volume of runoff from at least a 10-year, 24-hour storm or at least 3,600 cubic feet of storage per acre drained is provided. If a basin is not provided, each structural control used must be designed to handle the entire drainage area it serves.

4. The Department may on a case-by-case or watershed-by-watershed basis require the use of a larger storm event and/or a larger storage volume when designing sediment basins.

F. Velocity dissipation devices must be placed at discharge locations and along the length of any outfall channel to provide a non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water).

3.14 Documentation of Permit Eligibility Related to Total Maximum Daily Loads That Are Effective and Applicable to Stormwater Construction Discharges

The SWPPP must include documentation supporting a determination of permit eligibility with regard to waters that have a TMDL that is effective and applicable to stormwater construction discharges,

including:

A. Identification of whether your discharge (construction stormwater) is identified, either specifically or generally, in a TMDL and any associated allocations, requirements, and assumptions identified for your discharge;

B. Measures taken by you to ensure that your discharge of pollutants from the Site is consistent with the assumptions and requirements contained in the TMDL that is applicable to your stormwater discharge, including any specific wasteload allocation that has been established that would apply to your discharge.

See Subpart 1.3.C.4 for further information on determining permit eligibility related to TMDLs.

PART 4: SPECIAL CONDITIONS, MANAGEMENT PRACTICES AND OTHER NON-NUMERIC LIMITATIONS

4.1 Continuation of the Expired General Permit

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the SC Administrative Procedures Act and SC Regulation 61-9 and remain in force and effect. If you were granted permit coverage prior to the expiration date, you will automatically remain covered by the continued permit until the earliest of:

A. Reissuance or replacement of this permit, at which time you must comply with the conditions of the new permit to maintain authorization to discharge; or

B. Your submittal of a Notice of Termination; or

C. Issuance of an individual permit for the Project's discharges; or

D. A formal permit decision by DHEC to not reissue this general permit, at which time you must seek coverage under an alternative general permit or an individual permit.

4.2 Requiring an Individual Permit or an Alternative General Permit

A. In accordance with Section 122.28(b)(3) of SC Regulation 61-9, DHEC may require you to apply for and/or obtain an individual NPDES permit. Any interested person may petition DHEC to take action under this paragraph. If DHEC requires you to apply for an individual NPDES permit, DHEC will notify you in writing that a permit application is required. This notification will include a brief statement of the reasons for this decision and an application form. In addition, if you are an existing permittee covered under this permit, the notice will set a deadline to file the application, and will include a statement that on the effective date of issuance or denial of the individual NPDES permit or the alternative general permit as it applies to you, coverage under this general permit will automatically terminate. Applications must be submitted to DHEC at the address given in Subpart 2.4. DHEC may grant additional time to submit the application upon your request. If you are covered under this permit and you fail to submit in a timely manner an individual NPDES

permit application as required by DHEC, then the applicability of this permit to you is automatically terminated at the end of the day specified by DHEC as the deadline for application submittal.

B. If an alternate general permit that is more appropriate for your construction activity is available, DHEC may grant you coverage under the alternate general permit in lieu of granting you coverage under this general permit. In accordance with applicable state law and regulation, you have a right to appeal the Department's decision.

C. You may request to be excluded from the coverage of this general permit by applying for an individual permit. In such a case, you must submit an individual application in accordance with the requirements of §122.26(c)(1)(ii) of SC Regulation 61-9, with reasons supporting the request, to:

Storm Water and Agricultural Section
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

The request may be granted by issuance of an individual permit or an alternative general permit if your reasons are adequate to support the request.

D. When an individual NPDES permit is issued to you, who are otherwise subject to this permit, or you are authorized to discharge under an alternative NPDES general permit, the applicability of this permit to you is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. If you, who are otherwise subject to this permit, are denied an individual NPDES permit or an alternative NPDES general permit, the applicability of this permit to you is automatically terminated on the date of such denial, unless otherwise specified by DHEC.

4.3 Releases in Excess of Reportable Quantities

A. You must prevent or minimize the discharge of hazardous substances or oil in storm water discharges from the construction Site in accordance with the SWPPP. This permit does not relieve you of the federal reporting requirements of 40 CFR Part 110, 40 CFR Part 117 and 40 CFR Part 302 relating to spills or other releases of oils or hazardous substances.

B. Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302, occurs during a 24-hour period:

1. You must notify the Department's Emergency Response Section at (803) 253-6488 and the National Response Center (NRC) (800) 424–8802 in accordance with the requirements of 40 CFR Part 110, 40 CFR Part 117 and 40 CFR Part 302 as soon as Site staff have knowledge of the discharge; and

2. You must modify the SWPPP as required under Subpart 3.11 within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, you must review your SWPPP to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and you must modify your SWPPP where appropriate.

4.4 Attainment of Water Quality Standards After Authorization

You must select, install, implement and maintain BMPs at your construction Site that minimize pollutants in the discharge as necessary to meet applicable water quality standards. In general your SWPPP developed, implemented, and updated consistent with Part 3.0 is considered as stringent as necessary to ensure that your discharges do not cause or contribute to a violation of any applicable water quality standard.

All written responses required under this part must include a signed certification consistent with §122.22 of SC Regulation 61-9 (see Appendix C of this permit).

PART 5: TERMINATION OF COVERAGE

5.1 Requirements

You may only submit a Notice of Termination (NOT) after one or more of the following conditions have been met:

A. Final stabilization has been achieved on all portions of the Site for which you are responsible;

B. Another Operator has assumed control, according to §122.41(l)(3) of SC Regulation 61-9 (see Appendix C of this permit), over all areas of the Site that have not been finally stabilized;

C. Coverage under an individual or alternative general NPDES permit has been obtained; or

D. For residential construction only, temporary stabilization has been completed and the residence has been transferred to the homeowner.

The NOT must be submitted within 30 days of one of the above conditions being met. Authorization to discharge terminates at midnight of the day the NOT is signed.

5.2 Submitting a Notice of Termination

It is your responsibility to submit a complete and accurate Notice of Termination (NOT), using the form (or a photocopy thereof) provided by the Department. The NOT will be made available at our WEB site at:

http://www.scdhec.net/eqc/admin/html/eqforms.html#Water

If DHEC notifies dischargers (either directly, by public notice, or by making information available on

the Internet) of other NOT form options (e.g., electronic submission), you may take advantage of those options to satisfy the requirements of Part 5.

The Notice of Termination must include the following information:

1. Your CGP NPDES coverage number for the storm water discharge;

2. The basis for submission of the NOT, including: final stabilization has been achieved on all portions of the Site for which the permittee is responsible; another Operator/permittee has assumed control over all areas of the Site that have not been finally stabilized; coverage under an alternative NPDES permit has been obtained; or, for residential construction only; temporary stabilization has been completed and the residence has been transferred to the homeowner;

3. You, the Operator's name, address, telephone number and your organization's Employer Identification Number (EIN) as established by the U.S. Internal Revenue Service;

4. The name of the Project and address (or a description of location if no street address is available) of the construction Site for which the notification is submitted; and

5. A certification statement, signed and dated by an authorized representative as defined in §122.22 of SC Regulation 61-9 (see Appendix C of this permit) and the name and title of that authorized representative.

6. For Projects disturbing more than 2 acres, a certification statement, signed and dated by the preparer of the SWPPP or other person with a registration equivalent to that of the preparer of the SWPPP, that to the best of his or her knowledge and belief all work was conducted and completed in accordance with the approved SWPPP and this CGP. This certification must be based on the inspections performed in accordance with this Subpart 3.10 of this CGP and must state that any deficiencies that were noted have been corrected.

5.3 Where to Submit

A. All original NOTs must be submitted to DHEC at the following address:

Storm Water and Agricultural Section
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

And a copy of the NOT to the MS4 that received your stormwater discharges when requested in writing by the MS4.

PART 6: RETENTION OF RECORDS

Copies of the SWPPP and all documentation required by this permit, including records of all data used

to complete the NOI to be covered by this permit, must be retained for at least three years from the date that permit coverage expires or is terminated. This period may be extended by request of DHEC at any time.

PART 7: REOPENER CLAUSE

7.1 Procedures for Modification or Revocation

Permit modification or revocation will be conducted according to §122.62, §122.63, §122.64, and §124.5 of SC Regulation 61-9.

7.2 Water Quality Protection

If there is evidence indicating that the storm water discharges authorized by this permit cause, have the reasonable potential to cause or contribute to a violation of any applicable water quality standard, you may be required to obtain an individual permit in accordance with Part 4.2 of this permit, the permit may be modified in accordance with Section 122.62 of SC Regulation 61-9 to include different limitations and/or requirements as addressed or your coverage may be terminated in accordance with Section 122.64 of SC Regulation 61-9.

7.3 Timing of Permit Modification

DHEC may elect to modify the permit prior to its expiration (rather than waiting for the new permit cycle) to comply with any new statutory or regulatory requirements, such as for effluent limitation guidelines that may be promulgated in the course of the current permit cycle.

PART 8: STANDARD PERMIT CONDITIONS

South Carolina regulations require that the Standard Conditions provisioned at §122.41 of SC Regulation 61-9 be applied to all NPDES permits. You are required to comply with those Standard Conditions, details of which are provided in Appendix C of this permit, that are applicable to storm water discharges.

APPENDIX A - DEFINITIONS AND ACRONYMS DEFINITIONS

"Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to Surface Waters of the State. BMPs also include treatment requirements, operating procedures, and practice to control plant Site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Co-Permittee" means a permittee to an NPDES permit that is only responsible for permit conditions relating to the discharge for which it is Operator.

"Commencement of Construction Activities" means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities (e.g., stockpiling of fill material).

"Control Measure" as used in this permit, refers to any BMP or other method used to prevent or reduce the discharge of pollutants to "Waters of the State".

"CWA" means the Clean Water Act or the Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq.

"DHEC" means the South Carolina Department of Health and Environmental Control's Office of Environmental Quality Control.

"Discharge" when used without qualification means the ''discharge of a pollutant.''

"Discharge of Storm Water Associated with Construction Activity" as used in this permit, refers to a discharge of pollutants in storm water from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck washout, fueling), or other industrial storm water directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

"Eligible" means qualified for authorization to discharge storm water under this general permit.

"Facility" or "Activity" means any "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

"Federal Facility" means any buildings, installations, structures, land, public works, equipment, aircraft, vessels, and other vehicles and property, owned by, or constructed or manufactured for the purpose of leasing to, the Federal government.

"Final Stabilization" means that:

1. All soil disturbing activities at the Site have been completed and either of the two following criteria are met:

a. A uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures; or

b. Equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

2. When background native vegetation or other appropriate vegetation will cover less than 100 percent of the ground (e.g., arid areas, beaches), the 70 percent coverage criteria is adjusted as follows: if the native vegetation or other appropriate vegetation covers 50 percent of the ground, 70 percent of 50 percent (0.70 X 0.50 = 0.35) would require 35 percent total cover for final stabilization. On a beach with no natural vegetation, no stabilization is required.

3. For individual lots in residential construction, final stabilization means that either:

   a. The homebuilder has completed final stabilization as specified above; or

   b. The homebuilder has established temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for, and benefits of, final stabilization.

4. For construction Projects on land used for agricultural purposes (e.g., pipelines across crop or range land, staging areas for highway construction, etc.), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to "Surface Waters of the State," and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization criteria (1) or (2) or (3) above.

"Indian country" is defined at §122.2 of SC Regulation 61-9 to mean:

1. All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation;

2. All dependent Indian communities with the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and

3. All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-ways running through the same.

"Large Construction Activity" is the construction industrial activity as defined at §122.26(b)(14)(x) of SC Regulation 61-9 and incorporated here by reference. A large construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five acres of land or will disturb less than five acres of total land area but is part of a larger common plan of

development or sale that will ultimately disturb equal to or greater than five acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the Site.

"Municipal Separate Storm Sewer System" or "MS4" is defined at §122.26(b)(8) of SC Regulation 61-9 to mean a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

1. Owned and operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to Surface Waters of the State;

2. Designed or used for collecting or conveying storm water;

3. Which is not a combined sewer; and

4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at §122.2 of SC Regulation 61-9.

"New Project" means the "commencement of construction activities" occurs after the effective date of this permit.

"Ongoing Project" means the "commencement of construction activities" occurs before the effective date of this permit.

"Operator" for the purpose of this permit and in the context of storm water associated with construction activity, means any party associated with a construction Project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications. Note: A party has "operational control over construction plans and specifications" if they have the authority to prepare or modify such plans and specifications under Subpart 3.1.A; or

2. The party has "operational control over day-to-day activities" at a Project that are necessary to ensure compliance with a SWPPP for the Site or other permit conditions (e.g., they are authorized to direct workers at a Site to carry out activities required by the SWPPP or comply with other permit conditions). This definition is provided to inform permittees of EPA's interpretation of how the regulatory definitions of ''Owner or Operator'' and ''facility or activity'' are applied to discharges of storm water associated with construction activity.

"Owner or Operator" means the owner or Operator of any ''facility or activity'' subject to regulation under the NPDES program. For purposes of this permit, when local governments (counties, cities,

etc.) construct or improve state roads, the owner of these road construction projects during the construction is the local government.

"Permitting Authority" means the United States Environmental Protection Agency, EPA, a Regional Administrator of the Environmental Protection Agency or an authorized representative.

"Person" means any individual, public or private corporation, political subdivision, association, partnership, corporation, municipality, State or Federal agency, industry, copartnership, firm, trust, estate, any other legal entity whatsoever, or an agent or employee thereof.

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

"Pollutant" is defined at §122.2 of SC Regulation 61-9. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial or municipal waste.

"Project" means an undertaking such as, but not limited to, construction of commercial development, residential development, industrial development, roadways, railways, and utility lines.

"Project Area" means:

1. The areas on the construction Site where storm water discharges originate and flow toward the point of discharge into the receiving waters (including areas where excavation, Site development, or other ground disturbance activities occur) and the immediate vicinity. (Example: 1. Where bald eagles nest in a tree that is on or bordering a construction Site and could be disturbed by the construction activity or where grading causes storm water to flow into a small wetland or other habitat that is on the Site that contains listed species.)

2. The areas where storm water discharges flow from the construction Site to the point of discharge into receiving waters. (Example: Where storm water flows into a ditch, swale, or gully that leads to receiving waters and where listed species (such as amphibians) are found in the ditch, swale, or gully.)

3. The areas where storm water from construction activities discharge into receiving waters and the areas in the immediate vicinity of the point of discharge. (Example: Where storm water from construction activities discharges into a stream segment that is known to harbor listed aquatic species.)

4. The areas where storm water BMPs will be constructed and operated, including any areas where storm water flows to and from BMPs. (Example: Where a storm water retention pond would be built.)

5. The areas upstream and /or downstream from construction activities discharges into a stream segment that may be affected by the said discharges. (Example: Where sediment discharged to a receiving stream settles downstream and impacts a breeding area of a listed aquatic species.)

"Receiving water" means the "Waters of the State" as defined in §122.2 of SC Regulation 61-9 into which the regulated storm water discharges.

"Runoff coefficient" means the fraction of total rainfall that will appear at the conveyance as runoff.

"Site" means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Small Construction Activity" is defined under the definition of "Stormwater discharge associated with small construction activity" at §122.26(b)(15) of SC Regulation 61-9 as follows: "Storm water discharge associated with small construction activity means the discharge of storm water from:

(i) Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one acre and less than five acres and, in coastal counties within one-half (1/2) mile of a receiving water body (but not for single-family homes which are not part of a subdivision development), that result in any land disturbance less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. The Department may waive the otherwise applicable requirements in a general permit for a storm water discharge from construction activities that disturb less than five acres where:

(A) The value of the rainfall erosivity factor ("R" in the Revised Universal Soil Loss Equation) is less than five during the period of construction activity. The rainfall erosivity factor is determined in accordance with Chapter 2 of Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE), pages 21-64, dated January 1997. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C 552(a) and 1 CFR part 51. Copies may be obtained from EPA's Water Resource Center, Mail Code RC4100, 401 M St. S.W., Washington, DC 20460. A copy is also available for inspection at the U.S. EPA Water Docket , 401 M Street S.W., Washington, DC. 20460, or the Office of the Federal Register, 800 N. Capitol Street N.W. Suite 700, Washington, DC. An Operator must certify to the Department that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five; or

(B) Storm water controls are not needed based on a "total maximum daily load" (TMDL) approved or established by EPA that addresses the pollutant(s) of concern or, for non-impaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction Sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream

concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. For the purpose of this paragraph, the pollutant(s) of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The Operator must certify to the Department that the construction activity will take place, and storm water discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis.

(ii) Any other construction activity designated by the Department, or in States with approved NPDES programs either the Department or the EPA Regional Administrator, based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States."

"Storm Water" means storm water runoff, snowmelt runoff, and surface runoff and drainage.

"Storm Water Discharge-Related Activities" as used in this permit, include: activities that cause, contribute to, or result in storm water point source pollutant discharges, including but not limited to: excavation, Site development, grading and other surface disturbance activities; and measures to control storm water including the siting, construction and operation of BMPs to control, reduce or prevent storm water pollution.

"Surface Waters of the State" means "Waters of the State" as defined in §122.2 of SC Regulation 61-9 except for groundwater.

"Total Maximum Daily Load" or "TMDL" means the sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure.

"Waters of the State" is defined in §122.2 of SC Regulation 61-9.

"Wetland" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

ACRONYMS

BMP - Best Management Practices

CGP - Construction General Permit

CFR - Code of Federal Regulations

CWA - Clean Water Act

EPA - United States Environmental Protection Agency

MS4 - Municipal Separate Storm Sewer System

NOI - Notice of Intent

NOT - Notice of Termination

NPDES - National Pollutant Discharge Elimination System

POTW - Publicly Owned Treatment Works

SWPPP - Storm Water Pollution Prevention Plan

TMDL - Total Maximum Daily Load

APPENDIX B - SMALL CONSTRUCTION WAIVERS AND INSTRUCTIONS

These waivers are only available to storm water discharges associated with small construction activities (i.e., 1-5 acres). As the Operator of a small construction activity, you may be able to qualify for a waiver in lieu of needing to obtain coverage under this general permit based on: (A) a low rainfall erosivity factor, (B) a TMDL analysis, or (C) an equivalent analysis that determines allocations for small construction Sites are not needed. Each Operator, otherwise needing permit coverage, must notify DHEC of its intention for a waiver. It is the responsibility of those individuals wishing to obtain a waiver from coverage under this general permit to submit a complete and accurate waiver certification as described below. Where the Operator changes or another is added during the construction Project, the new Operator must also submit a waiver certification to be waived.

A. Rainfall Erosivity Waiver

Under this scenario the small construction Project's rainfall erosivity factor calculation ("R" in the Revised Universal Soil Loss Equation) is less than 5 during the period of construction activity. The Operator must certify to the Permitting Authority that construction activity will occur only when the rainfall erosivity factor is less than 5. The period of construction activity begins at initial earth disturbance and ends with final stabilization. Where vegetation will be used for final stabilization, the date of installation of a stabilization practice that will provide interim non-vegetative stabilization can be used for the end of the construction period, provided the Operator commits (as a condition of waiver eligibility) to periodically inspect and properly maintain the area until the criteria for final stabilization as defined in the construction general permit have been met. If use of this interim stabilization eligibility condition was relied on to qualify for the waiver, signature on the waiver with its certification statement constitutes acceptance of and commitment to complete the final stabilization process. The Operator must submit a waiver certification to DHEC prior to commencing construction activities.

> *Note: The rainfall erosivity factor "R" is determined in accordance with Chapter 2 of Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE), pages 21–64, dated January 1997; United States Department of Agriculture (USDA), Agricultural Research Service.*

EPA funded a cooperative agreement with Texas A&M University to develop an online rainfall erosivity calculator. You can access the calculator from EPA's website at:

www.epa.gov/npdes/stormwater/cgp

Use of the calculator allows you to determine potential eligibility for the rainfall erosivity waiver. It may also be useful in determining the time periods during which construction activity could be waived from permit coverage. You may find that moving your construction activity by a few weeks or expediting Site stabilization will allow you to qualify for the waiver.

If you are the Operator of the construction activity and eligible for a waiver based on low erosivity potential, you must provide the following information on the waiver certification in order to be waived

from permitting requirements:

1. Name, address and telephone number of the construction Site Operators;

2. Name (or other identifier), address, county or similar governmental subdivision, and latitude/longitude of the construction Project or Site;

3. Estimated construction start and completion (i.e., final stabilization) dates, and total acreage (to the nearest quarter acre) to be disturbed;

4. The rainfall erosivity factor calculation that applies to the active construction phase at your Project Site; and

5. A statement, signed and dated by an authorized representative, as provided in §122.22 of SC Regulation 61-9 (see Appendix C of this permit), that certifies that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five.

At the time of publication, a Low Erosivity Waiver Form is not available. If EPA or DHEC does create a form, it will be noticed (either directly, by public notice, or by making information available on the Internet at:

www.epa.gov/npdes/stormwater/cgp or http://www.scdhec.gov/stormwater

Note: If the R factor is 5 or greater, you cannot apply for the rainfall erosivity waiver, and must apply for permit coverage as per Subpart 2.1 of the construction general permit, unless you qualify for the Water Quality Waiver as described below.

If your small construction Project continues beyond the projected completion date given on the waiver certification, you must recalculate the rainfall erosivity factor for the new Project duration. If the R factor is below five (5), you must update all applicable information on the waiver certification and retain a copy of the revised waiver as part of the Site SWPPP. The new waiver certification must be submitted prior to the projected completion date listed on the original waiver form to assure your exemption from permitting requirements is uninterrupted. If the new R factor is five (5) or above, you must submit an NOI as per Part 2.

B. TMDL Waiver

This waiver is available if a TMDL that addresses the pollutant(s) of concern and has determined that controls on storm water discharges from small construction activity are not needed to protect water quality. The pollutant(s) of concern include sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. Information on TMDLs that have been established is available from EPA online at www.epa.gov/owow/tmdl/ and from DHEC at: www.scdhec.gov/water/tmdl/.

If you are the Operator of the construction activity and eligible for a waiver based on compliance with

a TMDL, you must provide the following information on the Waiver Certification form in order to be waived from permitting requirements:

1. Name, address and telephone number of the construction Site Operator(s);

2. Name (or other identifier), address, county or similar governmental subdivision, and latitude/longitude of the construction Project or Site;

3. Estimated construction start and completion (i.e., final stabilization) dates, and total acreage (to the nearest quarter acre) to be disturbed;

4. The name of the water body(s) that would be receiving storm water discharges from your construction Project;

5. The name and approval date of the TMDL; and

6. A statement, signed and dated by an authorized representative, as provided in §122.22 of SC Regulation 61-9 (see Appendix C of this permit), that certifies that the construction activity will take place and that the storm water discharges will occur, within the drainage area addressed by the TMDL.

C. Equivalent Analysis Waiver

This waiver is available for non-impaired waters only. The Operator can develop an equivalent analysis that determines allocations for his small construction Site for the pollutant(s) of concern or determines that such allocations are not needed to protect water quality. This waiver requires a small construction Operator to develop an equivalent analysis based on existing in-stream concentrations, expected growth in pollutant concentrations from all sources, and a margin of safety.

If you are a construction Operator who wants to use this waiver, you must develop your equivalent analysis and provide the following information to be waived from permitting requirements:

1. Name, address and telephone number of the construction Site Operator(s);

2. Name (or other identifier), address, county or similar governmental subdivision, and latitude/longitude of the construction Project or Site;

3. Estimated construction start and completion (i.e., final stabilization) dates, and total acreage (to the nearest quarter acre) to be disturbed;

4. The name of the water bodies that would be receiving storm water discharges from your construction Project;

5. Your equivalent analysis; and

6. A statement, signed and dated by an authorized representative, as provided in §122.22 of SC

Regulation 61-9 (see Appendix C of this permit), that certifies that the construction activity will take place and that the storm water discharges will occur, within the drainage area addressed by the equivalent analysis.

D. Waiver Deadlines and Submissions

1. Waiver certifications must be submitted prior to commencement of construction activities.

2. If you submit a TMDL or equivalent analysis waiver request, you are not waived until DHEC approves your request. As such, you may not commence construction activities until receipt of approval from DHEC.

3. Late Notifications: Operators are not prohibited from submitting waiver certifications after initiating clearing, grading, excavation activities, or other construction activities. DHEC may take enforcement for any unpermitted discharge or violations of laws or regulations that occur between the time construction commenced and waiver authorization is granted.

Submittal of a waiver certification is an optional alternative to obtaining permit coverage for discharges of storm water associated with small construction activity, provided you qualify for the waiver. Any discharge of storm water associated with small construction activity not covered by either a permit or a waiver may be considered an unpermitted discharge under the Clean Water Act and the SC Pollution Control Act. As mentioned above, DHEC may take enforcement for any unpermitted discharge or violations of laws or regulations that occur between the time construction commenced and either discharge authorization is granted or a complete and accurate waiver certification is submitted. DHEC may notify any Operator covered by a waiver that they must apply for a permit. DHEC may notify any Operator who has been in non-compliance with a waiver that they may no longer use the waiver for future Projects. Any member of the public may petition DHEC to take action under this provision by submitting written notice along with supporting justification.

Complete and accurate Rainfall Erosivity waiver certifications must be sent to the following address:

Storm Water and Agricultural Permitting Section
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

Complete and accurate TMDL or equivalent analysis waiver requests must be sent to the following address:

Storm Water and Agricultural Permitting Section
Bureau of Water
SC DHEC
2600 Bull Street
Columbia, SC 29201

APPENDIX C – SECTIONS 122.41 AND 122.22 OF SC REGULATION 61-9

Section 122.41 of SC Regulation 61-9.

122.41. Conditions applicable to all permits. The following conditions apply to all NPDES permits. Additional conditions applicable to NPDES permits are in section 122.42. All conditions applicable to NPDES permit shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the federal regulations (or the corresponding approved State regulations) must be given in the permit.

(a) **Duty to comply**. The permittee must comply with all conditions of the permit. Any permit noncompliance constitutes a violation of the Clean Water Act and the Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. The Department's approval of wastewater facility Plans and Specifications does not relieve the permittee of responsibility to meet permit limits.

(1) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

(2) Failure to comply with permit conditions or the provisions of this regulation may subject the permittee to civil penalties under S.C. Code Section 48-1-330 or criminal sanctions under S.C. Code Section 48-1-320. Sanctions for violations of the Federal Clean Water Act may be imposed in accordance with the provisions of 40 CFR Part 122.41(a)(2) and (3).

(3) A person who violates any provision of this regulation, a term, condition or schedule of compliance contained within a valid NPDES permit, or the State law is subject to the actions defined in the State law.

(b) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. (But see 122.4(g)(2)).

(c) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(d) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

(e) **(1) Proper operation and maintenance.** The permittee shall at all times properly operate and maintain in good working order and operate as efficiently as possible all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the

permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance based on design facility removals, adequate funding, adequate operator staffing and training and also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

(2) The permittee shall develop and maintain at the facility a complete Operations and Maintenance Manual for the waste treatment facilities and/or land application system. The manual shall be made available for on-site review during normal working hours. The manual shall contain operation and maintenance instructions for all equipment and appurtenances associated with the waste treatment facilities and land application system. The manual shall contain a general description of: the treatment process(es), the operational procedures to meet the requirements of (e)(1) above, and the corrective action to be taken should operating difficulties be encountered.

(3)(i) Except as stated in (ii) below, the permittee shall provide for the performance of daily treatment facility inspections by a certified operator of the appropriate grade as defined in the permit for the facility. The inspections shall include, but should not necessarily be limited to, areas which require visual observation to determine efficient operation and for which immediate corrective measures can be taken using the O & M manual as a guide. All inspections shall be recorded and shall include the date, time, and name of the person making the inspection, corrective measures taken, and routine equipment maintenance, repair, or replacement performed. The permittee shall maintain all records of inspections at the permitted facility as required by the permit, and the records shall be made available for on-site review during normal working hours.

(ii) The Department may make exceptions to operating requirements, if stated in the permit, as follows:

(A) Attendance by the certified operator of the appropriate grade ("the operator") is normally required only on days when treatment or discharge occurs.

(B) For performance of daily inspections, permits may allow a reduced grade of operator for limited time periods under specific circumstances when justified by the permittee in a staffing plan and approved by the Department.

(C) Reduced inspection frequency, but in no case less than weekly, may be suitable when specified in the permit, if there is complete telemetry of operating data and there is either a simple treatment system with a low potential for toxicity but requiring pumps or other electrical functions or the ability to stop the discharge for an appropriate period when necessary.

(D) In other circumstances where the permittee demonstrates the capability to evaluate the facility in an alternative manner equivalent to the inspection requirements in subparagraph 3(i).

(E) Any exceptions allowed under (A), (B), (C), and (D) above may be subject to compliance with the permit conditions.

(4) (i) Purpose. This regulation establishes rules for governing the operation and maintenance of wastewater sewer systems, including gravity or pressure interceptor sewers. It is the purpose of this rule to establish standards for the management of sewer systems to prevent and/or minimize system failures that would lead to public health or environmental impacts.

(ii) Authority and applicability. Under Section 48-1-30 of the Code of Laws of South Carolina (1976 as amended), the Department is authorized to adopt such rules and regulations as may be necessary to implement the Pollution Control Act. This regulation applies to all sewer systems that have been or would be subject to a DHEC construction permit under Regulation 61-67 and whose owner owns or operates the wastewater treatment system to which the sewer discharges and which discharges under NPDES. Nothing in this regulation supersedes a more stringent requirement that may be imposed by sewer system owners that manage wastewater from satellite systems. This regulation (122.41(e)(4)) is effective when published in the State Register.

(iii) General requirements. The requirements to properly operate and maintain sewer systems are the responsibility of the system owner. General Standards. The sewer system owner must:

(A) Properly manage, operate, and maintain at all times all parts of its sewer system(s), to include maintaining contractual operation agreements to provide services, if appropriate;

(B) Provide adequate capacity to convey base flows and peak flows for all parts of the sewer system or, if capital improvements are necessary to meet this standard, develop a schedule of short and long term improvements;

(C) Take all reasonable steps to stop and mitigate the impact of releases of wastewater to the environment; and

(D) Notify the Department within 30 days of a proposed change in ownership of a sewer system.

(iv) [Reserved.]

(f) Permit actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

(g) Property rights. This permit does not convey any property rights of any sort, or any exclusive privilege.

(h) Duty to provide information. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this

permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

(i) **Inspection and entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and Pollution Control Act, any substances or parameters at any location.

(j) **Monitoring and records.**

(1) (i) (A)Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(B) Samples shall be reasonably distributed in time, while maintaining representative sampling.

(C) No analysis, which is otherwise valid, shall be terminated for the purpose of preventing the analysis from showing a permit or water quality violation.

(ii) Flow Measurements.

(A) Where primary flow meters are required, appropriate flow measurement devices and methods consistent with accepted scientific practices shall be present and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of not greater than 10 percent from the true discharge rates throughout the range of expected discharge volumes. The primary flow device, where required, must be accessible to the use of a continuous flow recorder.

(B) Where permits require an estimate of flow, the permittee shall maintain at the permitted facility a record of the method(s) used in "estimating" the discharge flow (e.g., pump curves, production charts, water use records) for the outfall(s) designated on limits pages to monitor flow by an estimate.

(C) Records of any necessary calibrations must be kept.

(iii) The Department may designate a single, particular day of the month on which any group of parameters listed in the permit must be sampled. When this requirement is imposed in a permit, the Department may waive or alter compliance with the permit requirement for a specific sampling event for extenuating circumstances.

(iv) The Department may require that a permittee monitor parameters in the stream receiving his permitted discharge as necessary to evaluate the need for and to establish limits and conditions and to insure compliance with water quality standards (i.e., R.61-68).

(2) Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by R.61-9.503 or R.61-9.504); the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

(3) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;

(ii) The individual(s) who performed the sampling or measurements;

(iii) The date(s) analyses were performed;

(iv) The individual(s) who performed the analyses;

(v) The analytical techniques or methods used; and

(vi) The results of such analyses.

(4) Analyses for required monitoring must be conducted according to test procedures approved under 40 CFR Part 136 unless other test procedures have been specified in the permit or, in the case of sludge use or disposal, unless otherwise specified in R.61-9.503 or R.61-9.504.

(5) The PCA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $25,000 or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment provided by the Clean Water Act is also by imprisonment of not more than 4 years.

(k) Signatory requirement.

(1) All applications, reports, or information submitted to the Department shall be signed and certified (See section 122.22).

(2) The PCA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $25,000 per violation, or by imprisonment for not more than two years per violation, or by both.

(l) Reporting requirements.

(1) Planned changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b); or

(ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under section 122.42(a)(l).

(iii) The alteration or addition results in a significant change in the permittee's sewage sludge or industrial sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan (included in the NPDES permit directly or by reference);

(2) Anticipated noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(3) Transfers. This permit is not transferable to any person except after notice to the Department. The Department may require modification or revocation and reissuance of the permit to change the name of permittee and incorporate such other requirements as may be necessary under the Pollution Control Act and the Clean Water Act. (See section 122.61; in some cases, modification or revocation and reissuance is mandatory.)

(4) Monitoring reports. Monitoring results shall be reported at the intervals specified in the permit.

(i) Monitoring results must be reported on a Discharge Monitoring Report

(DMR) or forms provided or specified by the Department for reporting results of monitoring of sludge use or disposal practices.

(ii) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in R.61-9.503 or R.61-9.504, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Department.

(iii) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Department in the permit.

(5) Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(6) Twenty-four hour reporting.

(i) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(ii) The following shall be included as information which must be reported within 24 hours under this paragraph.

(A) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See section 122.44(g)).

(B) Any upset which exceeds any effluent limitation in the permit.

(C) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit to be reported within 24 hours (See section 122.44(g)).

(iii) The Department may waive the written report on a case-by-case basis for reports under paragraph (l)(6)(i) of this section if the oral report has been received within 24 hours.

(7) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (l)(4), (5), and (6) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (l)(6) of this section.

(8) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

(m) Bypass.

(1) Definitions.

(i) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

(ii) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

(2) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraph (m)(3) and (m)(4) of this section.

(3) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph (l)(6) of this section (24-hour notice).

(4) Prohibition of bypass

(i) Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(C) The permittee submitted notices as required under paragraph (m)(3) of this section.

(ii) The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in paragraph (m)(4)(i) of this section.

(n) Upset.

(1) Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. A upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(2) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (n)(3) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(3) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) An upset occurred and that the permittee can identify the cause(s) of the upset;

(ii) The permitted facility was at the time being properly operated; and

(iii) The permittee submitted notice of the upset as required in paragraph (l)(6)(ii)(B) of this section (24 hour notice).

(iv) The permittee complied with any remedial measures required under paragraph (d) of this section.

(4) Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

(o) Misrepresentation of Information.

(1) Any person making application for a NPDES discharge permit or filing any record, report, or other document pursuant to a regulation of the Department, shall certify that all information contained in such document is true. All application facts certified to by the applicant shall be considered valid conditions of the permit issued pursuant to the application.

(2) Any person who knowingly makes any false statement, representation, or certification in any application, record, report, or other documents filed with the Department pursuant

to the State law, and the rules and regulations pursuant to that law, shall be deemed to have violated a permit condition and shall be subject to the penalties provided for pursuant to 48-1-320 or 48-1-330.

Section 122.22 of SC Regulation 61-9.

122.22. Signatories to permit applications and reports.

(a) Applications. All permit applications shall be signed as follows:

(1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or

(ii) The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency or public facility: By either a principal executive officer, mayor, or other duly authorized employee or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) The chief executive officer of the agency, or

(ii) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator, Region IV, EPA).

(b) All reports required by permits, and other information requested by the Department, shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this section;

(2) The authorization specifies either an individual or a position having

responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) and,

(3) The written authorization is submitted to the Department.

(c) Changes to authorization. If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

(d) Certification. Any person signing a document under paragraph (a) or (b) of this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

STATE OF SOUTH CAROLINA
BEFORE THE ADMINISTRATIVE LAW COURT

DEERFIELD PLANTATION PHASE IIB PROPERTY OWNERS ASSOCIATION, Petitioner, vs. SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL, AND DEERTRACK GOLF, INC., Respondents. BILL CLARK HOMES OF MYRTLE BEACH, LLC, Intervenor.	CASE NO. 08-ALC-07-0221-CC

* *

DEPOSITION OF: SHANNON M. HICKS

DATE TAKEN: Monday, November 3, 2008

TIME: 1:10 p.m.

PLACE: Suite 400
1362 McMillan Avenue
North Charleston, SC

REPORTED BY: TERI L. SAMPSON,
Registered Professional
Reporter and Notary Public

* *

A P P E A R A N C E S

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ALSO PRESENT:

FRANK YELINKO

I N D E X

WITNESS: SHANNON M. HICKS

Examination	Page
BY MR. CHANDLER.	4
REPORTER'S CERTIFICATE	19
ERRATA SHEET	20

EXHIBITS:

(No exhibits were offered or marked for identification.)

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S T I P U L A T I O N S

It is hereby stipulated and agreed by and between the parties hereto, through their respective counsel, that the reading and signing of the transcript is expressly reserved by the Deponent.

NORTH CHARLESTON, SC, MONDAY, NOVEMBER 3, 2008

1:10 P.M.

P R O C E E D I N G S

- - - - -

WHEREUPON,

SHANNON M. HICKS

being first duly sworn, testified as follows:

EXAMINATION

BY MR. CHANDLER:

Q Would you tell us your full name?

A Shannon Michelle Hicks.

Q And where do you live?

A I live in Mt. Pleasant, South Carolina.

Q Okay. What's your street address?

A 1653 Baltusrol Lane.

Q Okay. And you're employed by the South Carolina Department of Health and Environmental Control?

A Yes.

Q And for how long have you worked for this agency?

A I've worked here for almost five years.

Q Okay. And what is your position?

A I'm currently the manager of the stormwater and State certification section.

Q Okay. How long have you been in that position?

A For almost two years.

Q Okay. And what are your duties and responsibilities in that position?

A Overseeing the plan reviewers and asking questions -- excuse me, answering questions that they have regarding plan review, making sure that they have an understanding of what's required in the regulations and in the policies of the management program, and then overseeing the incoming numbers and outgoing numbers and general management to make sure we have enough stuff.

Q Okay. And prior to taking your current position, did you have a different position at this agency?

A I had a couple, actually. I had a short extent, for about four months, as the acting manager of the enforcement section. And then prior to that, I served as stormwater project manager. The latter part of that, for about eight months, I managed the Myrtle Beach office of OCRM on an acting basis.

Q Okay. What's your educational background?

A I have a degree in civil engineering and a Master of Business Administration.

Q Where did you get those degrees?

A Clemson University.

Q Okay. What year did you get your degrees?

A In 1998, I finished my bachelor's, and in 2000, I finished my master, master's.

Q Okay. Did you come directly to work for the agency?

A No, I did not.

Q Who did you work for after you got your degree?

A I worked for an engineering consulting firm.

Q What was the name of that?

A Armstrong Glen.

Q And where were they?

A Charlotte, North Carolina.

Q How long did you work for them?

A I worked for them from August of 2000 to October of 2003.

Q And what types of work did you do while you were there?

A I worked on stormwater planning studies for large municipal projects, capital improvement projects, flood improvement projects. There's a little bit of water quality design, but mainly government type projects for stormwater.

Q Okay. And when you left there, was that when you came to the Department of Health and Environmental Control?

A Yes.

Q Okay. Now, we're here today about a case that's been filed by the Deerfield Phase IIB Property Owners Association about a permit issued for a project known as the Old South Course Phase I. Are you familiar with that project?

A Yes.

Q Okay. Tell me about your involvement with this project as it came to the agency and moved through the approval process.

A My involvement was oversight of Tara's review, Tara Maddock, the project manager's review. We had a public hearing and I assisted with that portion as well, and we -- Tara, throughout her review, we discussed the project and I took care of any concerns that she had related to the review and looked over the project in general terms myself.

Q Okay. Is it your understanding that the property involved in this matter has no wetlands, no waters of the State?

A That's correct.

Q Okay. Do you know whether there are any

ponds on the property?

A Yes.

Q Okay. And can you tell me about those ponds?

A They are ponds that were constructed for the golf course that was there when it was built.

Q Okay. And what's the source of your information about those ponds?

A My source comes from the plans that we looked at.

Q Okay. Do you know -- or do you have any information regarding whether there were any wetlands at the golf course site before the golf course was constructed?

A I do not have any information that would tell me that there were wetlands on the site.

Q Okay. Do you know whether the ponds that are on the site are linked together by any connection?

A Not that I recall.

Q Okay. Do you know whether there are any drainage channels on the property that connect to a larger drainage system that ultimately goes to the Atlantic Ocean?

A Could you repeat the question?

Q Do you know whether there are any drainage channels on the golf course property that link together

and flow into another channel that eventually goes to the ocean?

A I know that there's a channel at the downstream end of the project, but I'm not sure if that's the exact outfall to the Atlantic Ocean.

Q Okay. Do you consider the ponds on the property to be waters of the State?

A During the review, they were considered golf course ponds and not waters of the State.

Q Okay. Will you tell me how you distinguish between a water of the State and a pond that's not a water of the State?

A My understanding during the review was that waters of the State would be something more of a natural pond. Those ponds appeared that they were constructed for the golf course. So that's what I utilized during the review, my understanding at the time.

Q Okay. And your information about that, did it come from anywhere other than the documents and information submitted by the applicant?

A Not at the time, no.

Q Have you received some information since then?

A I've read through the definition of waters of

the State in Regulation 61-9.

Q Okay. And has that new information changed any of your view about whether those ponds are waters of the State?

A A strict reading of the definition includes ponds, and it doesn't distinguish on what type of pond.

Q Okay. Have you ever been to the site?

A No, I have not.

Q Have you ever looked at any aerial photographs of the site?

A I don't think so.

Q Okay. Are any of the existing ponds shown on any of the plan sheets that were submitted by the applicant?

A There are some plan sheets that show the locations of some existing ponds.

Q Okay. Do those plan sheets show any open channels on the property?

A Not that I recall.

Q Now, do I understand that you did attend the public hearing that was held?

A Yes, sir.

Q Okay. And can you tell me what types of public comments were received at the public hearing?

A Generally speaking, the concerns were

regarding flooding issues.

Q Okay. And what was your understanding of the nature of the flooding that was occurring?

A From what I recall, there was some flooding that may have occurred during a tropical storm event.

Q Okay. Did you get an understanding that there was any flooding that ever occurred that was outside a tropical storm?

A Not that I recall. The review of the flooding issues was mainly done by the project manager, and I over -- I took an overview, looked at the project as to how the stormwater for the site was being handled.

Q Okay. Do you know anything about the history of this property and the history of the development that's already in existence adjacent to this golf course?

A I do not know much about the history of the development.

Q Did you or Tara Maddock undertake any investigation of the concerns about flooding in the area?

A Tara reviewed the documents provided by the neighborhood association, any individuals that submitted flooding. We do know that the County went

out on site several times to investigate the flooding, but like I said, we did not go out on site and do any flooding investigation.

Q Okay. How were the issues related to concerns about flooding resolved?

A Well, the proposed drainage system routes the off-site flow coming above the development through ponds, and it appears to route the flow around the existing Plantation Estates neighborhood.

Q Okay. Do you know whether the drainage would ultimately go to the same channel that all the drainage currently goes to?

A The outlet point for all of the flow at the very downstream end is the same.

Q Okay. And what is your understanding of the capacity of that downstream outlet point?

A I'm not sure I understand.

Q Well, I mean, do you see anything that is -- could be a constriction of flow at the downstream point?

A Not that I recall.

Q Okay. Do you know what size pipe there is at the downstream point?

A I know that one of the -- the main outlet for the neighborhood area, there's, I think, an existing 36

inch and 42 inch, but that would be speculation. I can't remember the exact sizes, but I know that the main outfall is being replaced to be a 60-inch pipe.

Q Okay. And the -- you're saying that it's your understanding that the main outfall would be replaced with a 60-inch pipe?

A Yes.

Q Okay. And do you know how large an area is going to be draining into -- ultimately into this 60-inch pipe?

A I do not recall the exact area.

Q Did you ever receive any information indicating questions raised about whether the ponds on the site were dug out of high ground or would constitute wetlands or waters of the State during the review phase?

A During the review, no. Not that I can remember.

Q Do you recall whether the new residential development that is proposed to this site was going to be -- whether the lots were going to be elevated above the existing grade?

A They are proposing to raise the site.

Q And do you know why they're going to raise the site?

A I don't recall the specifics of the site grading.

Q Would raising this site raise any concerns if there is flooding on the existing development?

A Raising the site the way the project is proposed, during my review, I saw that the flow is routed to ponds around the development, the Plantation Estates, so the project appears to reduce flow going through Plantation Estates from off site.

Q And if it's all going to the same discharge point, it's your understanding that by going around the subdivision before getting there, that that's going to resolve any flooding problems?

A Well, for the purposes of the State regulations, they're routing existing off-site flow around the subdivision, so that would be to say it would not contribute to increasing flooding problems.

Q Did you or anybody at your agency take a look at what it would take to resolve existing flooding problems within the existing neighborhood?

A No. That's outside the scope of our jurisdiction, as it's a neighborhood that was built prior to our regulations becoming effective.

Q Okay. Were you aware that that neighborhood was built by the same family that now owns the golf

course?

A I don't think I knew that, no.

Q Okay. If the ponds that are on the golf course were considered waters of the State during your review, would it affect your review in any way?

A It may change it, but during this review, they weren't considered waters of the State. I would have to do another review.

Q Okay. If there were areas that were considered to be wetlands on this property in addition to waters of the State, would it affect your review?

A Again, I would have to do a different review. It may change it, but during this review, those weren't taken into consideration.

Q In a review of a project that did have ponds that were waters of the State and wetlands that were waters of the State, would you be assessing this project under the wetlands provisions of the coastal management program?

A The wetlands section would assess -- the OCRM wetlands would assess any wetland impacts during the review. If there was stormwater flowing to the wetlands, then we would make sure there was pretreatment prior to stormwater flowing into the wetlands. But other impacts are reviewed by the

wetlands section.

Q Okay. But in this project, all of your review was based on the assumption that there were no wetlands and no waters of the State on this property?

A That's correct, yes.

Q Are you familiar with the term "jurisdictional wetlands"?

A Yes.

Q And what does that term mean to you?

A Wetlands that the U.S. Army Corps of Engineers has jurisdiction over is my understanding of that definition.

Q Okay. And are you also familiar with the term "non-jurisdictional wetlands"?

A Yes.

Q And what does that mean to you?

A Wetlands that the U.S. Army Corps of Engineers does not have jurisdiction over.

Q Okay. If non-jurisdictional wetlands are in the coastal zone, do you consider them to be within State jurisdiction for regulatory purposes under the coastal management program?

A I know our wetlands section reviews impacts to non-jurisdictional wetlands.

Q Okay. A minute ago you said that if the

ponds were waters of the State, they would have to -- any flow into them would have to be -- something would have to be done to that before the flow went into those waters. Can you tell me again what it was you said?

A That if waters of the State are on site and stormwater flows to those waters of the State, a pretreatment mechanism must be implemented.

Q Okay. Is it your understanding that the ponds that are at the site now are going to be incorporated into and become part of the stormwater system for this proposed development?

A Some ponds are being incorporated into the proposed system.

Q Okay. And are you saying that if these ponds are considered waters of the State, then under your rules, they would have to have pretreatment, but not become part of the stormwater management plan?

A Under our rules, there would have to be pretreatment provided for any flow, any stormwater flow that enters waters of the State.

Q Okay.

MR. CHANDLER: Let me take a brief break.

(Recess from 1:32 p.m. to 1:36 p.m.)

MR. CHANDLER: No further questions.

A (Continuing) Okay. Can I clarify -- I

wanted to clarify the first question that you asked, I wanted to make sure that it was during my review that we didn't find any wetlands or waters of the state on site.

Q Okay. Well, I mean, in terms of not finding any, what did you do to determine whether there were any?

A We used our understanding at the time and the information provided by the consultant.

MR. CHANDLER: Okay. Thanks.

(Deposition concluded at 1:37 p.m.)

C E R T I F I C A T E

STATE OF SOUTH CAROLINA:

COUNTY OF BERKELEY:

I, TERI L. SAMPSON, Registered Professional Reporter and Notary Public, State of South Carolina at Large, certify that I was authorized to and did stenographically report the foregoing deposition; and that the transcript is a true record of the testimony given by the witness.

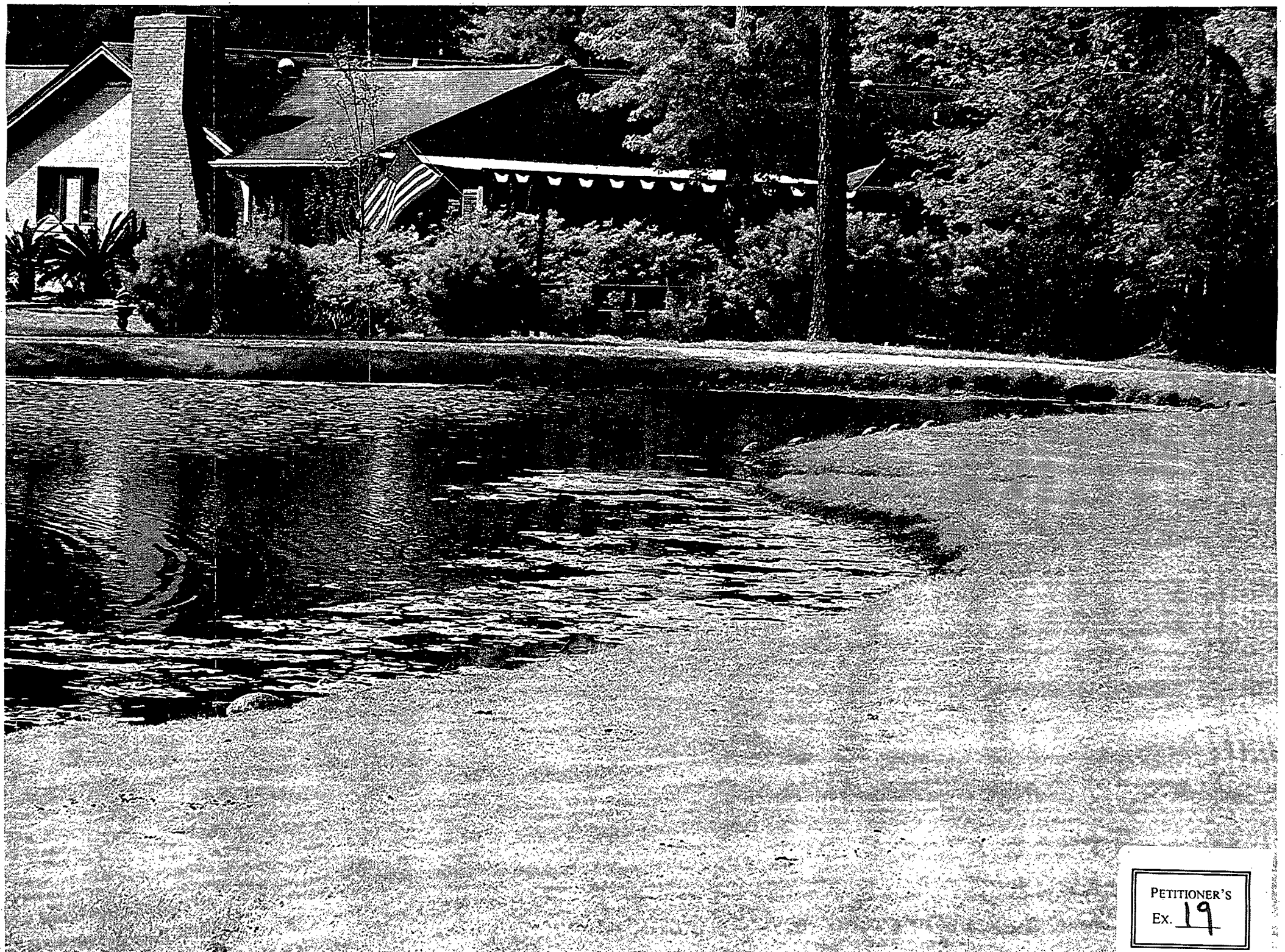
I further certify that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

WITNESS MY HAND AND OFFICIAL SEAL this 8th day of November, 2008, in the Town of Hanahan, County of Berkeley, State of South Carolina.

Teri L. Sampson,
Registered Professional
Reporter and Notary Public

My commission expires:
May 15, 2015

Yurkiw Certified Transcript
This is an original certified transcript
Electronically signed
Using Realtime Technology



PETITIONER'S
EX. 19



000552

PETITIONER'S
EX. 26



000553

PETITIONER'S
EX. 55

EXHIBIT
#
HARBOR LIGHTS DR
CHERRY DR
CEDAR DR
12TH AVE N
13TH AVE N
14TH AVE N
15TH AVE N
16TH AVE N
17TH AVE N
18TH AVE N
19TH AVE N
CAMELLIA DR N
POPLAR DR N
PLANTATION DR
PLANT BLVD
THE COURT
N FAWN VISTA DR
FAWN VISTA DR N
DEER CREEK RD
GROOVED PINE DR
N TREE LN
TREE CIR
FAIRWAY RD
COLONY DR
SUBURN LN
DOUBLE EAGLE DR
CIRCLE DR
GARDEN DR
DESTINY CT
HALLSBOROUGH DR
MONTICAR DR
BRANDENBERRY DR
GLENNS BAY RD
LIBERTY OAK LN
LONGLEAF DR
KESSINGER DR
DEERFIELD AVE
BALTUSROL DR
TALLADEGA CT
MAIDEN GLEN DR
ASHTON GLEN DR

000554

Respondent's Exhibit Number 15, Sheet 10 of plans approved by OCRM is oversized & has been filed separately

From: "Steve Powell" <spowell@sccoast.net>
To: "Tara Maddock" <maddoctc@dhec.sc.gov>
Date: 8/2/2007 11:07:26 AM
Subject: Re: Deerfield/Old South Course Project

Tara,
ETS has made all of the plans and calculations available to us, and I intend to complete my review of these by Tuesday or Wednesday of next week, on behalf of the Deerfield property owners.

Steve

----- Original Message -----
From: "Tara Maddock" <maddoctc@dhec.sc.gov>
To: "Steve Powell" <spowell@sccoast.net>
Cc: "Shannon Hicks" <Hickss@dhec.sc.gov>
Sent: Thursday, August 02, 2007 10:48 AM
Subject: Deerfield/Old South Course Project

Steve,

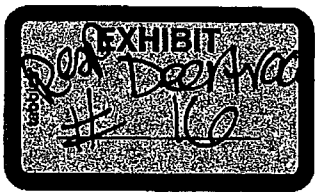
At the public hearing on July 18 regarding the above referenced project, it was discussed that you would perform a technical review of it. I am checking in to see if you received a full submittal package to review and when, and if you have completed your review (if not, when do you anticipate it's completion).

Thanks,

Tara

Tara C. Maddock
Project Manager
SC DHEC/Ocean and Coastal Resource Management
1362 McMillan Avenue, Suite 400
Charleston, SC 29405
(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

CC: "Rob Shelton" <Rshelton@BellamyLaw.com>, "Shannon Hicks" <Hickss@dhec.sc.gov>



From: Tara Maddock
To: rshelton@bellamylaw.com
Date: 8/2/2007 11:13:48 AM
Subject: Deerfield/Old South Course

Rob,

Morning. I received your voicemail message regarding the above referenced project. The last day for comments to be received for the record was July 28, 10 days from the date of the public hearing.

FYI...the project is still under review by OCRM.

Thank you,

Tara

Tara C. Maddock
Project Manager
SC DHEC/Ocean and Coastal Resource Management
1362 McMillan Avenue, Suite 400
Charleston, SC 29405
(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

From: Tara Maddock
To: Shelton, Robert S.
Date: 8/2/2007 11:33:55 AM
Subject: RE: Deerfield/Old South Course

Rob,

Certainly we will still accept the engineer's comments as he is on retainer for the HOA but we should expect to have these by Wednesday of next week as Steve indicated in his email from earlier this morning...that is no problem.

By the way, the only message I have from you was from Tuesday, July 31.

Thank you,

Tara

Tara C. Maddock
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(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

>>> "Shelton, Robert S." <RShelton@bellamylaw.com> 8/2/2007 11:13:57 AM >>>
Tara,

We have retained Steve Powell of Venture Engineering toe review the drainage calculations shown in the ETS plans. I expect his determination to be complete by next week, and would respectfully request you supplement the records with his findings, insofar as he explained this at the meeting and I called you July 27 to find out how long we had to supplement the public record. Please give me a call to discuss this at your earliest convenience.

Robert S. Shelton, Esq.
Bellamy, Rutenberg, Copeland,
Epps, Gravely & Bowers, P.A.
Post Office Box 357
Myrtle Beach, South Carolina 29578-0357
direct: 843.916.7163
fax: 843.448.3022

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attachments) is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding penalties under the Internal Revenue Code or (ii) promoting, marketing, or recommending to another party any transaction or matter addressed herein.

-----Original Message-----
From: Tara Maddock [mailto:maddoctc@dhec.sc.gov]
Sent: Thursday, August 02, 2007 11:14 AM
To: Shelton, Robert S.
Subject: Deerfield/Old South Course

Rob,

Morning. I received your voicemail message regarding the above referenced project. The last day for comments to be received for the record was July 28, 10 days from the date of the public hearing.

FYI...the project is still under review by OCRM.

Thank you,

Tara

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Charleston, SC 29405
(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

CC: Powell, Steve

From: "Shelton, Robert S." <RShelton@bellamylaw.com>
To: "Tara Maddock" <maddoctc@dhec.sc.gov>
Date: 8/8/2007 4:12:03 PM
Subject: RE: Deerfield/Old South Course

Tara,

I just received a call from Steve Powell. He has not been able to access the plans from the applicant as yet. He asked that I e-mail you seeking an extension for his comments. He tells me it would only take a couple days, but he must have access to the plans in order to perform his review. The plans are on a website, but the access information ETS gave Steve would not work, and they have not given him any other way you get into the system as yet. Steve is on the road, but called to ask me to contact you because he knew you were expecting his comments today. Thank you in advance for your consideration.

Robert S. Shelton, Esq.
Bellamy, Rutenberg, Copeland,
Epps, Gravely & Bowers, P.A.
Post Office Box 357
Myrtle Beach, South Carolina 29578-0357
direct: 843.916.7163
fax: 843.448.3022

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-----Original Message-----
From: Tara Maddock [mailto:maddoctc@dhec.sc.gov]
Sent: Thursday, August 02, 2007 11:34 AM
To: Shelton, Robert S.
Cc: Steve Powell
Subject: RE: Deerfield/Old South Course

Rob,

Certainly we will still accept the engineer's comments as he is on retainer for the HOA but we should expect to have these by Wednesday of next week as Steve indicated in his email from earlier this morning...that is no problem.

By the way, the only message I have from you was from Tuesday, July 31.

Thank you,

Tara

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Email: maddoctc@dhec.sc.gov

>>> "Shelton, Robert S." <RShelton@bellamylaw.com> 8/2/2007 11:13:57 AM
>>>
Tara,

We have retained Steve Powell of Venture Engineering toe review the drainage calculations shown in the ETS plans. I expect his determination to be complete by next week, and would respectfully request you supplement the records with his findings, insofar as he explained this at the meeting and I called you July 27 to find out how long we had to supplement the public record. Please give me a call to discuss this at your earliest convenience.

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direct: 843.916.7163
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TREASURY DEPARTMENT CIRCULAR 230 DISCLOSURE: To ensure compliance with requirements imposed by the Treasury Department, we inform you that any U.S. federal tax advice contained in this communication (including any attachments) is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding penalties under the Internal Revenue Code or (ii) promoting, marketing, or recommending to another party any transaction or matter addressed herein.

-----Original Message-----
From: Tara Maddock [mailto:maddoctc@dhec.sc.gov]
Sent: Thursday, August 02, 2007 11:14 AM
To: Shelton, Robert S.
Subject: Deerfield/Old South Course

Rob,

Morning. I received your voicemail message regarding the above referenced project. The last day for comments to be received for the record was July 28, 10 days from the date of the public hearing.

FYI...the project is still under review by OCRM.

Thank you,

Tara

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(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

CC: "Steve Powell" <spowell@sccoast.net>

From: "Steve Powell" <spowell@sccoast.net>
To: "Bill Hatoway" <bthatoway@etsengineers.com>
Date: 8/8/2007 5:37:30 PM
Subject: Fw: Old South Course Phase 1A and 1B

Bill,
I have still been unable to access the web site with the Old South Course plans and calculations, and I want to knock this out so I can report to the attorney, and he can let both OCRM and the Deerfield homeowners know where things are. Please get me a link to the server that I can use.
Steve

----- Original Message -----
From: Steve Powell
To: Bill Hatoway
Sent: Thursday, August 02, 2007 6:37 PM
Subject: Re: Old South Course Phase 1A and 1B

Bill,
I could not get the link to work. I got to your web site, but the ":82" suffix at the end did not work. Help?

Steve
----- Original Message -----
From: Bill Hatoway
To: 'spowell@sccoast.net'
Sent: Wednesday, July 25, 2007 3:41 PM
Subject: Old South Course Phase 1A and 1B

Steve

I have had the construction drawings and the stormwater report for the referenced project placed on our ftp server. You can reach the site through the attached link. Once there, use the User Name: "guest" and the password "guest1" to enter. I have created a folder called Venture Engineering under "files/my documents". PDFs of the drawings and report are located there. Please feel free to call me after your review if I can clarify any questions.

http://www.etsengineers.com:82

Bill Hatoway

ETS, INC

237-3002

237-2269 (fax)

CC: "Rob Shelton" <Rshelton@BellamyLaw.com>, "Tara Maddock" <maddoctc@dhec.sc.gov>

From: Tara Maddock
To: jeff@billclarkhomes.com
Date: 8/10/2007 12:17:22 PM
Subject: Deerfield/Old South Course

Mr. Farrell,

Afternoon. You may already be aware of this but OCRM has not received technical comments from Steve Powell of Venture Engineering, representing the current HOA. I think Steve may have had some troubles accessing the plans. An additional email from Wednesday indicates he is working with Bill to get these so his comments to us will be delayed.

Thanks,

Tara

Tara C. Maddock
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(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

CC: Bevins, P.E., Thomas; Hatoway, Bill

From: "Jeff Farrell" <jeff@billclarkhomes.com>
To: "Tara Maddock" <maddoctc@dhec.sc.gov>
Date: 8/21/2007 2:08:37 PM
Subject: Re: Deerfield/Old South Course

Tara: We are more than happy to cooperate with the HOA, howeverto date they still haven't picked up the plans for their comments. I hope this doesn't delay our permit process.
----- Original Message -----
From: "Tara Maddock" <maddoctc@dhec.sc.gov>
To: <jeff@billclarkhomes.com>
Cc: "Bill Hatoway" <bthatoway@etsengineers.com>; "Thomas Bevins, P.E." <tbevins@etsengineers.com>
Sent: Friday, August 10, 2007 12:17 PM
Subject: Deerfield/Old South Course

Mr. Farrell,

Afternoon. You may already be aware of this but OCRM has not received technical comments from Steve Powell of Venture Engineering, representing the current HOA. I think Steve may have had some troubles accessing the plans. An additional email from Wednesday indicates he is working with Bill to get these so his comments to us will be delayed.

Thanks,

Tara

Tara C. Maddock
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(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

From: Tara Maddock
To: Hicks, Shannon
Date: 8/21/2007 2:44:28 PM
Subject: Fwd: Re: Deerfield/Old South Course

Shannon,

Jeff Farrell is indicating that Steve Powell hasn't reviewed their plans since now the plans have been available...and he is wanting to make sure that wasn't affecting our process...well, we haven't sent comments b/c we were waiting on Steve's comments. Should I send an email to Steve saying we absolutely need these comments asap? Jeff was aware Steve was having a hard time getting the plans and didn't seem to have a problem with that since it was on their end. But it sounds like now, Jeff is getting ancy.

Tara

From: Tara Maddock
To: Hatoway, Bill
CC: Hicks, Shannon; jeff@billclarkhomes.com
Date: 8/24/2007 3:16 PM
Subject: RE: Deerfield/Old South Course

Bill...no "worries" or "hurry"...we just wanted you all to know that our understanding was that we were going to issue our technical comments once we received Steve's. So as long as you all understand it will be a little while longer in issuing all comments b/c of the delay in Steve's review, then that's suitable with us.

So as it stands now, I'll be on the lookout for his comments and then we'll issue them all together.

Thanks,

Tara

Tara C. Maddock
Project Manager
SC DHEC/Ocean and Coastal Resource Management
1362 McMillan Avenue, Suite 400
Charleston, SC 29405
(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

>>> "Bill Hatoway" <bthatoway@etsengineers.com> 8/24/2007 3:03 PM >>>
Good Afternoon Tara

I apologize for the delay with Steve not being able to download the plans and report. If I had any idea that it would have been that much of a problem I surly would have delivered both to him the day after our Public Hearing.

Anyway, both plans and a copy of the drainage report were delivered to his office on Monday August 20, 2007. I have been meeting with and working with the County to try to adjust the low points of our road grades to match the low areas of the adjacent property while avoiding any negative impact on the proposed development.

I believe that Steve will work to get any comments that he might have to you in a timely fashion. I will call him to ask that he do so and look to receive your comments when both are available.

Thank you again for your time and assistance.

Bill Hatoway
ETS, INC
237-3002
237-2269 (fax)
-----Original Message-----
From: Tara Maddock [mailto:maddoctc@dhec.sc.gov]
Sent: Friday, August 24, 2007 2:49 PM
To: Jeff Farrell; Bill Hatoway
Cc: Shannon Hicks
Subject: Re: Deerfield/Old South Course

Jeff,

Afternoon. I appreciate your email.

The last I was aware of was that Bill (or someone at ETS) was having trouble getting the project plans/hydro report to Steve Powell b/c of server related issues. I assumed we were all on the same boat knowing that this mishap has put us a little behind in completing our review and issuing comments since Steve was going to provide his comments as well. How long have the plans been ready for Steve?

Would you like for us to go ahead and provide our comments?

Thank you,

Tara

Tara C. Maddock
Project Manager
SC DHEC/Ocean and Coastal Resource Management
1362 McMillan Avenue, Suite 400
Charleston, SC 29405
(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

>>> "Jeff Farrell" <jeff@billclarkhomes.com> 8/21/2007 2:02 PM >>>
Tara: We are more than happy to cooperate with the HOA, howeverto date they still haven't picked up the plans for their comments. I hope this doesn't delay our permit process.
----- Original Message -----
From: "Tara Maddock" <maddoctc@dhec.sc.gov>
To: <jeff@billclarkhomes.com>
Cc: "Bill Hatoway" <bthatoway@etsengineers.com>; "Thomas Bevins, P.E." <tbevins@etsengineers.com>
Sent: Friday, August 10, 2007 12:17 PM
Subject: Deerfield/Old South Course

Mr. Farrell,

Afternoon. You may already be aware of this but OCRM has not received technical comments from Steve Powell of Venture Engineering, representing the current HOA. I think Steve may have had some troubles accessing the plans. An additional email from Wednesday indicates he is working with Bill

to get these so his comments to us will be delayed.

Thanks,

Tara

Tara C. Maddock
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1362 McMillan Avenue, Suite 400
Charleston, SC 29405
(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

From: Tara Maddock
To: Hatoway, Bill
Date: 9/24/2007 1:21 PM
Subject: Deerfield/Old South Review

Bill,

Good afternoon. I received your voicemail message last week but left a message since I wasn't able to get you. Just wanted to know if I could get any comments that Steve Powell might have had about this project and also to see what the Town's concerns were, if available.

I am working on getting comments to you but wanted to see if I could touch base with you first regarding the above request.

Please let me know when you have a moment to talk.

Thanks,

Tara

Tara C. Maddock
Project Manager
SC DHEC/Ocean and Coastal Resource Management
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Charleston, SC 29405
(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

From: Tara Maddock
To: Powell, Steve
Date: 9/27/2007 10:10 AM
Subject: Old South/Deerfield Project

Steve,

It's my understanding that you have reviewed this project. Please forward any comments you have regarding this project ASAP as I am working to compile all comments. If there are none, please let me know that as well.

Thanks,

Tara

Tara C. Maddock
Project Manager
SC DHEC/Ocean and Coastal Resource Management
1362 McMillan Avenue, Suite 400
Charleston, SC 29405
(843) 953-0243 (Telephone)
(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

From: "Steve Powell" <spowell@sccoast.net>
To: "Tara Maddock" <maddoctc@dhec.sc.gov>
Date: 9/27/2007 10:45 AM
Subject: Re: Old South/Deerfield Project

Tara,
Here is my short summary to their attorney.

Rob,
I can prepare a letter if you like, but after studying the report, plans and calculations prepared by ETS for the Old South Course, my conclusion is that drainage will likely be improved for the existing homeowners there. I can find no technical basis, from a stormwater management side, to oppose the issuance of the stormwater permit on this project.
If you don't have a problem, please pass this on to Tara Maddock at OCRM.

Steve

----- Original Message -----
From: "Tara Maddock" <maddoctc@dhec.sc.gov>
To: "Steve Powell" <spowell@sccoast.net>
Sent: Thursday, September 27, 2007 10:10 AM
Subject: Old South/Deerfield Project

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Tara

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(843) 953-0260 (Fax)
Email: maddoctc@dhec.sc.gov

Deertrack Redevelopment
showing new stormwater ponds



EXHIBIT
Deertrack
09573

Deertrack Redevelopment
showing existing ponds

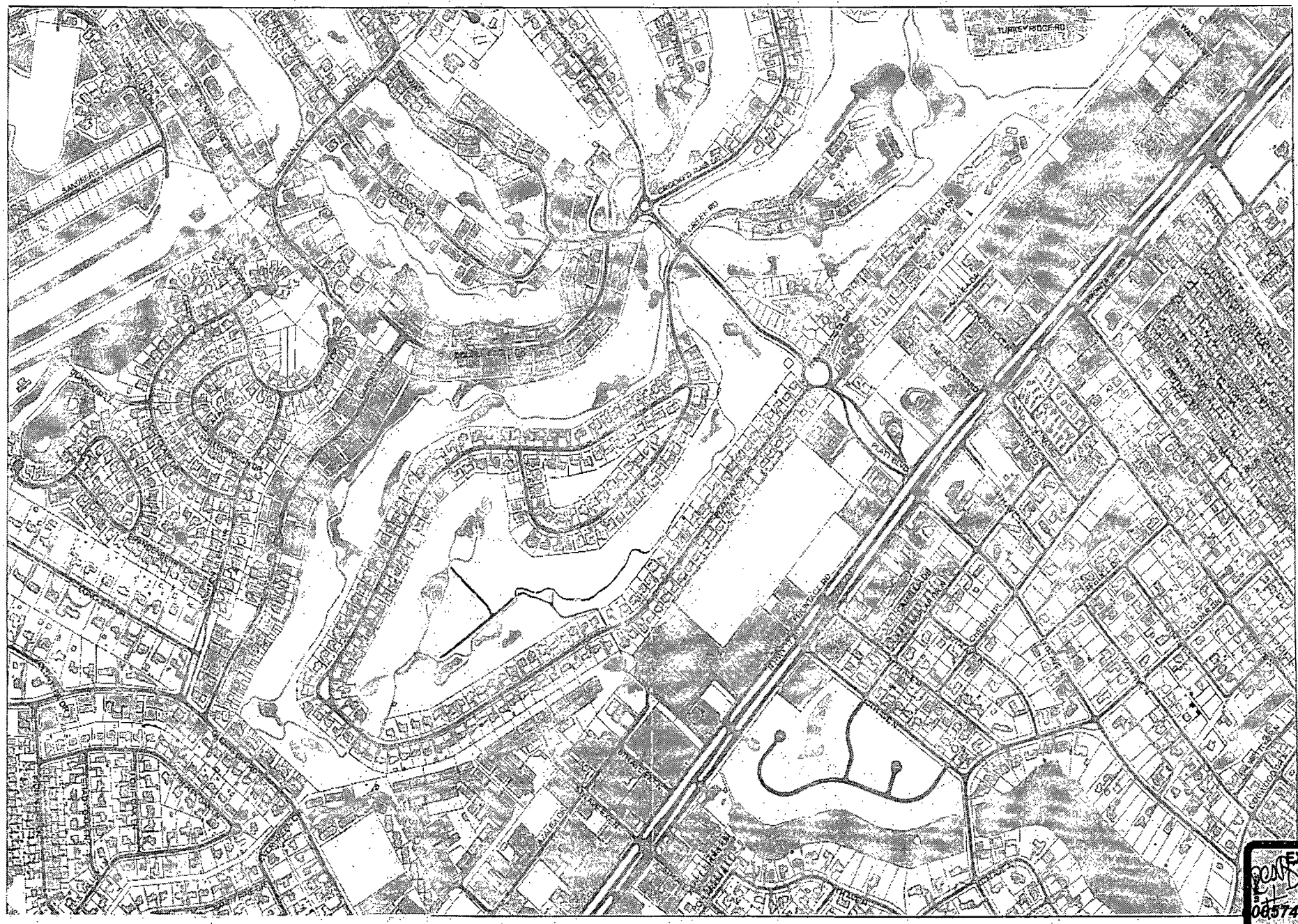
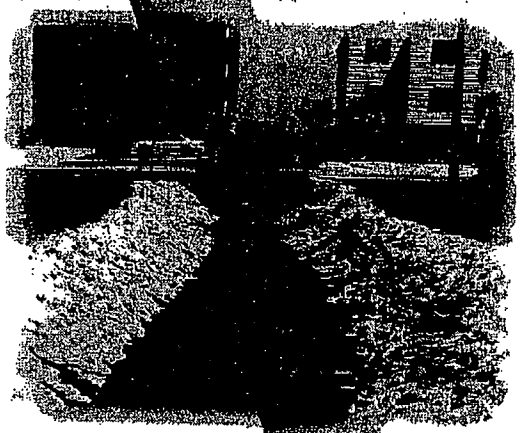
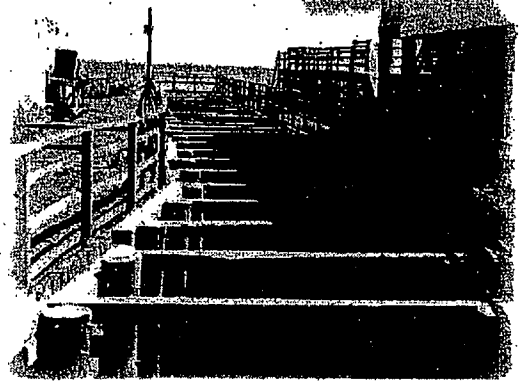


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Deertrack
08574 19-6

Barrie 4-16







CAROPINES/DEERFIELD STORM DRAINAGE OUTFALL STUDY

prepared for

HORRY COUNTY
THE INDEPENDENT REPUBLIC
1801
S.C.

THE LPA GROUP LPA

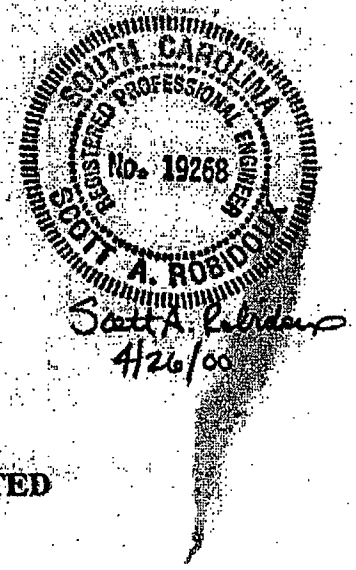
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CAROPINES/DEERFIELD
STORM DRAINAGE OUTFALL STUDY

Prepared For:

HORRY COUNTY



Prepared By:

THE LPA GROUP INCORPORATED

April 2000

TABLE OF CONTENTS

		Page
Section 1.0 PURPOSE OF DRAINAGE STUDY		1-1
Section 2.0 METHODOLOGY		2-1
Section 3.0 EXISTING DRAINAGE SYSTEM		3-1
3.1	Inventory of Existing Drainage Basin Data	3-1
3.2	Analysis of Existing System	3-3
Section 4.0 PROPOSED DRAINAGE IMPROVEMENTS		4-1
4.1	Alternative 1	4-2
4.1.1	Proposed Improvements	4-2
4.1.2	Results of Analysis	4-2
4.1.3	Estimated Construction Cost	4-5
4.2	Alternative 2	4-7
4.2.1	Proposed Improvements	4-7
4.2.2	Results of Analysis	4-8
4.2.3	Estimated Construction Cost	4-8
4.3	Alternative 3	4-11
4.3.1	Proposed Improvements	4-11
4.3.2	Results of Analysis	4-12
4.3.3	Estimated Construction Cost	4-12
Section 5.0 CONCLUSION		5-1
APPENDIX A		
Excerpts from Town of Surfside Beach Stormwater Management Study Final Report, Proctor-Davis-Ray Engineers, Myrtle Beach, South Carolina, 1985		A-1

000577

TABLE OF CONTENTS CONTINUED

		Page
APPENDIX B		
	XP-SWMM Output for Existing Conditions	B-1
APPENDIX C		
	XP-SWMM Output for Alternative 1	C-1
APPENDIX D		
	XP-SWMM Output for Alternative 2	D-1
APPENDIX E		
	XP-SWMM Output for Alternative 3	E-1
ILLUSTRATIONS		
1-1	Project Location Map	1-2
1-2	Dogwood Lake Watershed	1-3
3-1	Revised Dogwood Lake Watershed	3-2
3-2	Flooding Areas for Existing Conditions	3-4
4-1	Proposed Detention Pond Locations	4-3
4-2	Flooding Areas for Alternative 1	4-4
4-3	Flooding Areas for Alternative 2	4-9
4-4	Flooding Areas for Alternative 3	4-13
TABULATIONS		
4-1	Proposed Improvements To Main Outfall Channel	4-1
4-2	Proposed Pond Locations Alternative 1	4-2
4-3	Estimated Cost Alternative 1	4-6
4-4	Additional Pipe Replacements for Alternative 2	4-7
4-5	Estimated Cost Alternative 2	4-10
4-6	Proposed Pond Locations Alternative 3	4-11
4-7	Additional Pipe Replacements for Alternative 3	4-12
4-8	Estimated Cost Alternative 3	4-14

000578

TABLE OF CONTENTS CONTINUED

4-8a	Estimated Cost Alternative 3 – Phase I	4-15
4-8b	Estimated Cost Alternative 3 – Phase II	4-16
4-8c	Estimated Cost Alternative 3 – Phase III	4-17

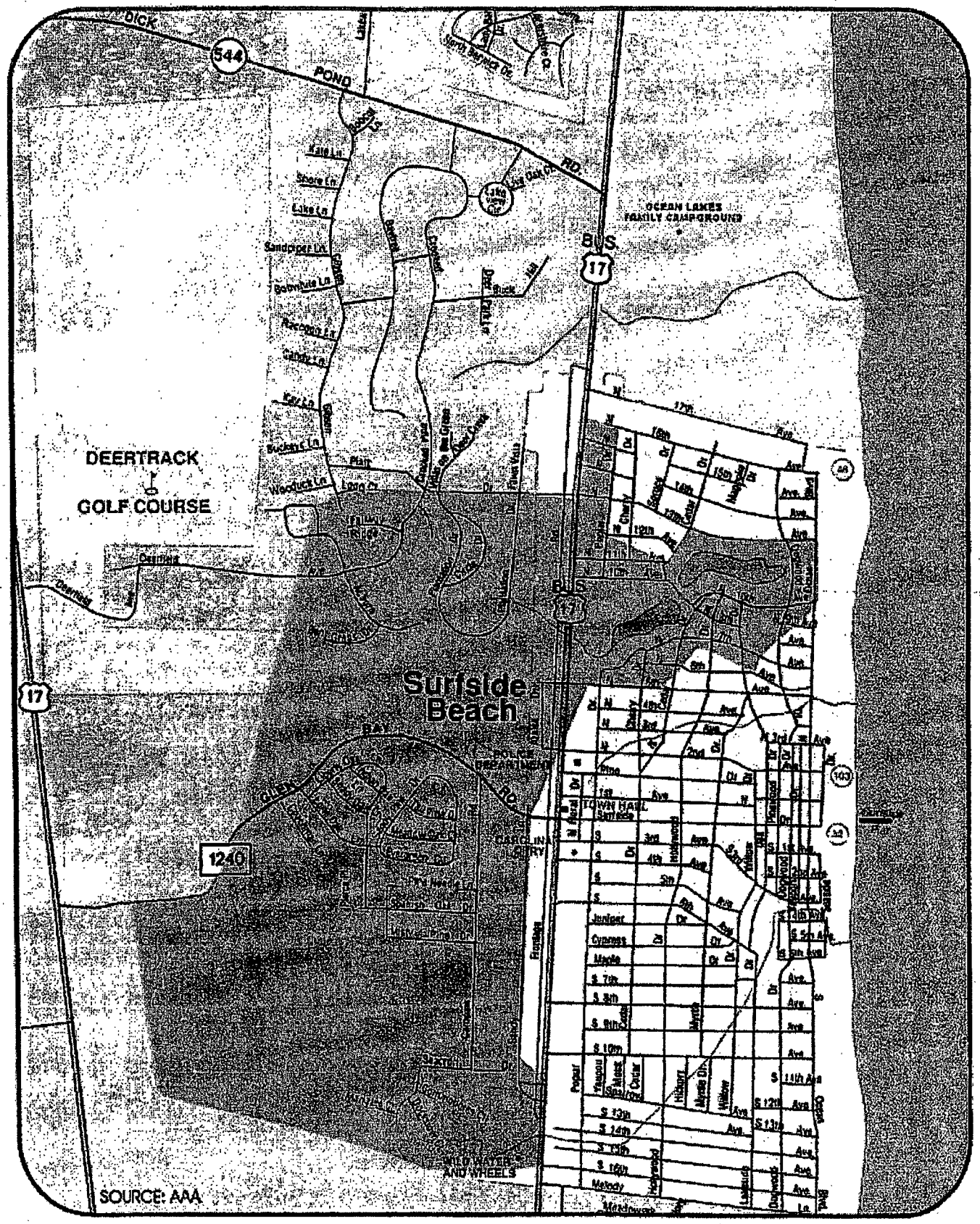
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Section 1.0
PURPOSE OF DRAINAGE STUDY

The purpose of this Drainage Study Report is to develop and evaluate alternative solutions for relieving flooding in the Caropines and Deerfield subdivisions without adversely impacting conditions downstream. Since Caropines and Deerfield are located upstream of Dogwood Lake, the project study area is identified as the Dogwood Lake Watershed (refer to Figure 1-1.) The primary outfall channel for this watershed conveys runoff from the Caropines subdivision across Glens Bay Road, under U.S. Route 17 Business, through the Town of Surfside, and into the Atlantic Ocean (refer to Figure 1-2.)

This report provides the methodology used to study the Dogwood Lake Watershed and identifies the existing areas within the basin that experience flooding. In addition, the report outlines the proposed alternatives for relieving flooding, the impact of these solutions on the entire study area, and an estimated construction cost for each of the alternatives.

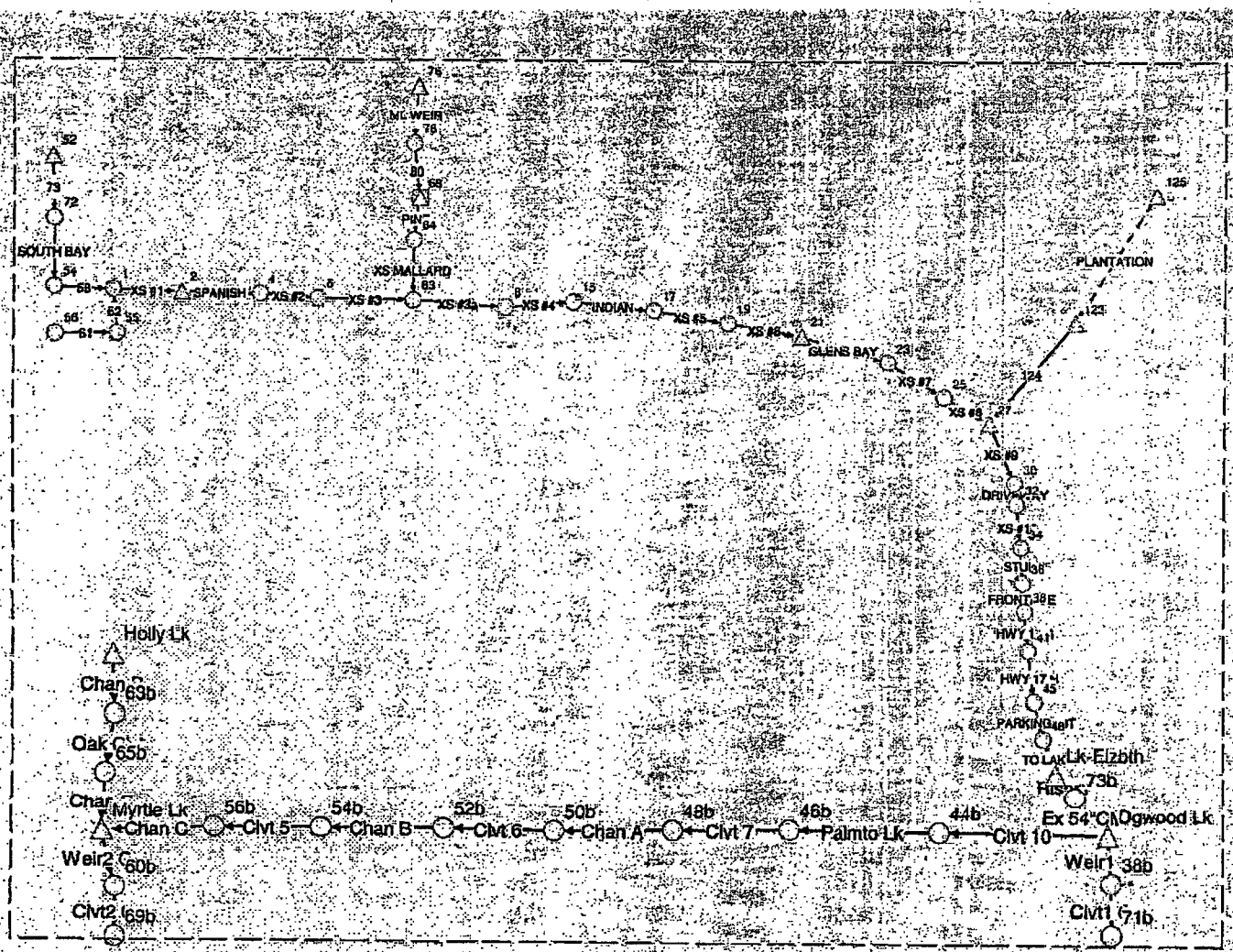
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Project Location Map

Figure 1-1

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INL WEIR
SOUTH BAY
XS #1
SPANISH
XS #2
XS #3
XS MALLARD
XS #4
INDIAN
XS #5
XS #6
GLENS BAY
XS #7
XS #8
XS #9
DRIVEWAY
PLANTATION
STUMP
FRONT
HWY 1
HWY 17
PARKING
TO LAK
Lk Elzbth
Fus
Ex 54"CM
Ogwood Lk
Clvt 10
Weir1
Clvt1
Palmto Lk
Clvt 7
Chan A
Clvt 6
Chan B
Clvt 5
Chan C
Myrtle Lk
Weir2
Clvt2
Oak C
Chan
Holly Lk

000582

Section 2.0
METHODOLOGY

The methodology used to analyze the Dogwood Lake Watershed consisted of a series of steps that are briefly described below:

1. Inventory existing drainage basin data and perform initial site investigation;
2. Analyze the existing drainage system;
3. Identify the existing flooding areas for the 10-year, 25-year, and 100-year storms;
4. Gather additional input from the public, Horry County officials, Town of Surfside officials, and site investigations;
5. Calibrate the model using information gathered; and,
6. Determine proposed alternatives for eliminating flooding for the 25-year storm.

Due to the topography and the type of existing structures within the Dogwood Lake Watershed, the XP-SWMM program was identified as the preferred method of analyzing the existing and proposed drainage systems. In addition to accounting for available storage within the system, the XP-SWMM software is a dynamic, time-step model. This allows the user to identify methods of reducing the number of flooded sites and to evaluate the amount of time flooding occurs at each of those sites.

000583

Section 3.0
EXISTING DRAINAGE SYSTEM

This section describes the information gathered for developing the initial XP-SWMM model, the calibration of the model, and the results of the analysis of the existing drainage system.

3.1 INVENTORY OF EXISTING DRAINAGE BASIN DATA

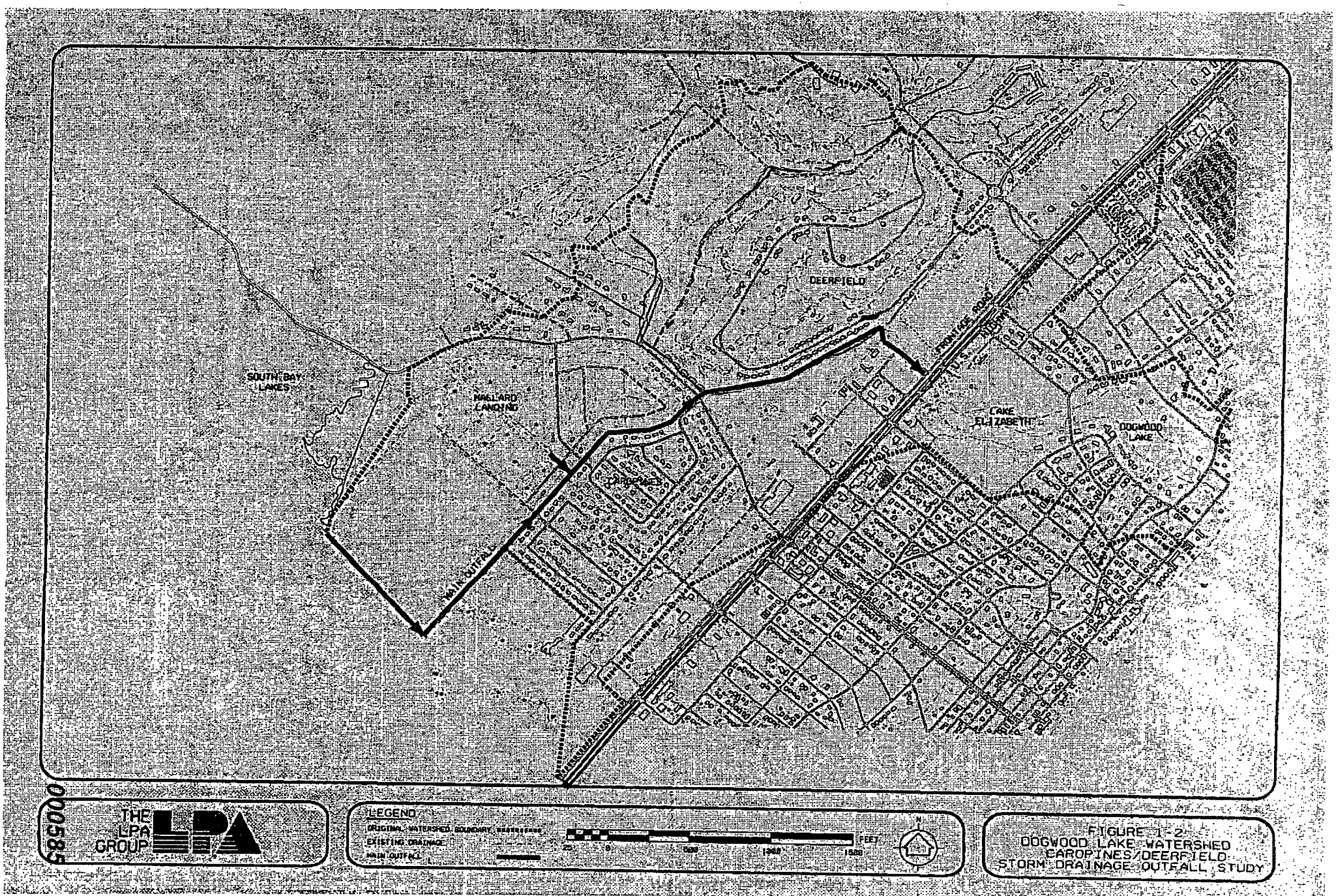
In order to develop the model of the existing drainage system for the Dogwood Lake Watershed, the following information was gathered:

- Available mapping and contour data from Horry County;
- Preliminary field surveys consisting of a profile of the main outfall channel, cross sections at key locations along the outfall, and sizes, inverts, and lengths of the existing pipes along the outfall;
- Town of Surfside Beach Stormwater Management Study Final Report, Proctor-Davis-Ray Engineers, Myrtle Beach, South Carolina, 1985 (refer to Appendix A);
- Engineering plans provided by Nelson Hardwick, Nelson Hardwick and Associates, for the outlet structure at the South Bay Lakes Pond and information on various culverts located in Deerfield;
- Construction plans for the Town of Surfside Drainage Discharge System project, prepared in September, 1989; and,
- Soil Conservation Service (SCS) Soil Survey for Horry County, South Carolina.

Based on the watershed delineation developed in the 1985 report for the Town of Surfside, it was determined that the northernmost point of the Dogwood Lake Watershed was the Caropines and Deerfield subdivisions. The most recent Horry County mapping indicated this as well. However, based on field reconnaissance performed for this drainage study, the new South Bay Lakes subdivision currently drains through the Caropines subdivision and contributes runoff to Dogwood Lake. Figure 3-1 illustrates the boundaries of the revised Dogwood Lake Watershed.

The Dogwood Lake Watershed is approximately 1115 acres and encompasses South Bay Lakes, Caropines Subdivision, Deerfield Subdivision, Mallard Landing, and a portion of the Town of Surfside bounded by Sixth Avenue North, U.S. Route 17 Business, Fourteenth Avenue North, and the Atlantic Ocean. The majority of the area is residential with some commercial development, especially

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FIGURE 1-2
DOGWOOD LAKE WATERSHED
CAROLINES/DEERFIELD
STORM DRAINAGE OUTFALL STUDY

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along U.S. Route 17 Business. The land slopes range from very flat to flat throughout the watershed. The watershed consists of mostly poorly drained soils north of U.S. Route 17 Business and well drained soils south of U.S. Route 17 Business.

3.2 ANALYSIS OF EXISTING SYSTEM

Using the information gathered above for the Dogwood Lake Watershed, an XP-SWMM model was developed and analyzed to determine the flooding locations for the 10-year, 25-year, and 100-year storms. Since gaging station data is not available for the study area, the model was calibrated based on visual observations made in the field during the site investigations as well as input from Horry County staff, Town of Surfside officials, and local residents. At locations where discrepancies were noted, adjustments were made to the model to more accurately depict the actual observed water surface elevations. There were three major adjustments made to the original model:

1. Channel data upstream of Spanish Oaks Drive, Pine Valley Lane, and Plantation Drive were gathered;
2. Construction plans for South Bay Lakes and Mallard Landing were used to include the outfall structures for each development; and,
3. Information from Nelson Hardwick and Associates was used to adjust the Deerfield Plantation outfall.

Based on the discussions with the local officials and residents, the revised XP-SWMM model produces results that reasonably depict the existing flooding conditions within the study area. Figure 3-2 identifies the locations where flooding occurs during the 10-year, 25-year, and 100-year storms. For more information regarding water surface elevations, duration of flooding, etc., refer to the XP-SWMM results contained in Appendix B.

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Flooding Areas for Existing Conditions

- Floods During 10-yr., 25-yr., & 100-yr. Storms
- Floods During 25-yr. & 100-yr. Storms
- Main Outfall Channel

Figure 3-2

Note: Numbers indicate node numbers in the XP-SWMM Model.

Section 4.0
PROPOSED DRAINAGE IMPROVEMENTS

Three alternative solutions for relieving flooding within the Caropines and Deerfield subdivisions have been developed. However, regardless of the alternative selected, the following improvements should be made to the existing drainage system:

- The main outfall channel should be excavated to the original grade in order to promote positive drainage from the top of the watershed to U.S. Route 17 Business. This will increase the capacity of the main channel and eliminate stagnant water from ponding in the channel.
- There are three existing pipes along the main channel that should be replaced to improve flow and reduce water surface elevations. These pipes and the proposed pipe inverts are listed in Table 4-1.

TABLE 4-1

PIPE REPLACEMENTS IN MAIN OUTFALL CHANNEL ALTERNATIVE 1

Location	Existing Culvert Size (inches)	Proposed Improvements	Proposed U.S. Invert (feet)	Proposed D.S. Invert (feet)
Indian Oaks Lane	36	Lower existing 36" pipe	18.2	18.1
Pine Valley Lane	24	Add another 24" pipe	21.0	20.4
Glens Bay Road	24 & 42	Replace 24" with 42" pipe	17.9	17.5

The following sections describe each of the proposed alternatives, the impact of the proposed improvements to the overall watershed, and the estimated costs associated with each alternative.

000588

4.1 ALTERNATIVE 1

4.1.1 Proposed Improvements

Alternative 1 consists of constructing five detention ponds at specific locations within the Dogwood Lake Watershed upstream of U.S. Route 17 Business (refer to Figure 4-1.) There are no improvements proposed within the Town of Surfside City limits with this alternative. Table 4-2 lists the locations where detention is proposed and the amount of storage required. With each of these ponds, the storage should be located as close to the main outfall channel as possible to reduce the amount of pipe required to divert the flow and to improve the hydraulics of the drainage system.

TABLE 4-2

PROPOSED POND LOCATIONS
ALTERNATIVE 1

Location	Minimum Storage Required (Acre-feet)	Land Availability
Spanish Oaks Drive	82	Land is currently being developed.
Pine Valley Lane	20	This area is fully developed and would require acquisition of a developed parcel(s).
Glens Bay Road	2	This area is fully developed and would require acquisition of a developed parcel(s).
Plantation Drive	90	There is some area available on the existing golf course and within the residential subdivision.
U.S. 17 Business Frontage Road	66	Small undeveloped area adjacent to a small existing pond. Also, two vacant residential lots behind the shopping center and approximately 14 acres to the right of the shopping center. Storage within a pipe system could be placed under the existing shopping center parking lot.

4.1.2 Results of Analysis

Using the calibrated XP-SWMM model for the existing condition in the Dogwood Lake Watershed, a model was created to reflect the proposed Alternative 1 improvements. The results of this analysis are included in Appendix C. Figure 4-2 illustrates the impact of Alternative 1 on the flooding situation within the area. As indicated, the number of flooded areas has been significantly reduced from the

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Proposed Detention Pond Locations

● Pond Locations

Main Outfall Channel

Figure 4-1



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Flooding Areas for Alternative 1

- Floods During 10-yr., 25-yr., & 100-yr. Storms
- Floods During 25-yr. & 100-yr. Storms
- Floods During 100-yr. Storm
- Main Outfall Channel

Figure 4-2

Note: Numbers indicate node numbers in the XP-SWMM Model.

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existing condition and there are no impacts to the system within the Town of Surfside.

4.1.3 Estimated Construction Cost

Table 4-3, page 4-6 provides a preliminary construction estimate for Alternative 1.

000592

TABLE 4-3

ESTIMATED COST
ALTERNATIVE 1

Description	Quantity	Unit	Unit Price	Total
Mobilization	1	LS	$65,000.00	$65,000.00
Existing Channel Improvements	5900	LF	$30.00	$177,000.00
24" RCP	40	LF	$45.00	$1,800.00
36" RCP	44	LF	$50.00	$2,200.00
42" RCP	76	LF	$55.00	$4,180.00
Pavement Repair	1000	SY	$40.00	$40,000.00
Rip Rap	10	TON	$100.00	$1,000.00
Pond Excavation	420,000	CY	$5.00	$2,100,000.00
Seeding	100	ACRE	$800.00	$80,000.00
Clearing/Demolition	80	ACRE	$1,500.00	$120,000.00
SUBTOTAL CONSTRUCTION				$2,591,180.00
CONTINGENCIES & ENGINEERING (15%)				$388,677.00
TOTAL CONSTRUCTION COST				$2,979,857.00
LAND ACQUISITION				
Upstream of Glens Bay Road	1	ACRE	$300,000.00	$300,000.00
Upstream of Pine Valley Lane	7	ACRE	$360,000.00	$2,520,000.00
Upstream of Spanish Oaks Drive	28	ACRE	$47,400.00	$1,327,200.00
Upstream of Plantation Drive	20	ACRE	$70,000.00	$1,400,000.00
Upstream of Node 63	2	ACRE	$125,000.00	$250,000.00
Upstream of U.S. 17 Business	15	ACRE	$120,000.00	$1,800,000.00
TOTAL LAND ACQUISITION				$7,597,200.00
TOTAL COST OF ALTERNATIVE 1				$10,600,000.00

000593

4.2 ALTERNATIVE 2

4.2.1 Proposed Improvements

The proposed improvements for this alternative consist of modifications to the existing drainage system throughout the Dogwood Lake Watershed that would allow the runoff generated during a 25-year storm to be passed through the system to the Atlantic Ocean. These modifications would include increasing the pipe sizes at several locations, including the pipes under U.S. Route 17 Business, as well as modifying the outlet structures at Lake Elizabeth and Dogwood Lake.

Table 4-4 lists the pipes that would be modified or added for the improvements in Alternative 2.

TABLE 4-4

ADDITIONAL PIPE REPLACEMENTS FOR ALTERNATIVE 2

Location	Existing Culvert Size (inches)	Proposed Culvert Size (inches)	Proposed U.S. Invert (feet)	Proposed D.S. Invert (feet)
Stub into Junction Box Upstream of Frontage Road	48	72	15.3	14.8
Frontage Road	48	72	14.8	13.3
U.S. Highway 17 Southbound	48	72	13.3	11.6
U.S. Highway 17 Northbound	48	72	11.6	9.9
Cedar Lane	54	2 - 54	5.4	5.2

Note: These pipe replacements are in addition to those described in Table 4-1.

The modifications required for the outlet structures at Lake Elizabeth and Dogwood Lake would include the following:

- Adding a 4-foot by 5-foot inlet box similar to the existing structure at Lake Elizabeth;
- Adding a second pipe under Cedar Lane; and,
- Modifying the weir at Dogwood Lake from 50 feet to an effective length of 200 feet.

The final design of the weirs at each lake will be set so that the additional flow will be passed through the lake without increasing the existing water surface elevations for the design storm events.

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4.2.2 Results of Analysis

An XP-SWMM model was created to include the proposed improvements for Alternative 2. Portions of the XP-SWMM output for this model are included in Appendix D. Figure 4-3 indicates the number of flooding sites that result with the Alternative 2 modifications in place. Although the number of flooded areas are more than with Alternative 1, there is still a significant improvement over the existing condition.

4.2.3 Estimated Construction Cost

A preliminary estimate of the construction cost for Alternative 2 is provided in Table 4-5, page 4-10.

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Flooding Areas for Alternative 2

- Floods During 10-yr., 25-yr., & 100-yr. Storms
- Floods During 25-yr. & 100-yr. Storms
- Floods During 100-yr. Storm
- Main Outfall Channel

Figure 4-3

Note: Numbers indicate node numbers in the XP-SWMM Model.

000596

TABLE 4-5

ESTIMATED COST
ALTERNATIVE 2

Description	Quantity	Unit	Unit Price	Total
Mobilization	1	LS	$30,000.00	$30,000.00
Existing Channel Improvements	5900	LF	$30.00	$177,000.00
24" RCP	40	LF	$45.00	$1,800.00
36" RCP	44	LF	$50.00	$2,200.00
42" RCP	76	LF	$55.00	$4,180.00
72" RCP	228	LF	$2000.00	$456,000.00
Pavement Repair	1000	SY	$40.00	$40,000.00
Rip Rap	10	TON	$100.00	$1,000.00
Pond Excavation	16,000	CY	$5.00	$80,000.00
Seeding	10	ACRE	$800.00	$8,000.00
Clearing/Demolition	5	ACRE	$1,300.00	$6,500.00
Lake Elizabeth Weir	1	LS	$70,000.00	$70,000.00
Dogwood Lake Weir	1	LS	$250,000.00	$250,000.00
SUBTOTAL CONSTRUCTION				$1,126,680.00
CONTINGENCIES & ENGINEERING (15%)				$169,002.00
TOTAL CONSTRUCTION COST				$1,295,682.00
LAND ACQUISITION				
Upstream of Glens Bay Road	1	ACRE	$300,000.00	$300,000.00
TOTAL LAND ACQUISITION				$300,000.00
TOTAL COST OF ALTERNATIVE 2				$1,600,000.00

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4.3 ALTERNATIVE 3

4.3.1 Proposed Improvements

Alternative 3 consists of a combination of providing storage upstream of U.S. Route 17 Business, increasing pipe sizes at several locations, and modifying the outlet structures at Lake Elizabeth and Dogwood Lake. Table 4-6 lists the locations where detention is proposed and the amount of storage required.

TABLE 4-6

PROPOSED POND LOCATIONS
ALTERNATIVE 3

Location	Minimum Storage Required (Acre-feet)	Land Availability
Spanish Oaks Drive	69	Land is currently being developed.
Pine Valley Lane	7	This area is fully developed and would require acquisition of a developed parcel(s).
Glens Bay Road	3	This area is fully developed and would require acquisition of a developed parcel(s).
Plantation Drive	122	There is some area available on the existing golf course and within the residential subdivision.
U.S. 17 Business Frontage Road	6	Small undeveloped area adjacent to a small existing pond. Also, two vacant residential lots behind the shopping center and approximately 14 acres to the right of the shopping center. Storage within a pipe system could be placed under the existing shopping center parking lot.

In addition to the storage listed above, the pipes given in Table 4-7 would be modified or added for the improvements in Alternative 3.

000598

TABLE 4-7

ADDITIONAL PIPE REPLACEMENTS FOR ALTERNATIVE 3

Location	Existing Culvert Size (inches)	Proposed Culvert Size (inches)	Proposed U.S. Invert (feet)	Proposed D.S. Invert (feet)
Stub into Junction Box Upstream of Frontage Road	48	72	15.3	14.8
Frontage Road	48	72	14.8	13.3
U.S. Highway 17 Southbound	48	72	13.3	11.6
U.S. Highway 17 Northbound	48	72	11.6	9.9
Cedar Lane	54	2 - 54	5.4	5.2

Note: These pipe replacements are in addition to those described in Table 4-1.

Similar to Alternative 2, this alternative requires the following modifications to the outlet structures at Lake Elizabeth and Dogwood Lake:

- Adding a 4-foot by 5-foot inlet box similar to the existing structure at Lake Elizabeth;
- Adding a second pipe under Cedar Lane; and,
- Modifying the weir at Dogwood Lake from 50 feet to an effective length of 200 feet.

As in Alternative 2, the final design of the weirs at each lake will be set so that the additional flow will be passed through the lake without increasing the existing water surface elevations for the design storm events.

4.3.2 Results of Analysis

An XP-SWMM model was created to include the proposed improvements for Alternative 3. Portions of the XP-SWMM output for this model are included in Appendix E. Figure 4-4 indicates the number of flooding sites that result with the Alternative 3 modifications in place.

4.3.3 Estimated Construction Cost

A preliminary estimate of the construction cost for Alternative 3 is provided in Table 4-8, page 4-14. Alternative 3 can be broken into two phases, Phase I being those improvements downstream of U.S. 17 Business and Phase II being the



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Flooding Areas for Alternative 3

- Floods During 10-yr., 25-yr., & 100-yr. Storms
- Floods During 25-yr. & 100-yr. Storms
- Floods During 100-yr. Storm
- Main Outfall Channel

Figure 4-4

Note: Numbers indicate node numbers in the XP-SWMM Model.

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TABLE 4-8

ESTIMATED COST
ALTERNATIVE 3

Description	Quantity	Unit	Unit Price	Total
Mobilization	1	LS	$75,000.00	$75,000.00
Existing Channel Improvements	5900	LF	$30.00	$177,000.00
24" RCP	40	LF	$45.00	$1,800.00
36" RCP	44	LF	$50.00	$2,200.00
42" RCP	76	LF	$55.00	$4,180.00
72" RCP	228	LF	$1,250.00	$285,000.00
Pavement Repair	1000	SY	$40.00	$40,000.00
Rip Rap	10	TON	$100.00	$1,000.00
Pond Excavation	350,000	CY	$5.00	$1,750,000.00
Seeding	60	ACRE	$800.00	$48,000.00
Clearing/Demolition	55	ACRE	$1,500.00	$82,500.00
Timber Bulkhead	500	LF	$160.00	$80,000.00
Sluice Gate at Lake Elizabeth Weir	1	LS	$25,000.00	$25,000.00
Lake Elizabeth Weir	1	LS	$70,000.00	$70,000.00
Sluice Gate at Dogwood Lake Weir	1	LS	$25,000.00	$25,000.00
Dogwood Lake Weir	1	LS	$250,000.00	$250,000.00
SUBTOTAL CONSTRUCTION				$2,916,680.00
CONTINGENCIES & ENGINEERING (15%)				$437,502.00
TOTAL CONSTRUCTION COST				$3,354,182.00
LAND ACQUISITION				
Upstream of Glens Bay Road	1	ACRE	$300,000.00	$300,000.00
Upstream of Pine Valley Lane	2.5	ACRE	$360,000.00	$900,000.00
Upstream of Spanish Oaks Drive	23	ACRE	$47,400.00	$1,090,200.00
Upstream of Plantation Drive	27	ACRE	$70,000.00	$1,890,000.00
Upstream of U.S. 17 Business	1	ACRE	$120,000.00	$120,000.00
TOTAL LAND ACQUISITION				$4,300,200.00
TOTAL COST OF ALTERNATIVE 3				$7,654,382.00

remaining improvements recommended in Alternative 3. Preliminary construction cost estimates for Phase I and Phase II are provided in Table 4-8a, page 4-15 and Table 4-8b, page 4-16.

TABLE 4-8a

ESTIMATED COST
ALTERNATIVE 3 – PHASE I

Location	Quantity	Unit	Unit Price	Total
Mobilization	1	LS	$40,000.00	$40,000.00
Sluice Gate Lake Elizabeth Weir	1	LS	$25,000.00	$25,000.00
Sluice Gate at Dogwood Lake Weir	1	LS	$25,000.00	$25,000.00
Timber Bulkhead	500	LF	$160.00	$80,000.00
72" RCP	228	LF	$1,250.00	$285,000.00
Lake Elizabeth Weir	1	LS	$70,000.00	$70,000.00
Dogwood Lake Weir	1	LS	$250,000.00	$250,000.00
SUBTOTAL CONSTRUCTION				$775,000.00
CONTINGENCIES & ENGINEERING (15%)				$116,250.00
TOTAL CONSTRUCTION COST				$891,250.00
TOTAL COST OF ALTERNATIVE 3 – PHASE I				**$891,250.00**

TABLE 4-8b

ESTIMATED COST
ALTERNATIVE 3 – PHASE II

Location	Quantity	Unit	Unit Price	Total
UPSTREAM OF U.S. 17 BUSINESS				
Mobilization	1	LS	$20,000.00	$20,000.00
Existing Channel Improvements	5,900	LF	$30.00	$177,000.00
Pond Excavation	16,000	CY	$5.00	$80,000.00
Seeding	10	ACRE	$800.00	$8,000.00
Clearing/Demolition	5	ACRE	$1,500.00	$7,500.00
24" RCP	40	LF	$45.00	$1,800.00
36" RCP	44	LF	$50.00	$2,200.00
42" RCP	76	LF	$55.00	$4,180.00
Pavement Repair	1,000	SY	$40.00	$40,000.00
Rip Rap	10	TON	$100.00	$1,000.00
SUBTOTAL CONSTRUCTION				$341,680.00
CONTINGENCIES & ENGINEERING (15%)				$51,252.00
TOTAL CONSTRUCTION COST				$392,932.00
TOTAL COST OF ALTERNATIVE 3 – PHASE II				$692,932.00

000603

TABLE 4-8c

ESTIMATED COST
ALTERNATIVE 3 – PHASE III

Location	Quantity	Unit	Unit Price	Total
UPSTREAM OF U.S. 17 BUSINESS				
Mobilization	1	LS	$20,000.00	$20,000.00
Existing Channel Improvements	5,900	LF	$30.00	$177,000.00
Pond Excavation	16,000	CY	$5.00	$80,000.00
Seeding	10	ACRE	$800.00	$8,000.00
Clearing/Demolition	5	ACRE	$1,500.00	$7,500.00
SUBTOTAL CONSTRUCTION				$1,840,000.00
CONTINGENCIES & ENGINEER (15%)				$276,000.00
TOTAL CONSTRUCTION COST				$2,116,000.00
LAND ACQUISITION				
Upstream of Pine Valley Lane	3	ACRE	$360,000.00	$900,000.00
Upstream of Spanish Oaks Drive	23	ACRE	$47,400.00	$1,090,200.00
Upstream of Plantation Drive	27	ACRE	$70,000.00	$1,890,000.00
Upstream of U.S. 17 Business	1	ACRE	$120,000.00	$120,000.00
TOTAL LAND ACQUISITION				$4,000,200.00
TOTAL COST OF ALTERNATIVE 3 – PHASE III				$6,116,200.00

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Section 5.0
CONCLUSION

Three alternative solutions for alleviating flooding within the Caropines and Deerfield Subdivisions have been presented in this Drainage Study Report. In summary, Alternative 1 proposes various detention locations upstream of U.S. Route 17 Business. Alternative 2 involves upgrading and replacing several pipes as well as modifying the outlet structures at Lake Elizabeth and Dogwood Lake to pass the additional flow conveyed from upstream. Alternative 3 combines the use of detention ponds upstream of U.S. Route 17 Business, upgrading and replacing several pipes, and modifying the outlet structures at Lake Elizabeth and Dogwood Lake. All three alternatives provide flooding relief in varying degrees. However, Alternative 3 provides the most relief during the 25-year storm.

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APPENDIX A

000606

TOWN OF SURFSIDE BEACH

STORMWATER MANAGEMENT STUDY

FINAL REPORT

Town of Surfside Beach, South Carolina

December, 1985

PROCTOR-DAVIS-RAY ENGINEERS
P.O. Box 1684, Eagles Nest Plaza
North Myrtle Beach, South Carolina 29598

000607

TABLE OF CONTENTS

		PAGE NO.
SECTION I	EXECUTIVE SUMMARY	I-1
SECTION II	INTRODUCTION AND METHODOLOGY	II-1
SECTION III	EXISTING DRAINAGE FACILITIES	III-1
	A. Introduction	III-1
	B. Inventory Results	III-1
	C. Deficiencies	III-1
SECTION IV	SOILS SURVEY	IV-1
	A. Introduction	IV-1
	B. SCS Soil Survey Classification	IV-1
	C. Surfside Soils & Descriptions	IV-2
	D. Engineering Properties	IV-6
	E. Physical Properties	IV-9
	F. Soil & Water Features	IV-11
SECTION V	RUNOFF QUANTIFICATION & DELINEATION OF BASINS	V-1
	A. Introduction	V-1
	B. ILLUDAS	V-1
	C. Basin Data	V-1
	D. Runoff Rates	V-3
SECTION VI	ALTERNATIVE ANALYSIS	VI-1
	A. Introduction	VI-1

TABLE OF CONTENTS (Continued)

B. Melody Lane Basin.....VI-4

C. Magnolia Lake Basin.....VI-6

D. Floral Lake Basin.....VI-8

E. Myrtle Lake Basin.....VI-10

F. Deerfield and Caropines Basin.....VI-13

G. Dogwood Lake Basin.....VI-16

H. Summary.....VI-22

SECTION VII PRIORITIZATION PLAN.....VII-1

SECTION VIII IMPLEMENTATION PLAN.....VIII-1

A. Implementation Plan.....VIII-1

B. Financing Plan.....VIII-1

SECTION IX CONCLUSIONS & RECOMMENDATIONS.....IX-1

A. Conclusions.....IX-1

B. Recommendations.....IX-2

SECTION X APPENDIX.....X-1

SECTION I

EXECUTIVE SUMMARY

I. OBJECTIVES AND SCOPE

The Stormwater Management Study was commissioned through a cooperative effort of the Town of Surfside Beach and Horry County. The primary objective of this Study is to provide a comprehensive, rational master drainage plan for programming needed improvements to the existing drainage systems while making maximum use of the existing man-made and natural systems.

The Study includes all incoporated areas within the town limits of Surfside Beach (965 acres) as well as the unincorporated areas of Horry County contributing stormwater to the Surfside Beach drainage system. These areas outside the town limits (885 acres) include Caropines Subdivision and a portion of the Deerfield Plantation. The total drainage area included in the Study is approximately 1850 acres.

The scope of work included in this Study includes two phases of a comprehensive multi-phased Stormwater Management Program. This phased program (Figure I-1) assures the orderly development and construction of the drainage system improvements necessary to mitigate the effects of flooding generrated by increase urbanization of the watershed area.

A brief description of each phase of this Program follows:

Phase I - Topographic Maps
Utilizing aerial photgraphy flown by Santee Cooper Electric Cooperative in 1982, topographic maps were generated for the entire watershed area included in the study. These maps illstrate all promineent natural and man-made features at a scale of 1 inch = 100 feet, and a contour interval of 2 feet.

Phase II - Evaluation of Existing Drainage Facilities
This phase includes the delineation of the contributing watershed areas, and inventory of the existing drainage facilitites, computation of runoff rates, and identification of the major drainage problems.

Phase III - Analysis of Alternative Solutions
An evaluation was made of various strategies for improving the existing drainage system to reduce and control the drainage problems identified in each basin. Each strategy was evaluated on the basis of cost-effectiveness, performance of intended function, and disturbance to the environment of the area. A recommended strategy was selected for each basin, and an implementation plan was formulated for subsequent construction based on the severity of the drainage problem.

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STORMWATER MANAGEMENT PROGRAM
SURFSIDE BEACH, S.C.

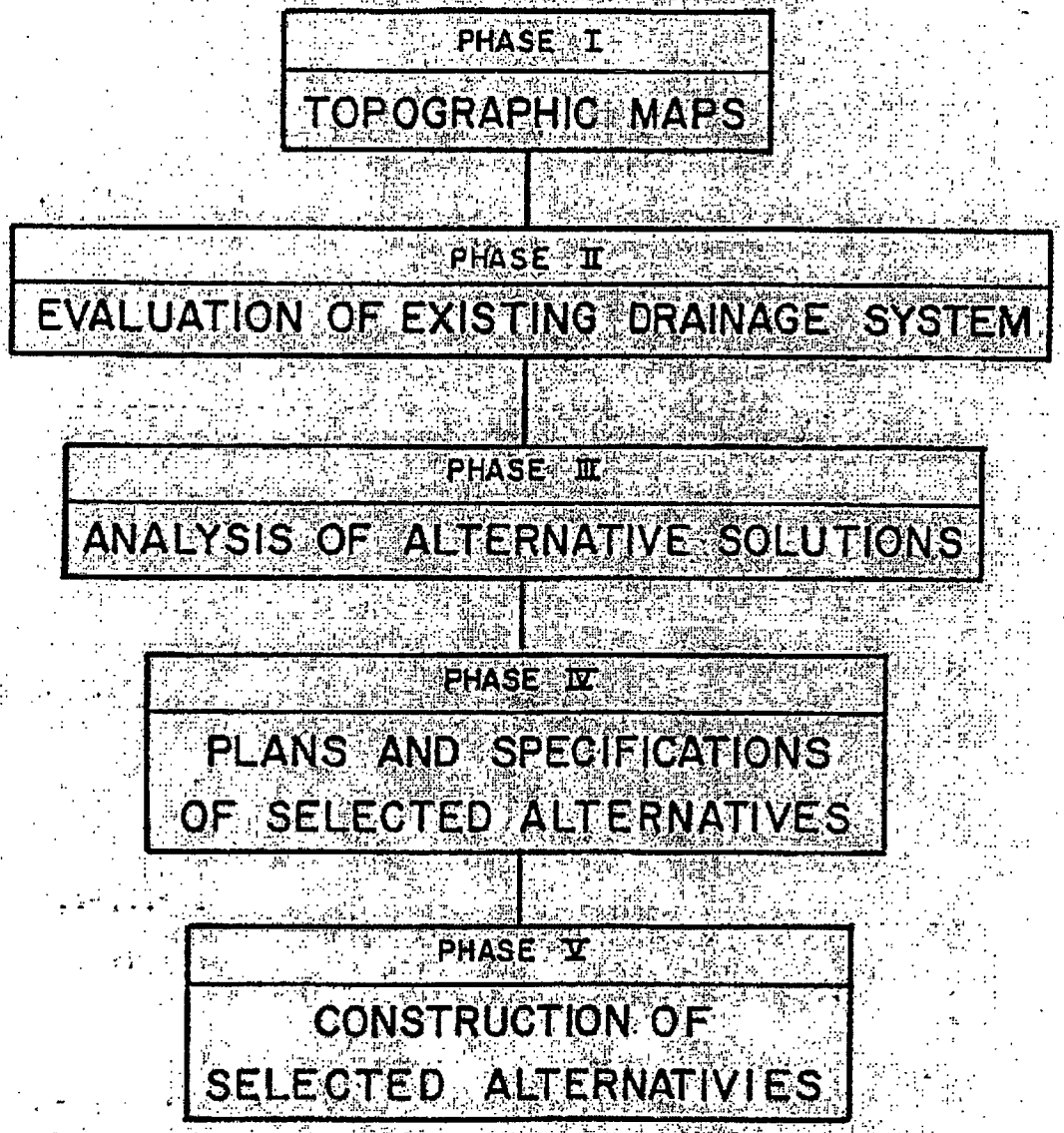


FIGURE I-1

Phase IV - Preparation of Construction Plans

This phase will include the preparation of plans, specifications, and regulatory permits necessary for the construction of the selected drainage improvements. This work will follow the implementation plan recommended in Phase III and be accomplished on a priority basis.

Phase V - Construction of Drainage Improvements

The construction of the various components of the drainage system will commence upon final approval of plans and permits, and availability of funding.

The Study contained within includes the accomplishment of Phases II and III of the overall Program. These phases are concerned with identification of the drainage problems and deficiencies, and formulates specific cost-effective solutions to those problems. The methodology and results of these phases are discussed and summarized in the following paragraphs.

II. PHASE II - EVALUATION OF EXISTING DRAINAGE FACILITIES

A. Delineation of Watershed Areas

Utilizing the 1" = 100' scale topographic maps, photographic reproductions were made and compiled into five base maps of 1" = 200' scale. These maps were used to determine the extent of the watershed area contributing runoff to the study area. As shown on Figure I-2, the study area extends beyond the limits of Surfside Beach to include approximately 885 acres of land in the county as well as the 965 acres within the town limits.

The study areas was then further divided into six drainage basin areas for more extensive evaluation. Each basin was identified according to a prominent feature contained within the basin boundaries. The basins delineated on the base maps include: Magnolia Lake, Myrtle Lake, Dogwood Lake, Floral Lake, Melody Lane, and Deerfield/Caropines.

B. Soil Survey

Soil type and characteristics are essential for quantifying stormwater and evaluating alternative strategies for drainage improvements. Because of these important considerations, soil maps were obtained from the Soil Conservation Service (SCS) district office in Conway for use in this Study. This data included the location and identification of the soil type as well as the physical and engineering characteristics of each soil. The soil characteristics aid in determining the behavior of soils, particularly the soils ability to absorb stormwater. Based on this ability (permeability), soils are classified as being in soil group A, B, C, or D. 'A' soils are typically sandy soils

000612

and have a great permeability, thus generate small amounts of runoff. 'D' soils, conversely, are typically mucky or clayey soils, aborb very little stormwater, and produce greater amounts of runoff to be carried by the drainage system.

C. Existing Drainage Facilities

An inventory of all major drainage facilities was completed within each basin area. The drainage facilities included pipes, culverts, catch basins, and ditches. The size and location of the facilities are shown on the base maps and coded numerically for easy identification of pipe material, length, invert elevation, and hydraulic capacity.

The inventory results reveal that all the basins contain pipes that are either postioned on adverse slopes (in an uphill direction) or are partially or completely buried. As shown in Table I-1 below, approximately one-half of the pipes in the Melody Lane basin are on adverse slopes or are buried. In the Floral Lake and Deerfield/Caropines basins, approximately one-fourth of the total pipes surveyed are in the same condition. Overall, twenty percent of the more than 400 pipes inventoried are either on an uphill grade, or partially or completley buried. This fact alone helps to explain the widespread drainge problems exhibited during even minor storm events.

D. Quantification of Runoff

Utilizing the Illinois Urban Drainage Area Simulator, known as the ILLUDAS computer model, peak runoff rates were computed for each drainage basin using the 25-year design storm event (7.6 inches rain in 24 hours). The ILLUDAS program was specifically designed for use in urban areas and requires the input of a significant amount of watershed characteristics. Such characteristics include soils type, % impervious area, % connected impervious area, % pervious area, basin slope and length, and total basin area. This data was determined for each small division of area, or sub-basin, in each drainage basin. Such sub-basins are frequently as small as a city block in size.

ILLUDAS computes the peak runoff rates at each major drainage facility, and compares this runoff rate with the computed capacity of each pipe, culvert, or ditch. If the facility is inadequate for the calculated runoff rate, the model will note this inadequacy and determine a new pipe size adequate to handle the peak flow rate.

A summary of inadequate pipes is shown below in Table I-2 for each drainage basin based on the 25-year design storm event. (Peak runoff rates for each drainage facility can be found in Table A-4, Appendix.) It is evident from this data that the existing drainage facilities are woefully inadequate to handle the design storm. Overall, the drainage facilities within the study area are capacity-limited to handle only the 2 to 5 year design storm event.

000613

TABLE I-1

SUMMARY OF PIPES IN EACH BASIN

BASIN AREA	PIPE DATA				
	TOTAL PIPES SURVEYED	NO. ON ADVERSE SLOPE*	% ON ADVERSE SLOPE	NO. OF BURIED PIPES**	% OF BURIED PIPES
DOGWOOD LAKE	53	1	1.9	7	13.2
DEERFIELD & CAROPINES	49	5	10.2	6	12.2
MYRTLE LAKE	153	14	9.2	14	9.2
SUBTOTAL	255	20	7.8	27	10.6
MAGNOLIA LAKE	58	3	5.2	6	10.3
FLORAL LAKE	105	22	20.9	3	2.9
MELODY LANE	19	4	21.1	4	21.1
TOTALS	437	49	11.2	40	9.2

* ADVERSE SLOPE - refers to pipe on flat or uphill slope.
** BURIED PIPES - either fully or partially buried.

000614

TABLE I-2

BASIN DATA

BASIN	AREA (ACRES)	IMPERVIOUS (%)*	SLOPE (%)	SOIL TYPE				
				% A	% B	% C	% D	% B/D
DOGWOOD LAKE	173.5	15.9	1.0	69.0	4.6	0	2.2	24.2
DEERFIELD & CAROPINES	882.7	7.7	1.0	2.6	17.7	0	30.0	49.7
MAGNOLIA LAKE	112.5	12.6	1.0	81.3	0.0	0	11.2	7.5
MYRTLE LAKE	327.2	23.2	1.0	49.1	4.7	0	15.3	30.9
FLORAL LAKE	244.2	11.4	2.0	35.1	2.5	0	17.0	45.4
MELODY LANE	107.7	11.0	2.0	29.1	27.3	0	0.0	43.6
TOTAL	1847.8							

* IMPERVIOUS - refers to present land use conditions.

000615

F. DEERFIELD & CAROPINES BASIN

Background

The Deerfield and Caropines Basin lies outside the Town limits of Surfside Beach, west of Highway 17, and is under the jurisdiction of Horry County. It is the largest contributing basin in the Surfside Beach study area, containing approximately 900 acres. The basin includes the Caropines Subdivision south of Glens Bay Road, and the Deerfield Plantation development north of Glens Bay Road extending to Platt Drive. Over 75% of soils in this basin are poorly drained and have a high runoff potential. The area contains very flat slopes and mostly residential development. Land use along Highway 17 is predominantly commercial.

The existing drainage system in the basin consists mostly of open drainage ditches and connecting roadway pipes. A large channel extending through the Caropines Subdivision and Deerfield Plantation serves as the major collection system for the area. The major channel discharges via a 48-inch pipe adjacent to the 31-Lo Shopping Center where it discharges into Lake Elizabeth, located in the Dogwood Lake Basin. The pipe only has a fraction of the capacity needed for the 25-year storm event. As a result, during heavy rains, water backs up in the channel, flooding areas of Caropines Subdivision and Deerfield Plantation. The drainage pipes located upstream in the developments are also undersized and cannot handle storms that exceed the two year event. Approximately 80% of the major pipes in the basin are undersized for both the 10- and 25-year storm events. The problem is compounded by almost one-fourth of the total pipes surveyed containing either buried inverts or having adverse (uphill) slopes.

The lack of ditch maintenance drastically reduces the effectiveness of the drainage system. Maintenance in both the Deerfield Plantation and Caropines Subdivision is county regulated. In some areas channels are overgrown with vegetation and contain steep side slopes. The steep side slopes are prone to erosion and make maintenance difficult and costly. The overgrowth decreases the capacity of the ditch to convey stormwater. The poor soils in the area add to the complication with low infiltration rates and by sustaining a wet and mucky environment.

Alternative Analysis

Alternative 1

Drainage improvements proposed for the Deerfield and Caropines Basin include upgrading pipes and channel sections to handle the 25-year storm event. A 20 x 5-foot box culvert is required under Highway 17 to carry the 25-year flows. A 16 x 4-

000616

foot box culvert is required under Glens Bay Road. Channel improvements are recommended along the primary drainage route. Additional easements would not be required to maintain the channel. It is recommended that improvements to the Deerfield and Caropines developments be made only in conjunction with improvements in the Dogwood Lake and Myrtle Lake Basins. If larger sized pipes are installed in the upstream areas without similar improvements downstream, severe flooding will occur. Close coordination between the Town of Surfside Beach and Horry County is imperative in solving the existing drainage problems in the basin.

Alternative 2

Proposed improvements for Alternative 2 include improvements as recommended in Alternative 1 as well as the addition of a retention/detention area adjacent to Bi-Lo Shopping Center, just east of Plantation Drive. Approximately 5 acres of land at an estimated cost of $40,000 per acre or $200,000 is required to significantly reduce peak runoff rates. With a storage depth of 4-5 feet, flows could be lowered by approximately 200 cubic feet per second (cfs). The benefits of a storage area would reduce proposed facility sizes in the downstream areas of both Dogwood Lake Basin and Myrtle Lake Basin. The retention area would not greatly effect pipe sizes in the Deerfield and Caropines Basin since it is downstream of most improvements. The result of smaller outfalls would mean less runoff would be allowed to discharge to the beach. Although the flows would be significantly lower, the costs of excavation and land acquisition would outweigh any reduction in cost that would be incurred as a result of smaller sized facilities downstream. Proposed culvert sizes at major outlets (ie. Bi-Lo outfall, Lake Elizabeth outfall, Dogwood Lake outfall, Myrtle Lake outfall) would result in a decrease in width of approximately 2 feet if the proposed detention area was utilized.

Selected Alternative

The cost of implementing improvements for Alternative 1 is the most economical solution and, although a new detention area would reduce runoff rates to the beach, the cost of obtaining valuable land in the Deerfield area outweighs any benefits that would be incurred as a result of smaller pipe facilities downstream. This reduction of runoff to the Dogwood Lake and Myrtle Lake Basins would not significantly decrease proposed facility costs to compensate for the cost of an additional detention area. It is also recommended that improvements be

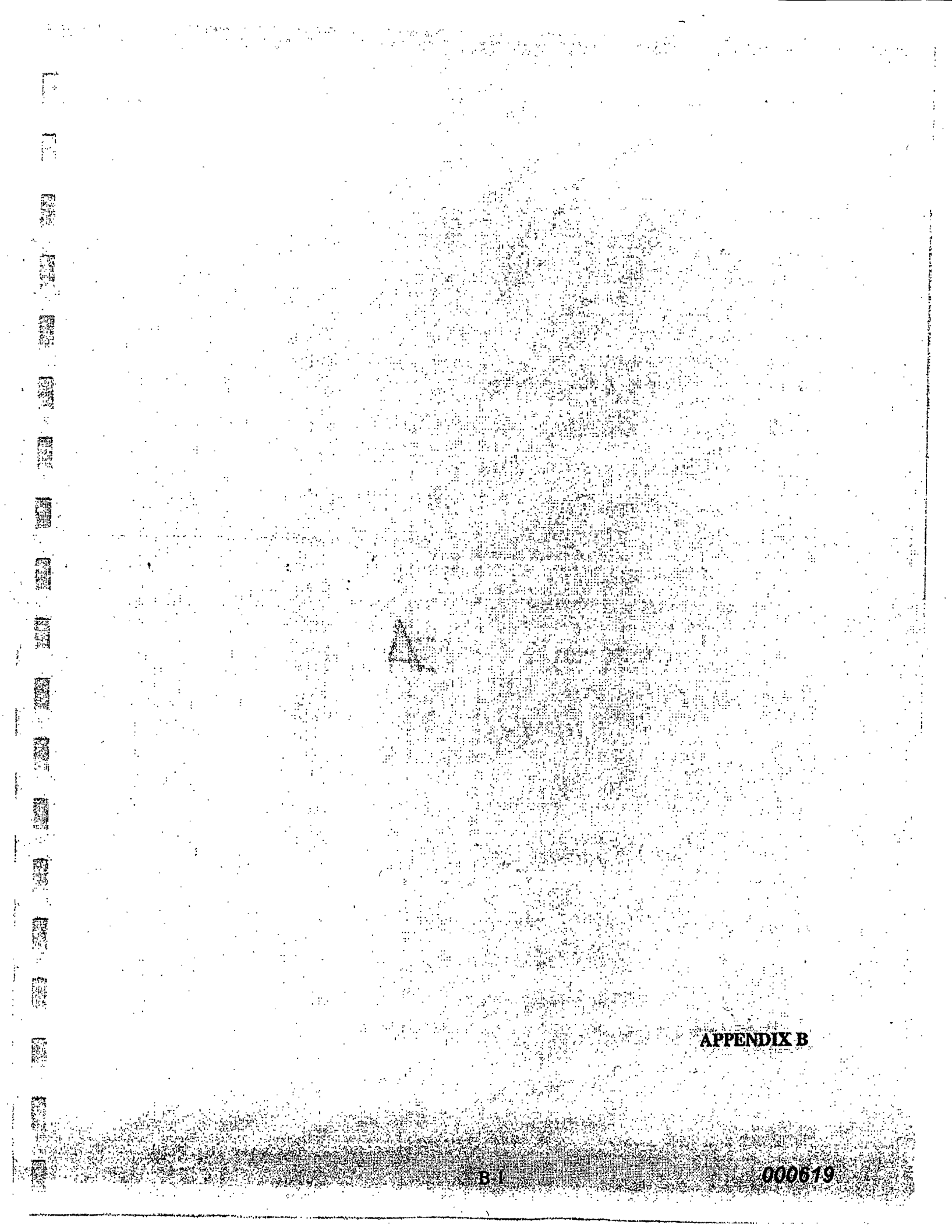
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undertaken only in conjunction with improvements in the Dogwood Lake and Myrtle Lake Basins.

100% Buildout Condition

If the basin develops to a 100% buildout condition, runoff rates will increase 10% for the 10-year storm event and 9% for the 25-year storm event. As a result, proposed improvements would become inadequate in a short period of time. It is imperative that a Stormwater Management Ordinance be extended into these County regulated drainage areas to control runoff rates from new development and minimize drainage improvement costs.

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APPENDIX B

000619

PLANTATION
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Dam SP
Dam SQ
Dam SR
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Dam ST
Dam SU
Dam SV
Dam SW
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Dam SY
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Dam ZY
Dam ZZ

Table B1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	SPANISH	45.00	Circular	7.07	0.01300	3.00	3.00		
3	XS #2	431.00	Natural	89.71	0.03000	45.39	4.95		
4	XS #3	191.00	Natural	91.11	0.03000	45.03	4.93		
5	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
6	INDIAN	42.00	Circular	7.07	0.01300	3.00	3.00		
7	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
8	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
9	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
10	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
11	XS #9	218.00	Natural	201.97	0.03000	59.08	9.84		
12	DRIVEWAY	59.00	Circular	28.27	0.01300	6.00	6.00		
13	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
14	STUB	8.00	Circular	12.57	0.01400	4.00	4.00		
15	FRONTAGE	66.00	Circular	12.57	0.01300	4.00	4.00		
16	HWY 17 S	75.00	Circular	12.57	0.01300	4.00	4.00		
17	HWY 17 N	77.00	Circular	12.57	0.01300	4.00	4.00		
18	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
19	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
20	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
21	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
22	61	350.00	Natural	49.50	0.03000	50.00	3.50		
23	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
24	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.90		
25	PINE	40.00	Circular	3.14	0.01300	2.00	2.00		
26	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
27	80	150.00	Natural	18.00	0.03000	39.00	2.50		
28	Ex 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
29	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
30	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
31	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan A	270.00	Natural	54.55	0.05000	23.95	4.90		
33	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
34	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
35	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
36	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
37	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
38	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
39	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
40	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
41	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
42	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00	1.00	1.00
43	36" PIPE	104.00	Circular	7.07	0.01400	3.00	3.00		
44	48" PIPE	58.00	Circular	12.57	0.01400	4.00	4.00		
45	42" RCP	61.00	Circular	9.62	0.01300	3.50	3.50		
46	24" RCP	61.00	Circular	3.14	0.01300	2.00	2.00		
47	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
48	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14769.0000 feet

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#########################################################
# Table E16. New Conduit Information Section            #
#            Conduit Invert (IE) Elevation and Conduit  #
#            Maximum Water Surface (WS) Elevations      #
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Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	26.05	26.10	Natural
SPANISH	4	2	18.53	18.41	26.00	26.10	Circular
XS #2	4	6	20.50	20.40	26.00	26.00	Natural
XS #3	6	63	20.40	20.40	26.00	26.01	Natural
XS #4	8	15	20.40	19.10	26.02	24.02	Natural
INDIAN	15	17	19.10	18.70	26.02	26.28	Circular
XS #5	19	17	19.40	18.70	26.28	26.28	Natural
XS #6	19	21	19.40	17.90	26.28	26.29	Natural
XS #7	23	25	17.50	17.20	24.73	24.62	Natural
XS #8	25	27	17.20	15.60	24.62	24.60	Natural
XS #9	30	27	16.20	15.60	24.58	24.60	Natural
DRIVEWAY	32	30	16.30	16.20	23.41	24.58	Circular
XS #10	32	34	16.30	15.30	23.41	23.39	Natural
STUB	BOX #1	34	16.00	15.30	30.34	23.39	Circular
FRONTAGE	BOX #1	BOX #3	16.90	16.70	30.34	22.00	Circular
HWY 17 S	BOX #3	BOX #4	16.00	15.60	22.00	21.02	Circular
HWY 17 N	BOX #4	Merge	15.13	11.43	21.03	20.06	Circular
PARKINGLOT	48	45	9.930	9.120	13.42	13.53	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	11.75	11.42	Circular
SOUTH BAY	72	54	21.60	20.60	25.54	25.53	Natural
58	1	54	21.10	20.60	26.05	25.53	Natural
61	56	55	22.50	22.10	26.78	26.45	Natural
62	55	1	22.10	21.10	26.45	26.05	Natural
XS #3a	63	8	20.40	20.40	26.01	26.02	Natural
PINE	68	64	20.96	20.41	26.20	25.99	Circular
XS MALLARD	64	63	20.41	20.40	25.99	26.01	Natural
80	78	68	21.50	20.96	24.41	26.20	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.220	9.229	7.909	Circular
Clvt 10	44b	Dgwood Lk	4.230	5.420	7.900	7.909	Rectangle
Palmto Lk	44b	46b	6.230	5.460	7.900	7.859	Natural
Clvt 7	46b	48b	5.460	5.170	7.859	7.791	Circular
Chan A	48b	50b	5.510	5.170	7.791	7.526	Natural
Clvt 6	50b	52b	5.510	5.350	7.526	7.401	Circular
Chan B	52b	54b	5.350	4.520	7.401	7.117	Natural
Clvt 5	54b	56b	4.520	4.380	7.117	7.054	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	5.802	7.054	Natural
Chan D	Holly Lk	63b	4.750	4.330	6.031	5.980	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	5.980	5.907	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	5.907	5.802	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	4.417	3.980	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	5.917	4.268	Rectangle
12"	27	123	15.60	15.30	24.60	24.61	Trapezoid
36" PIPE	14	BOX #2	16.50	16.22	23.39	22.10	Circular
48" PIPE	BOX #3	BOX #2	16.06	15.84	22.00	22.10	Circular
42" RCP	21	23	17.90	17.50	26.29	24.73	Circular
24" RCP	21	23	18.60	18.60	26.29	24.73	Circular
36" RCP	125	123	16.82	16.78	24.81	24.61	Circular
48" RCP	125	123	15.50	15.30	24.81	24.61	Circular
ORF # 1	Merge	45	9.120	9.110	20.06	13.53	Circ Orif

Table E20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts.
The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time (min)	Out of System Flooded Volume	Maximum Volume	Stored in System - Ponding Allowed Flood Pond Volume
1	48.1389	48.1944	0.0000	1197.7532	0.0000
2	0.0000	0.0000	0.0000	96.6656	0.0000
4	325.3889	0.0000	0.0000	93.8739	0.0000
6	336.3194	65.3472	24980.5194	70.3696	0.0000
8	0.0000	14.3056	981.2526	70.6209	0.0000
15	179.5833	179.6389	0.0000	1792.2591	0.0000
17	166.7778	166.8056	0.0000	6175.8841	0.0000
19	0.0000	0.0000	0.0000	86.4934	0.0000
21	142.2083	142.2083	0.0000	3954.8299	0.0000
23	0.0000	0.0000	0.0000	90.9137	0.0000
25	0.0000	0.0000	0.0000	93.2182	0.0000
27	0.0000	0.0000	0.0000	142159.849	0.0000
30	0.0000	0.0000	0.0000	105.3327	0.0000
32	0.0000	0.0000	0.0000	89.3311	0.0000
34	969.9653	969.9653	0.0000	21398.7417	0.0000
BOX #1	1194.828	982.0586	0.0000	180.2426	3608.4211
BOX #3	1059.952	1060.018	0.0000	5127.3240	0.0000
BOX #4	373.0670	373.2323	0.0000	1121.4121	0.0000
45	0.0000	0.0000	0.0000	55.4816	0.0000
48	0.0000	0.0000	0.0000	48.0167	0.0000
52	0.0000	0.0000	0.0000	1649554.917	0.0000
54	1480.381	1480.381	0.0000	99153.6205	0.0000
55	900.0881	900.1000	0.0000	63577.3842	0.0000
56	859.1571	859.1571	0.0000	45780.0789	0.0000
63	334.7758	334.7758	0.0000	27785.7755	0.0000
64	274.9167	274.9306	0.0000	4551.3282	0.0000
68	146.2639	146.2778	0.0000	13071.1924	0.0000
72	0.0000	0.0000	0.0000	49.4582	0.0000
76	0.0000	704.9028	872951.3554	563013.012	0.0000
78	1014.556	1014.569	0.0000	7341.6989	0.0000
Merge	1683.500	1683.500	0.0000	214917.066	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	2499145.338	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2589888.609	0.0000
38b	0.0000	0.0000	0.0000	21.5759	0.0000
44b	0.0000	0.0000	0.0000	20.9903	0.0000
46b	0.0000	0.0000	0.0000	30.1449	0.0000
48b	0.0000	0.0000	0.0000	32.9372	0.0000
50b	0.0000	0.0000	0.0000	29.6102	0.0000
52b	0.0000	0.0000	0.0000	25.7717	0.0000
54b	0.0000	0.0000	0.0000	32.6372	0.0000
56b	0.0000	0.0000	0.0000	33.6009	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	83958.3911	0.0000
60b	0.0000	0.0000	0.0000	23.2031	0.0000
Holly Lk	0.0000	0.0000	0.0000	70063.8903	0.0000
63b	0.0000	0.0000	0.0000	20.7282	0.0000
65b	0.0000	0.0000	0.0000	20.9421	0.0000
69b	0.0000	0.0000	0.0000	18.4724	0.0000
71b	0.0000	0.0000	0.0000	14.6725	0.0000
73b	0.0000	0.0000	0.0000	47.7354	0.0000
123	937.6310	937.6637	0.0000	52022.1418	0.0000
125	946.6637	946.7143	0.0000	143473.295	0.0000
BOX #2	1187.053	1187.081	0.0000	73916.5155	0.0000

Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	SPANISH	45.00	Circular	7.07	0.01300	3.00	3.00		
3	XS #2	431.00	Natural	89.71	0.03000	46.39	4.95		
4	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
5	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
6	INDIAN	42.00	Circular	7.07	0.01300	3.00	3.00		
7	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
8	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
9	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
10	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
11	XS #9	218.00	Natural	201.97	0.03000	59.08	9.84		
12	DRIVEWAY	59.00	Circular	28.27	0.01300	6.00	6.00		
13	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
14	STUB	8.00	Circular	12.57	0.01400	4.00	4.00		
15	FRONTAGE	66.00	Circular	12.57	0.01300	4.00	4.00		
16	HWY 17 S	75.00	Circular	12.57	0.01300	4.00	4.00		
17	HWY 17 N	77.00	Circular	12.57	0.01300	4.00	4.00		
18	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
19	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
20	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
21	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
22	61	350.00	Natural	49.50	0.03000	50.00	3.50		
23	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
24	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.90		
25	PINE	40.00	Circular	3.14	0.01300	2.00	2.00		
26	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
27	80	150.00	Natural	18.00	0.03000	39.00	2.50		
28	Ex 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
29	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
30	Palmto Lk	700.00	Natural	172.00	0.05000	50.00	4.50		
31	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan A	270.00	Natural	54.55	0.05000	23.95	4.90		
33	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
34	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
35	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
36	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
37	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
38	Dak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
39	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
40	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
41	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
42	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00	1.00	1.00
43	36" PIPE	104.00	Circular	7.07	0.01400	3.00	3.00		
44	48" PIPE	58.00	Circular	12.57	0.01400	4.00	4.00		
45	42" RCP	61.00	Circular	9.62	0.01300	3.50	3.50		
46	24" RCP	61.00	Circular	3.14	0.01300	2.00	2.00		
47	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
48	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14769.0000 feet

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#########################################################
# Table E16. New Conduit Information Section            #
#            Conduit Invert (IE) Elevation and Conduit  #
#            Maximum Water Surface (WS) Elevations      #
#########################################################
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Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	26.20	26.33	Natural
SPANISH	4	3	18.53	18.41	26.01	26.33	Circular
XS #2	4	6	20.50	20.40	26.01	26.00	Natural
XS #3	6	63	20.40	20.40	26.00	26.02	Natural
XS #4	8	15	20.40	19.10	26.02	26.03	Natural
INDIAN	15	17	19.10	18.70	26.03	26.43	Circular
XS #5	19	17	19.40	18.70	26.44	26.43	Natural
XS #6	19	21	19.40	17.90	26.44	26.45	Natural
XS #7	23	25	17.50	17.20	24.82	24.68	Natural
XS #8	25	27	17.20	15.60	24.68	24.67	Natural
XS #9	30	27	16.20	15.60	24.65	24.67	Natural
DRIVEWAY	32	30	16.30	16.20	23.52	24.65	Circular
XS #10	32	34	16.30	15.30	23.52	23.50	Natural
STUB	BOX #1	34	16.00	15.30	31.20	23.50	Circular
FRONTAGE	BOX #1	BOX #3	16.90	16.70	31.20	22.04	Circular
HWY 17 S	BOX #3	BOX #4	16.00	15.60	22.04	21.06	Circular
HWY 17 N	BOX #4	Merge	15.13	11.43	21.06	20.10	Circular
PARKINGLOT	48	45	9.930	9.120	13.45	13.56	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	11.88	13.45	Circular
SOUTH BAY	72	54	21.60	20.60	25.60	25.60	Natural
58	1	54	21.10	20.60	26.20	25.60	Natural
61	56	55	22.50	22.10	26.85	26.50	Natural
62	55	1	22.10	21.10	26.50	26.20	Natural
XS #3a	63	8	20.40	20.40	26.02	26.02	Natural
PINE	68	64	20.96	20.41	26.29	26.03	Circular
XS MALLARD	64	63	20.41	20.40	26.03	26.02	Natural
80	78	68	21.50	20.96	24.44	26.29	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.220	9.479	8.056	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.420	8.047	8.056	Rectangle
Palmto Lk	44b	46b	6.230	5.460	8.047	8.007	Natural
Clvt 7	46b	48b	5.460	5.170	8.007	7.931	Circular
Chan A	48b	50b	5.510	5.170	7.931	7.635	Natural
Clvt 6	50b	52b	5.510	5.350	7.635	7.484	Circular
Chan B	52b	54b	5.350	4.520	7.484	7.132	Natural
Clvt 5	54b	56b	4.520	4.380	7.132	7.055	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	6.979	7.055	Natural
Chan D	Holly Lk	63b	4.750	4.330	6.241	6.189	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	6.189	6.096	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	6.096	5.979	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	4.722	4.227	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	6.231	4.459	Rectangle
124	27	123	15.60	15.10	24.67	24.67	Trapezoid
36" PIPE	34	BOX #2	16.50	16.22	23.50	22.14	Circular
48" PIPE	BOX #3	BOX #2	16.06	15.84	22.04	22.14	Circular
42" RCP	21	23	17.90	17.50	26.45	24.82	Circular
24" RCP	21	23	18.60	18.60	26.45	24.82	Circular
36" RCP	125	123	16.82	16.78	24.87	24.67	Circular
48" RCP	125	123	15.50	15.30	24.87	24.67	Circular
ORF # 1	Merge	45	9.120	9.110	20.10	13.56	Circ Orif

PLANTATION DRIVE

Table E20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time, The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts. The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time (min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	201.4325	201.9444	0.0000	2475.2636	0.0000
2	87.1091	87.1230	0.0000	2451.2265	0.0000
4	390.0992	0.0000	0.0000	94.0200	0.0000
6	399.4960	169.6111	228518.4349	70.3696	0.0000
8	0.0000	118.3056	148219.4516	70.6209	0.0000
15	243.2083	243.2500	0.0000	1818.1383	0.0000
17	219.4306	219.4306	0.0000	13236.8119	0.0000
19	0.0000	0.0000	0.0000	88.4998	0.0000
21	204.0595	204.0595	0.0000	8800.0373	0.0000
23	0.0000	0.0000	0.0000	92.0077	0.0000
27	0.0000	0.0000	0.0000	143607.518	0.0000
30	0.0000	0.0000	0.0000	106.1703	0.0000
32	0.0000	0.0000	0.0000	90.7453	0.0000
34	1167.542	1167.556	0.0000	37269.2949	0.0000
BOX #1	1429.406	1191.654	0.0000	191.0355	22945.0901
BOX #3	1295.494	1295.506	0.0000	6301.9915	0.0000
BOX #4	738.1560	738.2983	0.0000	1331.6160	0.0000
45	0.0000	0.0000	0.0000	55.8605	0.0000
48	0.0000	0.0000	0.0000	48.4281	0.0000
52	0.0000	0.0000	0.0000	1686541.879	0.0000
54	1825.155	1825.167	0.0000	137066.099	0.0000
55	1086.145	1086.145	0.0000	81239.4578	0.0000
56	1041.650	1041.650	0.0000	64218.1095	0.0000
63	397.6091	397.6091	0.0000	28773.5713	0.0000
64	336.1786	336.1925	0.0000	5703.5655	0.0000
68	199.0139	199.0139	0.0000	20381.1402	0.0000
72	0.0000	0.0000	0.0000	50.2707	0.0000
76	0.0000	915.0000	1204057.0801	563013.012	0.0000
78	1210.833	1210.847	0.0000	8540.6000	0.0000
Merge	2080.278	2080.278	0.0000	256434.163	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	2555614.681	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2695833.574	0.0000
38b	0.0000	0.0000	0.0000	25.5213	0.0000
44b	0.0000	0.0000	0.0000	22.8324	0.0000
46b	0.0000	0.0000	0.0000	32.0010	0.0000
48b	0.0000	0.0000	0.0000	34.6983	0.0000
50b	0.0000	0.0000	0.0000	30.9770	0.0000
52b	0.0000	0.0000	0.0000	26.8123	0.0000
54b	0.0000	0.0000	0.0000	32.8246	0.0000
56b	0.0000	0.0000	0.0000	33.6102	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	95439.6758	0.0000
60b	0.0000	0.0000	0.0000	27.0483	0.0000
Holly Lk	0.0000	0.0000	0.0000	84765.5676	0.0000
63b	0.0000	0.0000	0.0000	23.3586	0.0000
65b	0.0000	0.0000	0.0000	23.3219	0.0000
69b	0.0000	0.0000	0.0000	21.5710	0.0000
71b	0.0000	0.0000	0.0000	17.0771	0.0000
73b	0.0000	0.0000	0.0000	50.8822	0.0000
123	1135.988	1136.000	0.0000	72092.5712	0.0000
125	1145.268	1145.289	0.0000	195116.428	0.0000
BOX #2	1420.161	1420.161	0.0000	91939.0675	0.0000

Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	SPANISH	45.00	Circular	7.07	0.01300	3.00	3.00		
3	XS #2	431.00	Natural	89.71	0.03000	46.39	4.95		
4	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
5	XS #4	130.00	Natural	99.88	0.03000	52.76	5.62		
6	INDIAN	42.00	Circular	7.07	0.01300	3.00	3.00		
7	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
8	XS #6	586.00	Natural	161.13	0.03000	60.60	6.14		
9	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
10	XS #8	761.00	Natural	173.35	0.03000	51.30	8.77		
11	XS #9	218.00	Natural	201.97	0.03000	59.08	9.84		
12	DRIVEWAY	59.00	Circular	28.27	0.01300	6.00	6.00		
13	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
14	STUB	8.00	Circular	12.57	0.01400	4.00	4.00		
15	FRONTAGE	66.00	Circular	12.57	0.01300	4.00	4.00		
16	HWY 17 S	75.00	Circular	12.57	0.01300	4.00	4.00		
17	HWY 17 N	77.00	Circular	12.57	0.01300	4.00	4.00		
18	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
19	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
20	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
21	58	1490.00	Natural	52.60	0.03000	50.00	3.30		
22	61	350.00	Natural	49.50	0.03000	50.00	3.50		
23	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
24	XS #3a	66.00	Natural	97.00	0.03000	67.00	4.90		
25	PINE	40.00	Circular	3.14	0.01300	2.00	2.00		
26	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
27	80	150.00	Natural	18.00	0.01000	19.00	2.50		
28	Ex 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
29	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
30	Palmto Lk	700.00	Natural	472.00	0.05000	56.00	4.50		
31	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan A	270.00	Natural	54.55	0.05000	21.95	4.90		
33	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
34	Chan B	210.00	Natural	58.15	0.05000	20.00	5.30		
35	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
36	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
37	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	1.25	0.00	0.00
38	Oak Clvt	15.00	Rectangle	24.00	0.01300	8.00	3.00		
39	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
40	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
41	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
42	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00	1.00	1.00
43	36" PIPE	104.00	Circular	7.07	0.01400	3.00	3.00		
44	48" PIPE	58.00	Circular	12.57	0.01400	4.00	4.00		
45	42" RCP	61.00	Circular	9.62	0.01300	3.50	3.50		
46	24" RCP	61.00	Circular	3.14	0.01300	2.00	2.00		
47	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
48	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

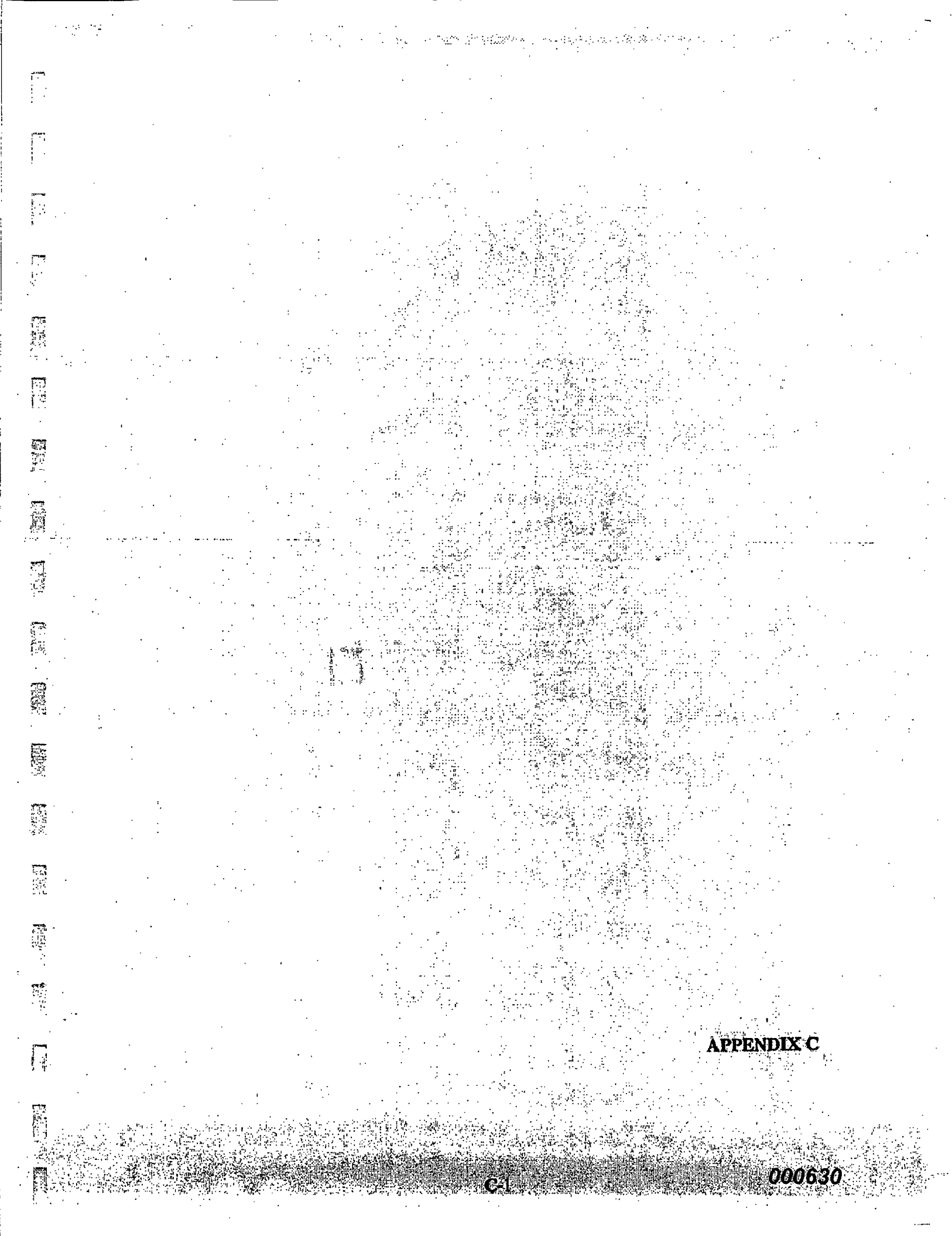
Total length of all conduits .... 14769.0000 feet

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#####################################################
# Table E16. New Conduit Information Section        #
#            Conduit Invert (IE) Elevation and      #
#            Maximum Water Surface (WS) Elevations  #
#####################################################
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Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	26.35	26.53	Natural
SPANISH	4	2	18.53	18.41	26.02	26.53	Circular
XS #2	4	6	20.50	20.40	26.02	26.00	Natural
XS #3	6	63	20.40	20.40	26.00	26.02	Natural
XS #4	8	15	20.40	19.10	26.02	26.03	Natural
INDIAN	15	17	19.10	18.79	26.03	26.54	Circular
XS #5	19	17	19.40	18.70	26.56	26.54	Natural
XS #6	19	21	19.40	17.90	26.56	26.57	Natural
XS #7	23	25	17.50	17.20	24.88	24.73	Natural
XS #8	25	27	17.20	15.60	24.73	24.71	Natural
XS #9	30	27	16.20	15.60	24.69	24.71	Natural
DRIVEWAY	32	30	16.30	16.20	23.57	24.69	Circular
XS #10	32	34	16.30	15.30	23.57	23.55	Natural
STUB	BOX #1	34	16.00	15.30	22.57	23.55	Circular
FRONTAGE	BOX #1	BOX #3	16.90	16.70	22.57	22.08	Circular
HWY 17 S	BOX #3	BOX #4	16.00	15.60	22.08	21.10	Circular
HWY 17 N	BOX #4	Merge	15.13	11.43	21.10	20.13	Circular
PARKINGLOT	48	45	9.930	9.120	13.39	13.49	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	11.96	13.39	Circular
SOUTH BAY	72	54	21.60	20.60	25.61	25.61	Natural
58	1	54	21.10	20.60	26.35	25.61	Natural
61	56	55	22.50	22.10	26.92	26.53	Natural
62	55	1	22.10	21.10	26.53	26.35	Natural
XS #3a	63	8	20.40	20.40	26.02	26.02	Natural
PINE	68	64	20.96	20.41	26.34	26.04	Circular
XS MALLARD	64	63	20.41	20.40	26.04	26.02	Natural
80	78	68	21.50	20.96	24.47	26.34	Natural
Ex 54"CMP	71b	Dgwood Lk	5.430	5.220	9.610	8.079	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.420	8.070	8.079	Rectangle
Palmto Lk	44b	46b	6.230	5.460	8.070	8.030	Natural
Clvt 7	46b	48b	5.460	5.170	8.030	7.953	Circular
Chan A	48b	50b	5.510	5.170	7.953	7.655	Natural
Clvt 6	50b	52b	5.510	5.350	7.655	7.502	Circular
Chan B	52b	54b	5.350	4.520	7.502	7.149	Natural
Clvt 5	54b	56b	4.520	4.380	7.149	7.061	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	6.220	7.061	Natural
Chan D	Holly Lk	63b	4.750	4.330	6.549	6.492	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	6.492	6.362	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	6.362	6.220	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	5.141	4.563	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	6.280	4.489	Rectangle
124	27	123	15.60	15.30	24.71	24.71	Trapezoid
36" PIPE	34	BOX #2	16.50	16.22	23.55	22.18	Circular
48" PIPE	BOX #3	BOX #2	16.06	15.84	22.08	22.18	Circular
42" RCP	21	23	17.90	17.50	26.57	24.88	Circular
24" RCP	21	23	18.60	18.60	26.57	24.88	Circular
36" RCP	125	123	16.82	16.78	24.93	24.71	Circular
48" RCP	125	123	15.50	15.30	24.93	24.71	Circular
ORF # 1	Merge	45	9.120	9.110	20.13	13.49	Circ Orif

Table H20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts. The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	348.9861	349.0972	0.0000	5036.2764	0.0000
2	151.6941	151.7097	0.0000	6678.5055	0.0000
4	526.7361	0.0000	0.0000	94.1510	0.0000
6	539.4425	261.6357	419631.1858	70.3696	0.0000
8	0.0000	200.7179	324064.4767	70.6209	0.0000
15	339.7063	339.7579	0.0000	1828.2749	0.0000
17	312.5813	312.5813	0.0000	22299.5713	0.0000
19	0.0000	0.0000	0.0000	89.9174	0.0000
21	304.1448	304.1587	0.0000	16024.4970	0.0000
23	0.0000	0.0000	0.0000	92.7104	0.0000
25	0.0000	0.0000	0.0000	94.5862	0.0000
27	0.0000	0.0000	0.0000	144557.418	0.0000
30	0.0000	0.0000	0.0000	106.7162	0.0000
32	0.0000	0.0000	0.0000	91.3928	0.0000
34	1443.764	1443.778	0.0000	47885.0469	0.0000
BOX #1	1877.597	1472.197	0.0000	82.5639	5466.6283
BOX #3	1693.498	1693.624	0.0000	7511.9893	0.0000
BOX #4	1262.093	1263.088	0.0000	1585.3449	0.0000
45	0.0000	0.0000	0.0000	55.0092	0.0000
48	0.0000	0.0000	0.0000	47.6113	0.0000
52	0.0000	0.0000	0.0000	1693689.238	0.0000
54	2140.250	2140.250	0.0000	145898.534	0.0000
55	1485.295	1485.295	0.0000	98727.0307	0.0000
56	1433.013	1433.034	0.0000	90250.4521	0.0000
63	536.8036	536.8175	0.0000	28861.6788	0.0000
64	455.5159	455.5417	0.0000	5851.6004	0.0000
68	287.8333	287.8462	0.0000	25897.8547	0.0000
72	0.0000	0.0000	0.0000	50.4188	0.0000
76	0.0000	1227.008	1665779.9249	563013.012	0.0000
78	1548.425	1548.472	0.0000	9804.9553	0.0000
Merge	2248.714	2248.714	0.0000	312311.859	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	2588798.187	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2712341.213	0.0000
38b	0.0000	0.0000	0.0000	26.1413	0.0000
44b	0.0000	0.0000	0.0000	23.1193	0.0000
46b	0.0000	0.0000	0.0000	32.2896	0.0000
48b	0.0000	0.0000	0.0000	34.9709	0.0000
50b	0.0000	0.0000	0.0000	31.2267	0.0000
52b	0.0000	0.0000	0.0000	27.0396	0.0000
54b	0.0000	0.0000	0.0000	33.0308	0.0000
56b	0.0000	0.0000	0.0000	33.6883	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	111104.357	0.0000
60b	0.0000	0.0000	0.0000	32.3043	0.0000
Holly Lk	0.0000	0.0000	0.0000	106768.202	0.0000
63b	0.0000	0.0000	0.0000	27.1735	0.0000
65b	0.0000	0.0000	0.0000	26.6665	0.0000
69b	0.0000	0.0000	0.0000	25.8038	0.0000
71b	0.0000	0.0000	0.0000	17.4567	0.0000
73b	0.0000	0.0000	0.0000	52.5275	0.0000
123	1405.679	1405.709	0.0000	89583.1410	0.0000
125	1421.736	1421.736	0.0000	264137.378	0.0000
BOX #2	1852.050	1852.050	0.0000	110497.934	0.0000



APPENDIX C

PLANTATION
GLENS BAY
SOUTH BAY
WILWORTH
PARSONAGE
FRONTAGE
ST LEO
Chain A
Chain B
Chain C
Chain D
Chain E
Chain F
Chain G
Chain H
Chain I
Chain J
Chain K
Chain L
Chain M
Chain N
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Chain P
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Chain HZ
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Chain IC
Chain ID
Chain IE
Chain IF
Chain IG
Chain IH
Chain II
Chain IJ
Chain IK
Chain IL
Chain IM
Chain IN
Chain IO
Chain IP
Chain IQ
Chain IR
Chain IS
Chain IT
Chain IU
Chain IV
Chain IW
Chain IX
Chain IY
Chain IZ
Chain JA
Chain JB
Chain JC
Chain JD
Chain JE
Chain JF
Chain JG
Chain JH
Chain JI
Chain JJ
Chain JK
Chain JL
Chain JM
Chain JN
Chain JO
Chain JP
Chain JQ
Chain JR
Chain JS
Chain JT
Chain JU
Chain JV
Chain JW
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Chain JY
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Chain KD
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Chain KL
Chain KM
Chain KN
Chain KO
Chain KP
Chain KQ
Chain KR
Chain KS
Chain KT
Chain KU
Chain KV
Chain KW
Chain KX
Chain KY
Chain KZ
Chain LA
Chain LB
Chain LC
Chain LD
Chain LE
Chain LF
Chain LG
Chain LH
Chain LI
Chain LJ
Chain LK
Chain LL
Chain LM
Chain LN
Chain LO
Chain LP
Chain LQ
Chain LR
Chain LS
Chain LT
Chain LU
Chain LV
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Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	SPANISH	45.00	Circular	7.07	0.01100	3.00	3.00		
3	XS #2	431.00	Natural	89.71	0.03000	46.39	4.95		
4	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
5	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
6	INDIAN	42.00	Circular	7.07	0.01100	3.00	3.00		
7	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
8	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
9	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
10	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
11	XS #9	75.00	Natural	124.19	0.03000	37.81	6.90		
12	DRIVEWAY	59.00	Circular	28.27	0.01300	6.00	6.00		
13	XS #10	446.00	Natural	179.10	0.03000	44.09	7.46		
14	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
15	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
16	61	350.00	Natural	49.50	0.03000	50.00	3.50		
17	62	1300.00	Natural	49.20	0.03500	30.00	3.30		
18	XS #1a	66.00	Natural	87.00	0.03000	67.00	4.90		
19	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
20	80	150.00	Natural	18.00	0.03000	39.00	2.50		
21	Ext 54"CMP	50.00	Circular	19.90	0.02400	4.50	4.50		
22	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
23	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
24	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
25	Chan A	270.00	Natural	54.55	0.05000	23.95	4.90		
26	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
27	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
28	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
29	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
30	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
31	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
32	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
33	Clvt2 Out	40.00	Rectangle	12.00	0.01300	8.00	4.00		
34	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
35	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00	1.00	1.00
36	STUB	8.00	Circular	12.57	0.01400	4.00	4.00		
37	FRONTAGE	66.00	Circular	12.57	0.01300	4.00	4.00		
38	HWY 17 S	75.00	Circular	12.57	0.01300	4.00	4.00		
39	HWY 17 N	77.00	Circular	12.57	0.01300	4.00	4.00		
40	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
41	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
42	36" PIPE	104.00	Circular	7.07	0.01400	3.00	3.00		
43	48" PIPE	58.00	Circular	12.57	0.01400	4.00	4.00		
44	1842" RCP	61.00	Circular	9.62	0.01300	3.50	3.50		
45	New42" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
46	2024"	40.00	Circular	3.14	0.01300	2.00	2.00		
47	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
48	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14632.0000 feet

Table E16. New Conduit Information Section
Conduit Invert (IE) Elevation and Conduit Maximum Water Surface (WS) Elevations

Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	24.23	22.79	Natural
SPANISH	4	2	18.53	18.41	22.47	22.79	Circular
XS #2	4	6	18.53	18.40	22.47	22.41	Natural
XS #3	6	63	18.40	18.40	22.41	22.38	Natural
XS #4	8	15	18.30	18.20	22.38	22.37	Natural
INDIAN	15	17	18.20	18.10	22.37	22.69	Circular
XS #5	17	19	18.10	18.00	22.69	22.92	Natural
XS #6	19	21	18.00	17.90	22.92	22.94	Natural
XS #7	23	25	17.50	17.20	22.23	21.02	Natural
XS #8	25	27	17.20	15.60	21.02	20.93	Natural
XS #9	30	27	16.20	15.60	20.89	20.93	Natural
DRIVEWAY	32	30	16.30	16.20	20.57	20.89	Circular
XS #10	32	34	16.30	15.30	20.57	20.51	Natural
SOUTH BAY	72	54	21.60	20.60	24.26	24.24	Natural
58	1	54	21.10	20.60	24.23	24.24	Natural
61	56	55	22.50	22.10	26.00	25.60	Natural
62	55	1	22.10	21.10	25.60	24.23	Natural
XS #3a	63	8	18.40	18.30	22.38	22.38	Natural
XS MALLARD	64	63	20.41	18.40	23.00	22.38	Natural
80	78	68	21.50	20.96	24.00	25.14	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.220	11.10	7.540	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.420	7.534	7.540	Rectangle
Palmto Lk	44b	46b	6.230	5.460	7.534	7.484	Natural
Clvt 7	46b	48b	5.460	5.170	7.484	7.445	Circular
Chan A	48b	50b	5.510	5.170	7.445	7.180	Natural
Clvt 6	50b	52b	5.510	5.050	7.180	7.083	Circular
Chan B	52b	54b	5.350	4.520	7.083	6.777	Natural
Clvt 5	54b	56b	4.520	4.380	6.777	6.742	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	5.754	6.742	Natural
Chan D	Holly Lk	63b	4.750	4.330	5.962	5.914	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	5.914	5.849	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	5.849	5.754	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	4.333	3.912	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	5.808	4.202	Rectangle
114	27	123	15.60	15.30	20.93	20.94	Trapezoid
STUB	BOX #1	34	15.00	15.30	20.20	20.51	Circular
FRONTAGE	BOX #1	BOX #3	16.90	16.70	20.20	20.01	Circular
HWY 17 S	BOX #3	BOX #4	16.00	15.60	20.01	19.51	Circular
HWY 17 N	BOX #4	48"Orif.Pl	15.13	11.43	19.51	18.94	Circular
PARKINGLOT	48	45	9.930	9.130	12.97	13.07	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	11.55	12.97	Circular
36" PIPE	34	BOX #2	16.50	16.22	20.51	20.07	Circular
48" PIPE	BOX #3	BOX #2	16.06	15.84	20.01	20.07	Circular
1842" RCP	21	23	17.90	17.50	22.94	22.23	Circular
New42" RCP	21	23	17.90	17.50	22.94	22.23	Circular
2024"	68	64	20.96	20.41	25.14	23.00	Circular
36" RCP	125	123	16.82	16.78	21.19	20.94	Circular
48" RCP	125	123	15.50	15.30	21.19	20.94	Circular
ORF # 1	48"Orif.Pl	45	9.120	9.110	18.94	13.07	Circ Orif

Table 820 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts. The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	0.0000	0.0000	0.0000	39.3406	0.0000
2	0.0000	0.0000	0.0000	2089697.577	0.0000
4	0.0000	0.0000	0.0000	49.4491	0.0000
6	0.0000	0.0000	0.0000	50.4111	0.0000
9	0.0000	0.0000	0.0000	51.2438	0.0000
15	0.0000	0.0000	0.0000	52.4028	0.0000
17	0.0000	0.0000	0.0000	57.7197	0.0000
19	0.0000	0.0000	0.0000	61.8109	0.0000
21	0.0000	0.0000	0.0000	4777.5214	0.0000
23	0.0000	0.0000	0.0000	59.3907	0.0000
25	0.0000	0.0000	0.0000	48.0567	0.0000
27	0.0000	0.0000	0.0000	156596.750	0.0000
30	0.0000	0.0000	0.0000	58.9179	0.0000
32	0.0000	0.0000	0.0000	51.6218	0.0000
52	0.0000	0.0000	0.0000	1103045.060	0.0000
54	0.0000	0.0000	0.0000	45.7871	0.0000
55	0.0000	129.8056	48573.1167	43.9810	0.0000
56	0.0000	169.8667	773858.6149	43.9810	0.0000
63	0.0000	0.0000	0.0000	381018.820	0.0000
64	0.0000	0.0000	0.0000	32.5327	0.0000
68	0.0000	0.0000	0.0000	161166.796	0.0000
72	0.0000	0.0000	0.0000	33.4496	0.0000
76	0.0000	0.0000	0.0000	125203.449	0.0000
78	0.0000	48.3331	33375.9114	31.4150	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	14518827.875	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2324266.811	0.0000
38b	0.0000	0.0000	0.0000	20.2079	0.0000
44b	0.0000	0.0000	0.0000	16.3847	0.0000
46b	0.0000	0.0000	0.0000	25.4389	0.0000
48b	0.0000	0.0000	0.0000	28.5934	0.0000
50b	0.0000	0.0000	0.0000	25.2515	0.0000
52b	0.0000	0.0000	0.0000	21.7791	0.0000
54b	0.0000	0.0000	0.0000	28.3618	0.0000
56b	0.0000	0.0000	0.0000	29.6797	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	80818.0296	0.0000
60b	0.0000	0.0000	0.0000	22.1506	0.0000
Holly Lk	0.0000	0.0000	0.0000	65485.6548	0.0000
63b	0.0000	0.0000	0.0000	19.8985	0.0000
65b	0.0000	0.0000	0.0000	20.2134	0.0000
69b	0.0000	0.0000	0.0000	17.6225	0.0000
71b	0.0000	0.0000	0.0000	13.8434	0.0000
73b	17.0833	0.0000	0.0000	71.2031	0.0000
123	0.0000	0.0000	0.0000	62100.3864	0.0000
125	0.0000	0.0000	0.0000	2581065.867	0.0000
34	0.0000	0.0000	0.0000	1616116.448	0.0000
BOX #1	0.0000	0.0000	0.0000	52.7286	0.0000
BOX #3	0.0000	0.0000	0.0000	50.4059	0.0000
BOX #4	0.0000	0.0000	0.0000	55.0614	0.0000
45	0.0000	0.0000	0.0000	49.7976	0.0000
48	0.0000	0.0000	0.0000	42.3357	0.0000
48*Orif.Pl	1501.525	0.0000	0.0000	123.4457	0.0000
BOX #2	415.7143	0.0000	0.0000	53.1970	0.0000

Table B1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	SPANISH	45.00	Circular	7.07	0.01300	3.00	3.00		
3	XS #2	431.00	Natural	89.71	0.03000	46.39	4.95		
4	XS #3	191.00	Natural	81.11	0.03000	45.03	3.93		
5	XS #4	130.00	Natural	99.88	0.03000	57.78	5.62		
6	INDIAN	42.00	Circular	7.07	0.01300	3.00	3.00		
7	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
8	XS #6	586.00	Natural	151.13	0.03000	60.60	6.34		
9	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
10	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
11	XS #9	75.00	Natural	124.19	0.03000	37.81	6.90		
12	DRIVEWAY	59.00	Circular	28.27	0.01300	6.00	6.00		
13	XS #10	446.00	Natural	170.10	0.03000	48.08	7.46		
14	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
15	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
16	61	350.00	Natural	49.50	0.03000	50.00	3.50		
17	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
18	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.50		
19	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
20	80	150.00	Natural	18.00	0.01000	39.00	2.50		
21	Ex 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
22	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
23	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
24	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
25	Chan A	270.00	Natural	54.55	0.05000	21.95	4.90		
26	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
27	Chan B	210.00	Natural	58.35	0.05000	20.00	6.30		
28	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
29	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
30	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
31	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
32	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
33	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
34	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
35	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00	1.00	1.00
36	STUB	8.00	Circular	12.57	0.01400	4.00	4.00		
37	FRONTAGE	66.00	Circular	12.57	0.01300	4.00	4.00		
38	HWY 17 S	75.00	Circular	12.57	0.01300	4.00	4.00		
39	HWY 17 N	77.00	Circular	12.57	0.01300	4.00	4.00		
40	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
41	TO LAKE	175.00	Circular	28.27	0.01100	6.00	6.00		
42	36" PIPE	104.00	Circular	7.07	0.01400	3.00	3.00		
43	48" PIPE	58.00	Circular	12.57	0.01400	4.00	4.00		
44	1842" RCP	84.00	Circular	9.62	0.01300	3.50	3.50		
45	New42" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
46	2024"	40.00	Circular	3.14	0.01300	2.00	2.00		
47	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
48	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14632.0000 feet

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#########################################################
# Table E16. New Conduit Information Section            #
#            Conduit Invert (IE) Elevation and Conduit  #
#            Maximum Water Surface (WS) Elevations      #
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Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	24.21	23.42	Natural
SPANISH	4	2	18.53	18.41	22.99	23.42	Circular
XS #2	4	6	18.53	18.40	22.99	22.95	Natural
XS #3	6	63	18.40	18.40	22.95	22.92	Natural
XS #4	8	15	18.30	18.20	22.92	22.91	Natural
INDIAN	15	17	18.20	18.10	22.91	23.16	Circular
XS #5	17	19	18.10	18.00	23.16	23.35	Natural
XS #6	19	21	18.00	17.90	23.35	23.36	Natural
XS #7	23	25	17.50	17.20	22.48	21.59	Natural
XS #8	25	27	17.20	15.60	21.59	21.53	Natural
XS #9	30	27	16.20	15.60	21.51	21.53	Natural
DRIVEWAY	32	30	16.30	16.20	21.19	21.51	Circular
XS #10	32	34	16.30	15.30	21.19	21.15	Natural
SOUTH BAY	72	54	21.60	20.60	24.43	24.33	Natural
58	1	54	21.10	20.60	24.21	24.33	Natural
61	56	55	22.50	22.10	26.00	25.60	Natural
62	55	1	22.10	21.10	25.60	24.21	Natural
XS #3a	63	8	18.40	18.30	22.92	22.92	Natural
XS MALLARD	64	63	20.41	18.40	23.02	22.92	Natural
80	78	68	21.50	20.96	24.00	25.67	Natural
Rx 54"CMP	73b	Dgwood Lk	5.430	5.220	11.10	7.623	Circular
Clvt 10	44b	Dgwood Lk	6.210	5.420	7.616	7.622	Rectangle
Palmto Lk	44b	46b	6.210	5.460	7.616	7.568	Natural
Clvt 7	46b	48b	5.460	5.170	7.568	7.526	Circular
Chan A	48b	50b	5.510	5.170	7.526	7.248	Natural
Clvt 6	50b	52b	5.510	5.350	7.248	7.145	Circular
Chan B	52b	54b	5.350	4.520	7.145	6.797	Natural
Clvt 5	54b	56b	4.520	4.380	6.797	6.753	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	6.919	6.753	Natural
Chan D	Holly Lk	63b	4.750	4.330	6.165	6.114	Trapezoid
Oak Clvt	63b	65b	4.310	4.240	6.114	6.029	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	6.029	5.919	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	4.618	4.143	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	6.086	4.371	Rectangle
134	27	123	15.60	15.30	21.53	21.54	Trapezoid
STUB	BOX #1	34	16.00	15.30	20.71	21.15	Circular
FRONTAGE	BOX #1	BOX #3	16.90	16.70	20.71	20.47	Circular
HWY 17 S	BOX #1	BOX #4	16.00	15.60	20.47	19.78	Circular
HWY 17 N	BOX #4	48"Orif.Pl	15.13	11.43	19.78	18.97	Circular
PARKINGLOT	48	45	9.930	9.120	13.03	13.16	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	11.68	13.03	Circular
36" PIPE	34	BOX #2	16.50	16.22	21.15	20.55	Circular
48" PIPE	BOX #3	BOX #2	16.06	15.84	20.47	20.55	Circular
1042" RCP	21	23	17.90	17.50	23.36	22.48	Circular
New42" RCP	21	23	17.90	17.50	23.36	22.48	Circular
2824"	68	64	20.96	20.41	25.67	23.02	Circular
36" RCP	125	123	16.82	16.78	21.83	21.54	Circular
48" RCP	125	123	15.50	15.30	21.83	21.54	Circular
ORF # 1	48"Orif.Pl	45	9.120	9.110	18.97	13.16	Circ Orif

Alternative 1 - 25 year storm

Table B20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts. The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	0.0000	0.0000	0.0000	39.1371	0.0000
2	0.0000	0.0000	0.0000	2403370.761	0.0000
4	0.0000	0.0000	0.0000	56.0540	0.0000
6	0.0000	0.0000	0.0000	57.2273	0.0000
8	0.0000	0.0000	0.0000	58.0337	0.0000
15	0.0000	0.0000	0.0000	58.2205	0.0000
17	0.0000	0.0000	0.0000	61.5742	0.0000
19	0.0000	0.0000	0.0000	67.1805	0.0000
21	0.0000	0.0000	0.0000	524086.1033	0.0000
23	0.0000	0.0000	0.0000	62.6341	0.0000
25	0.0000	0.0000	0.0000	55.1610	0.0000
27	0.0000	0.0000	0.0000	177268.862	0.0000
30	0.0000	0.0000	0.0000	66.7089	0.0000
32	0.0000	0.0000	0.0000	61.4706	0.0000
54	0.0000	0.0000	0.0000	1296038.816	0.0000
55	0.0000	168.3889	62302.1035	46.8090	0.0000
56	0.0000	194.1520	1060471.6550	43.9810	0.0000
63	0.0000	0.0000	0.0000	437065.811	0.0000
64	0.0000	0.0000	0.0000	37.8234	0.0000
68	0.0000	6.5833	4984.7877	181537.157	0.0000
72	0.0000	0.0000	0.0000	35.5779	0.0000
76	0.0000	0.0000	0.0000	244248.004	0.0000
78	0.0000	64.1000	69508.0403	31.4150	0.0000
Lk-Elzbch	0.0000	0.0000	0.0000	1501150.844	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2381733.890	0.0000
38b	0.0000	0.0000	0.0000	21.7019	0.0000
44b	0.0000	0.0000	0.0000	17.6197	0.0000
46b	0.0000	0.0000	0.0000	26.4868	0.0000
48b	0.0000	0.0000	0.0000	29.8051	0.0000
50b	0.0000	0.0000	0.0000	26.1170	0.0000
52b	0.0000	0.0000	0.0000	22.5551	0.0000
54b	0.0000	0.0000	0.0000	28.6178	0.0000
56b	0.0000	0.0000	0.0000	29.8239	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	91520.8811	0.0000
60b	0.0000	0.0000	0.0000	25.7361	0.0000
Holly Lk	0.0000	0.0000	0.0000	79321.3973	0.0000
63b	0.0000	0.0000	0.0000	22.4171	0.0000
65b	0.0000	0.0000	0.0000	22.4787	0.0000
69b	0.0000	0.0000	0.0000	20.5144	0.0000
71b	0.0000	0.0000	0.0000	15.9765	0.0000
73b	17.0833	0.0000	0.0000	71.2031	0.0000
123	0.0000	0.0000	0.0000	82309.2375	0.0000
125	0.0000	0.0000	0.0000	2996759.439	0.0000
34	0.0000	0.0000	0.0000	1983128.513	0.0000
BOX #1	0.0000	0.0000	0.0000	59.1655	0.0000
BOX #3	0.0000	0.0000	0.0000	56.1381	0.0000
BOX #4	0.0000	0.0000	0.0000	58.4124	0.0000
45	0.0000	0.0000	0.0000	50.8410	0.0000
48	0.0000	0.0000	0.0000	43.1448	0.0000
48"Orif.Pl	1788.233	686.1190	657286.3479	123.7751	10.0000
BOX #2	883.1429	0.0000	0.0000	59.1892	0.0000

Alternative 1 - 100 year storm

Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	SPANISH	45.00	Circular	7.07	0.01300	3.00	3.00		
3	XS #2	411.00	Natural	89.71	0.03000	46.39	4.95		
4	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
5	XS #4	130.00	Natural	99.88	0.03000	57.74	5.62		
6	INDIAN	42.00	Circular	7.07	0.01300	3.00	3.00		
7	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
8	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
9	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
10	XS #8	761.00	Natural	172.35	0.03000	51.30	8.73		
11	XS #9	75.00	Natural	124.19	0.03000	37.81	6.90		
12	DRIVEWAY	59.00	Circular	28.27	0.01300	6.00	6.00		
13	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
14	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
15	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
16	61	150.00	Natural	49.50	0.03000	50.00	3.50		
17	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
18	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.90		
19	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
20	60	150.00	Natural	18.00	0.03000	39.00	2.50		
21	Ex 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
22	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
23	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
24	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
25	Chan A	270.00	Natural	54.55	0.05000	21.95	4.90		
26	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
27	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
28	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
29	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
30	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	4.00		
31	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.25	0.00	0.00
32	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.00		
33	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	3.79	1.00	1.00
34	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
35	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00		
36	STUB	8.00	Circular	12.57	0.01400	4.00	4.00		
37	FRONTAGE	66.00	Circular	12.57	0.01300	4.00	4.00		
38	HWY 17 S	75.00	Circular	12.57	0.01300	4.00	4.00		
39	HWY 17 N	77.00	Circular	12.57	0.01300	4.00	4.00		
40	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
41	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
42	36" PIPE	104.00	Circular	7.07	0.01400	3.00	3.00		
43	48" PIPE	58.00	Circular	12.57	0.01400	4.00	4.00		
44	1042" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
45	New42" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
46	2024"	40.00	Circular	3.14	0.01300	2.00	2.00		
47	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
48	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		
Total length of all conduits		14632.0000 feet							

Table R16. New Conduit Information Section
Conduit Invert (IE) Elevation and Conduit
Maximum Water Surface (WS) Elevations

Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	24.49	24.39	Natural
SPANISH	4	2	18.53	18.41	23.81	24.39	Circular
XS #2	4	6	18.53	18.40	23.81	23.81	Natural
XS #3	6	63	18.40	18.40	23.81	23.76	Natural
XS #4	8	15	18.30	18.20	23.76	23.75	Natural
INDIAN	15	17	18.20	18.10	23.75	24.29	Circular
XS #5	17	19	18.10	18.00	24.29	24.43	Natural
XS #6	19	21	18.00	17.90	24.43	24.44	Natural
XS #7	23	25	17.50	17.20	23.07	22.65	Natural
XS #8	25	27	17.20	15.60	22.65	22.62	Natural
XS #9	30	27	16.20	15.60	22.60	22.62	Natural
DRIVEWAY	32	30	16.30	16.20	22.22	22.60	Circular
XS #10	32	34	16.30	15.30	22.22	22.18	Natural
SOUTH BAY	72	54	21.60	20.60	25.10	24.60	Natural
58	1	54	21.10	20.60	24.49	24.60	Natural
61	56	55	22.50	22.10	26.00	25.60	Natural
62	55	1	22.10	21.10	25.60	24.49	Natural
XS #3a	63	8	18.40	18.30	23.76	23.76	Natural
XS MALLARD	64	63	20.31	18.40	23.76	23.76	Natural
80	78	68	21.50	20.96	24.00	25.67	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.220	11.10	7.792	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.420	7.785	7.792	Rectangle
Palmto Lk	44b	46b	6.230	5.460	7.785	7.740	Natural
Clvt 7	46b	48b	5.460	5.170	7.740	7.692	Circular
Chan A	48b	50b	5.510	5.170	7.692	7.400	Natural
Clvt 6	50b	52b	5.510	5.350	7.400	7.292	Circular
Chan B	52b	54b	5.350	4.520	7.292	6.940	Natural
Clvt 5	54b	56b	4.520	4.380	6.940	6.886	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	6.200	6.886	Natural
Chan D	Holly Lk	63b	4.750	4.330	6.510	6.456	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	6.456	6.333	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	6.333	6.200	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	5.108	4.537	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	6.667	4.726	Rectangle
124	27	123	15.60	15.30	22.62	22.63	Trapezoid
STUB	BOX #1	34	16.00	15.30	21.48	22.18	Circular
FRONTAGE	BOX #1	BOX #3	16.90	16.70	21.48	21.10	Circular
HWY 17 S	BOX #3	BOX #4	16.00	15.60	21.10	20.06	Circular
HWY 17 N	BOX #4	48"Orif.Pl	15.13	11.43	20.06	18.97	Circular
PARKINGLOT	48	45	9.930	9.120	13.07	13.21	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	12.01	13.07	Circular
36" PIPE	34	BOX #2	16.50	16.22	22.18	21.22	Circular
48" PIPE	BOX #3	BOX #2	16.06	15.84	21.10	21.22	Circular
1842" RCP	21	23	17.90	17.50	24.44	23.07	Circular
New42" RCP	21	23	17.90	17.50	24.44	23.07	Circular
2024"	68	64	20.96	20.41	25.67	23.76	Circular
36" RCP	125	123	16.82	16.78	23.07	22.63	Circular
48" RCP	125	123	15.50	15.30	23.07	22.63	Circular
ORF # 1	48"Orif.Pl	45	9.120	9.110	18.97	13.21	Circ Orif

Table E20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts. The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time (min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	0.0000	0.0000	0.0000	42.5778	0.0000
2	0.0000	0.0000	0.0000	2887357.898	0.0000
4	712.9643	0.0000	0.0000	66.6597	0.0000
6	812.5000	0.0000	0.0000	67.9258	0.0000
8	0.0000	0.0000	0.0000	68.5997	0.0000
15	0.0000	0.0000	0.0000	69.8031	0.0000
17	0.0000	0.0000	0.0000	77.7426	0.0000
19	0.0000	0.0000	0.0000	80.8467	0.0000
21	0.0000	0.0000	0.0000	96740.6190	0.0000
23	0.0000	0.0000	0.0000	70.0359	0.0000
25	0.0000	0.0000	0.0000	68.5259	0.0000
27	0.0000	0.0000	0.0000	215298.351	0.0000
30	0.0000	0.0000	0.0000	80.4629	0.0000
32	0.0000	0.0000	0.0000	74.3648	0.0000
52	0.0000	0.0000	0.0000	1501666.504	0.0000
54	0.0000	457.0530	416190.2326	50.2640	0.0000
55	0.0000	233.5461	172388.6871	43.9810	0.0000
56	0.0000	232.2917	1617514.5146	43.9819	0.0000
63	0.0000	0.0000	0.0000	524835.329	0.0000
64	0.0000	0.0000	0.0000	42.1061	0.0000
68	0.0000	29.6917	124010.0193	183537.157	0.0000
72	0.0000	0.0000	0.0000	44.0152	0.0000
76	0.0000	0.0000	0.0000	477680.063	0.0000
78	0.0000	78.7750	95211.9905	31.4150	0.0000
Lk-Eighth	0.0000	0.0000	0.0000	1643817.894	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2505739.488	0.0000
38b	0.0000	0.0000	0.0000	31.0055	0.0000
44b	0.0000	0.0000	0.0000	19.5444	0.0000
46b	0.0000	0.0000	0.0000	28.6457	0.0000
48b	0.0000	0.0000	0.0000	31.6967	0.0000
50b	0.0000	0.0000	0.0000	28.0245	0.0000
52b	0.0000	0.0000	0.0000	24.3970	0.0000
54b	0.0000	0.0000	0.0000	30.4130	0.0000
56b	0.0000	0.0000	0.0000	31.4930	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	109850.892	0.0000
60b	0.0000	0.0000	0.0000	31.8880	0.0000
Holly Lk	0.0000	0.0000	0.0000	103980.311	0.0000
63b	0.0000	0.0000	0.0000	26.7153	0.0000
65b	0.0000	0.0000	0.0000	26.3049	0.0000
69b	0.0000	0.0000	0.0000	25.4756	0.0000
71b	0.0000	0.0000	0.0000	20.4380	0.0000
73b	17.0833	0.0000	0.0000	71.2031	0.0000
123	0.0000	0.0000	0.0000	1194492.450	0.0000
125	0.0000	0.0000	0.0000	2795306.032	0.0000
34	0.0000	0.0000	0.0000	2581546.195	0.0000
BOX #1	781.5000	0.0000	0.0000	68.8665	0.0000
BOX #3	663.1500	0.0000	0.0000	64.1157	0.0000
BOX #4	0.0000	0.0000	0.0000	61.9525	0.0000
45	0.0000	0.0000	0.0000	51.4966	0.0000
48	0.0000	0.0000	0.0000	43.6559	0.0000
48*Orif.P1	2146.333	1290.175	3144020.3504	123.7751	0.0000
BOX #2	1435.575	35.9848	205.7804	67.6051	0.0000

APPENDIX D

000641

Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	150.00	4.91		
2	XS #2	431.00	Natural	89.71	0.03000	46.39	4.95		
3	XS #3	191.00	Natural	81.11	0.03000	49.03	4.93		
4	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
5	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
6	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
7	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
8	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
9	XS #9	75.00	Natural	124.19	0.03000	37.81	6.90		
10	XS #10	446.00	Natural	170.10	0.03000	44.98	7.46		
11	STUB	8.00	Circular	19.63	0.01300	5.00	5.00		
12	FRONTAGE	56.00	Circular	28.27	0.01300	6.00	6.00		
13	HWY 17 S	75.00	Circular	28.27	0.01300	6.00	6.00		
14	HWY 17 N	77.00	Circular	28.27	0.01300	6.00	6.00		
15	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
16	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
17	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
18	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
19	61	350.00	Natural	49.50	0.03000	50.00	3.50		
20	62	1300.00	Natural	48.20	0.03500	50.00	3.30		
21	XS #1a	66.00	Natural	87.00	0.03000	67.00	4.90		
22	XS MALLARD	158.00	Natural	40.31	0.01000	25.00	4.20		
23	80	150.00	Natural	18.00	0.03000	39.00	2.50		
24	Ex 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
25	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
26	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
27	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
28	Chan A	270.00	Natural	54.55	0.05000	23.95	4.90		
29	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
30	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
31	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
33	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
34	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
35	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
36	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
37	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
38	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00	1.00	1.00
39	Spanish1	45.00	Circular	7.07	0.01300	3.00	3.00		
40	IndianDr1	42.00	Circular	7.07	0.01300	3.00	3.00		
41	2042" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
42	Driveway1	59.00	Circular	28.27	0.01300	6.00	6.00		
43	2024"	40.00	Circular	3.14	0.01300	2.00	2.00		
44	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
45	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14406.0000 feet

Table E16. New Conduit Information Section
Conduit Invert (IE) Elevation and Conduit
Maximum Water Surface (WS) Elevations

Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	25.63	25.72	Natural
XS #2	4	6	18.53	18.40	25.42	25.40	Natural
XS #3	6	63	18.40	18.40	25.40	25.33	Natural
XS #4	8	15	18.30	18.20	25.32	25.31	Natural
XS #5	17	19	18.10	18.00	25.01	24.97	Natural
XS #6	19	21	18.00	17.90	24.97	24.97	Natural
XS #7	23	25	17.50	17.20	24.08	23.75	Natural
XS #8	25	27	17.20	15.60	23.75	21.68	Natural
XS #9	30	27	16.20	15.60	23.60	21.68	Natural
XS #10	32	34	16.30	15.30	22.31	22.29	Natural
STUB	34	36	15.30	14.80	22.29	20.02	Circular
FRONTAGE	36	38	14.80	13.30	20.02	19.86	Circular
HWY 17 S	38	41	13.30	11.60	19.86	19.49	Circular
HWY 17 N	41	45	11.60	9.900	19.49	18.97	Circular
PARKINGLOT	48	45	9.900	9.100	18.59	18.97	Circular
TO LAKE	Lk-Elsbth	48	9.900	9.600	12.50	18.59	Circular
SOUTH BAY	72	54	21.60	20.60	24.61	24.60	Natural
58	1	54	21.10	20.60	25.63	24.60	Natural
61	56	55	22.50	22.10	26.00	25.60	Natural
62	55	1	22.10	21.10	25.60	25.63	Natural
XS #3a	63	8	18.40	18.30	25.33	25.32	Natural
XS MALLARD	64	63	20.41	18.40	25.44	25.33	Natural
60	78	68	21.50	20.96	26.00	25.91	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.220	10.75	7.644	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.420	7.636	7.644	Rectangle
Palmto Lk	44b	46b	6.230	5.460	7.636	7.591	Natural
Clvt 7	46b	48b	5.460	5.170	7.591	7.534	Circular
Chan A	48b	50b	5.510	5.170	7.534	7.270	Natural
Clvt 6	50b	52b	5.510	5.350	7.270	7.140	Circular
Chan B	52b	54b	5.350	4.520	7.140	6.802	Natural
Clvt 5	54b	56b	4.520	4.380	6.802	6.742	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	5.758	6.742	Natural
Chan D	Holly Lk	63b	4.750	4.330	5.984	5.915	Traperoid
Oak Clvt	63b	65b	4.330	4.240	5.915	5.852	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	5.852	5.758	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	4.340	3.919	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	7.346	5.146	Rectangle
124	27	123	15.60	15.30	23.68	23.74	Trapezoid
Spanish1	4	2	18.53	18.41	25.42	25.72	Circular
IndianDr1	15	17	18.20	18.10	25.31	25.01	Circular
2042" RCP	21	23	17.90	17.50	24.97	24.08	Circular
Driveway1	32	30	16.30	16.20	22.31	23.60	Circular
2024"	68	64	20.96	20.41	25.91	25.44	Circular
36" RCP	125	123	16.82	16.78	24.34	23.74	Circular
48" RCP	125	123	15.50	15.30	24.34	23.74	Circular

Table B20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts. The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time [min]	Flooded Time [min]	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	0.0000	0.0000	0.0000	56.8879	0.0000
2	0.0000	0.0000	0.0000	91.8829	0.0000
4	601.9314	0.0000	0.0000	86.5689	0.0000
6	633.7233	0.0000	0.0000	87.9273	0.0000
8	464.8241	0.0000	0.0000	88.2316	0.0000
15	0.0000	0.0000	0.0000	89.3880	0.0000
17	0.0000	0.0000	0.0000	86.7733	0.0000
19	0.0000	0.0000	0.0000	87.5864	0.0000
21	0.0000	0.0000	0.0000	311415.578	0.0000
23	0.0000	0.0000	0.0000	82.6600	0.0000
25	0.0000	0.0000	0.0000	82.3278	0.0000
27	0.0000	0.0000	0.0000	121819.247	0.0000
30	425.3198	274.9818	2211005.3720	92.9884	0.0000
32	0.0000	0.0000	0.0000	75.5260	0.0000
34	0.0000	0.0000	0.0000	87.8657	0.0000
36	0.0000	0.0000	0.0000	65.6447	0.0000
38	19.0728	0.0000	0.0000	82.3850	0.0000
41	32.8946	0.0000	0.0000	99.1361	0.0000
45	47.1057	7.3566	968.7101	124.0264	0.0000
48	44.1187	0.0000	0.0000	113.0270	0.0000
52	0.0000	0.0000	0.0000	1208019.831	0.0000
54	0.0000	352.8130	718484.9903	50.2640	0.0000
55	0.0000	227.6144	533108.1502	43.9810	0.0000
56	0.0000	170.7857	789707.5869	43.9810	0.0000
63	621.9341	24.9177	28363.3867	87.0824	0.0000
64	232.2393	0.0000	0.0000	63.2419	0.0000
68	55.5788	55.5864	0.0000	3179.7495	0.0000
72	0.0000	0.0000	0.0000	37.8362	0.0000
76	0.0000	0.0000	0.0000	491632.815	0.0000
78	0.0000	269.3500	214583.3365	31.4150	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	1876634.232	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2399035.552	0.0000
38b	0.0000	0.0000	0.0000	39.5321	0.0000
44b	0.0000	0.0000	0.0000	17.6690	0.0000
46b	0.0000	0.0000	0.0000	26.7786	0.0000
48b	0.0000	0.0000	0.0000	29.7052	0.0000
50b	0.0000	0.0000	0.0000	26.3877	0.0000
52b	0.0000	0.0000	0.0000	22.4869	0.0000
54b	0.0000	0.0000	0.0000	28.6803	0.0000
56b	0.0000	0.0000	0.0000	29.6753	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	81104.5749	0.0000
60b	0.0000	0.0000	0.0000	22.2474	0.0000
Holly Lk	0.0000	0.0000	0.0000	65587.9944	0.0000
63b	0.0000	0.0000	0.0000	19.9228	0.0000
65b	0.0000	0.0000	0.0000	20.2571	0.0000
69b	0.0000	0.0000	0.0000	17.7011	0.0000
71b	0.0000	0.0000	0.0000	25.7081	0.0000
73b	17.0000	0.0000	0.0000	68.8943	0.0000
123	525.4722	0.0000	0.0000	106.0126	0.0000
125	419.0068	419.3428	0.0000	13908.8858	0.0000

Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	XS #2	431.00	Natural	89.71	0.03000	46.39	4.95		
3	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
4	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
5	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
6	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
7	XS #7	1608.00	Natural	181.64	0.03000	41.07	9.11		
8	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
9	XS #9	75.00	Natural	124.19	0.03000	37.81	6.90		
10	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
11	STUB	8.00	Circular	19.63	0.01300	5.00	5.00		
12	FRONTAGE	66.00	Circular	28.27	0.01300	6.00	6.00		
13	HWY 17 S	75.00	Circular	28.27	0.01300	6.00	6.00		
14	HWY 17 N	77.00	Circular	28.27	0.01300	6.00	6.00		
15	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
16	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
17	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
18	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
19	61	350.00	Natural	49.50	0.03000	50.00	3.50		
20	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
21	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.90		
22	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
23	80	150.00	Natural	18.00	0.03000	39.00	2.50		
24	Ex 54'CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
25	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
26	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
27	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
28	Chan A	270.00	Natural	54.55	0.05000	23.95	4.90		
29	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
30	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
31	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
33	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
34	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
35	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
36	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
37	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
38	124	200.00	Trapezoid	140.00	0.03500	11.00	7.00	1.00	1.00
39	Spanish1	45.00	Circular	7.07	0.01300	3.00	3.00		
40	IndianDr1	42.00	Circular	7.07	0.01300	3.00	3.00		
41	2042" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
42	Driveway1	59.00	Circular	28.27	0.01300	6.00	6.00		
43	2024"	40.00	Circular	3.14	0.01300	2.00	2.00		
44	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
45	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14406.0000 feet

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# Table E16. New Conduit Information Section                #
#            Conduit Invert (IE) Elevation and Conduit      #
#            Maximum Water Surface (WS) Elevations          #
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Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	25.86	26.09	Natural
XS #2	4	6	18.53	18.40	25.49	25.44	Natural
XS #3	6	63	18.40	18.40	25.44	25.33	Natural
XS #4	8	15	18.30	18.20	25.33	25.33	Natural
XS #5	17	19	18.10	18.00	25.33	25.35	Natural
XS #6	19	21	18.00	17.90	25.35	25.35	Natural
XS #7	23	25	17.50	17.20	24.20	23.80	Natural
XS #8	25	27	17.20	15.60	23.80	23.70	Natural
XS #9	30	27	16.20	15.60	23.60	23.70	Natural
XS #10	32	34	16.30	15.30	22.90	22.89	Natural
STUB	34	36	15.30	14.80	22.89	20.08	Circular
FRONTAGE	36	38	14.80	13.30	20.08	19.74	Circular
HWY 17 S	38	41	13.30	11.60	19.74	19.28	Circular
HWY 17 N	41	45	11.60	9.900	19.28	18.79	Circular
PARKINGLOT	48	45	9.900	9.100	18.22	18.79	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	12.83	18.22	Circular
SOUTH BAY	72	54	21.60	20.60	24.65	24.60	Natural
58	1	54	21.10	20.60	25.86	24.60	Natural
61	56	55	22.50	22.10	26.00	25.60	Natural
62	55	1	22.10	21.10	25.60	25.86	Natural
XS #3a	63	8	18.40	18.30	25.33	25.33	Natural
XS MALLARD	64	63	20.41	18.40	26.55	25.33	Natural
80	78	68	21.50	20.96	24.00	26.02	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.220	10.75	7.805	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.420	7.797	7.805	Rectangle
Palmto Lk	44b	46b	6.230	5.460	7.797	7.754	Natural
Clvt 7	46b	48b	5.460	5.170	7.754	7.690	Circular
Chan A	48b	50b	5.510	5.170	7.690	7.412	Natural
Clvt 6	50b	52b	5.510	5.350	7.412	7.274	Circular
Chan B	52b	54b	5.350	4.520	7.274	6.928	Natural
Clvt 5	54b	56b	4.520	4.380	6.928	6.858	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	6.925	6.858	Natural
Chan D	Holly Lk	63b	4.750	4.330	6.168	6.117	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	6.117	6.034	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	6.034	5.925	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	4.629	4.151	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	7.689	5.361	Rectangle
12d	27	123	15.60	15.30	23.70	23.78	Trapezoid
Spanish1	4	2	18.53	18.41	25.48	26.09	Circular
IndianDr1	15	17	18.20	18.10	25.33	25.33	Circular
2042" RCP	21	23	17.90	17.50	25.15	24.20	Circular
Driveway1	32	30	16.30	16.20	22.90	23.60	Circular
2824"	68	64	20.96	20.41	26.02	25.55	Circular
36" RCP	125	123	16.82	16.78	24.44	23.78	Circular
48" RCP	125	123	15.50	15.30	24.44	23.78	Circular

Table E20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts.
The fourth column is instantaneous; the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	0.0000	0.0000	0.0000	59.7765	0.0000
2	0.0000	0.0000	0.0000	96.4977	0.0000
4	715.4440	0.0000	0.0000	87.2787	0.0000
6	742.6007	0.0000	0.0000	88.4191	0.0000
8	524.2151	0.0000	0.0000	88.1462	0.0000
15	0.0000	0.0000	0.0000	89.5889	0.0000
17	39.4369	0.0000	0.0000	90.7910	0.0000
19	80.7453	0.0000	0.0000	92.4227	0.0000
21	0.0000	0.0000	0.0000	389519.014	0.0000
23	0.0000	0.0000	0.0000	84.1859	0.0000
25	0.0000	0.0000	0.0000	82.8923	0.0000
27	0.0000	0.0000	0.0000	122366.957	0.0000
30	493.9559	322.8420	3314905.8186	92.9884	0.0000
32	0.0000	0.0000	0.0000	82.9288	0.0000
34	17.4823	17.4968	0.0000	1832.6990	0.0000
36	0.0000	0.0000	0.0000	66.3884	0.0000
38	16.9538	0.0000	0.0000	80.9342	0.0000
41	33.9406	0.0000	0.0000	96.5459	0.0000
45	53.4663	0.0000	0.0000	121.8238	0.0000
48	46.1873	0.0000	0.0000	108.2994	0.0000
52	0.0000	0.0000	0.0000	1270257.285	0.0000
54	0.0000	459.4317	1213209.0496	50.2640	0.0000
55	0.0000	258.4464	752622.3576	43.9810	0.0000
56	0.0000	196.1797	1076719.2361	43.9810	0.0000
63	732.3978	50.6803	180191.1162	87.0824	0.0000
64	278.7801	0.0000	0.0000	64.6122	0.0000
68	68.2609	68.2681	0.0000	5399.7661	0.0000
72	0.0000	0.0000	0.0000	38.3680	0.0000
76	0.0000	0.0000	0.0000	524701.391	0.0000
78	0.0000	312.0750	293264.6718	31.4150	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	1992603.187	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2515148.040	0.0000
38b	0.0000	0.0000	0.0000	43.8390	0.0000
44b	0.0000	0.0000	0.0000	19.6895	0.0000
46b	0.0000	0.0000	0.0000	28.8272	0.0000
48b	0.0000	0.0000	0.0000	31.6719	0.0000
50b	0.0000	0.0000	0.0000	28.1733	0.0000
52b	0.0000	0.0000	0.0000	24.1785	0.0000
54b	0.0000	0.0000	0.0000	30.2638	0.0000
56b	0.0000	0.0000	0.0000	31.1422	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	91925.2764	0.0000
60b	0.0000	0.0000	0.0000	25.8706	0.0000
Holly Lk	0.0000	0.0000	0.0000	79485.2791	0.0000
63b	0.0000	0.0000	0.0000	22.4519	0.0000
65b	0.0000	0.0000	0.0000	22.5399	0.0000
69b	0.0000	0.0000	0.0000	20.6222	0.0000
71b	0.0000	0.0000	0.0000	28.4055	0.0000
73b	17.0000	0.0000	0.0000	66.8943	0.0000
123	570.4101	0.0000	0.0000	106.5525	0.0000
125	470.8562	471.2143	0.0000	22417.7311	0.0000

Alternative 2 - 100 year storm

Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	XS #2	431.00	Natural	89.71	0.03000	46.39	4.95		
3	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
4	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
5	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
6	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
7	XS #7	1508.00	Natural	181.54	0.03000	41.07	9.11		
8	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
9	XS #9	75.00	Natural	124.19	0.03000	37.81	6.90		
10	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
11	STUB	8.00	Circular	19.63	0.01300	5.00	5.00		
12	FRONTAGE	66.00	Circular	28.27	0.01300	6.00	6.00		
13	HWY 17 S	75.00	Circular	28.27	0.01300	6.00	6.00		
14	HWY 17 N	77.00	Circular	28.27	0.01300	6.00	6.00		
15	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
16	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
17	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
18	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
19	61	350.00	Natural	49.50	0.03000	50.00	3.50		
20	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
21	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.90		
22	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
23	80	150.00	Natural	18.00	0.03000	39.00	2.50		
24	Ex 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
25	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
26	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
27	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
28	Chan A	270.00	Natural	54.55	0.05000	23.95	4.90		
29	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
30	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
31	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan C	400.00	Natural	41.50	0.05000	28.00	4.00		
33	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
34	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
35	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
36	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
37	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
38	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00	1.00	1.00
39	Spanish1	45.00	Circular	7.07	0.01300	3.00	3.00		
40	IndianDr1	42.00	Circular	7.07	0.01300	3.00	3.00		
41	2842" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
42	Driveway1	59.00	Circular	28.27	0.01300	6.00	6.00		
43	2824"	40.00	Circular	3.14	0.01300	2.00	2.00		
44	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
45	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14406.0000 feet

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# Table E16. New Conduit Information Section            #
#            Conduit Invert (IE) Elevation and Conduit  #
#            Maximum Water Surface (WS) Elevations      #
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Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	26.01	26.37	Natural
XS #2	4	6	18.53	18.40	25.68	25.55	Natural
XS #3	6	63	18.40	18.40	25.55	25.33	Natural
XS #4	8	15	18.30	18.20	25.33	25.34	Natural
XS #5	17	19	18.10	18.00	25.58	25.77	Natural
XS #6	19	21	18.00	17.90	25.77	25.77	Natural
XS #7	23	25	17.50	17.20	24.32	23.84	Natural
XS #8	25	27	17.20	15.60	23.84	23.72	Natural
XS #9	30	27	16.20	15.60	23.60	23.72	Natural
XS #10	32	34	16.30	15.30	23.23	23.20	Natural
STUB	34	36	15.30	14.80	23.20	19.73	Circular
FRONTAGE	36	38	14.80	13.30	19.73	19.18	Circular
HWY 17 S	38	41	13.30	11.60	19.18	18.68	Circular
HWY 17 N	41	45	11.60	9.900	18.68	17.99	Circular
PARKINGLOT	48	45	9.900	9.100	17.34	17.99	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	13.29	17.34	Circular
SOUTH BAY	72	54	21.60	20.60	24.91	24.60	Natural
58	1	54	21.10	20.60	26.01	24.60	Natural
61	56	55	22.50	22.10	26.00	25.60	Natural
62	55	1	22.10	21.10	25.60	26.01	Natural
XS #3a	63	8	18.40	18.30	25.33	25.33	Natural
XS MALLARD	64	63	20.41	18.40	25.67	25.33	Natural
80	78	68	21.50	20.96	24.00	26.13	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.220	10.75	8.228	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.430	8.218	8.228	Rectangle
Palmto Lk	44b	46b	6.230	5.460	8.218	8.179	Natural
Clvt 7	46b	48b	5.460	5.170	8.179	8.094	Circular
Chan A	48b	50b	5.310	5.170	8.094	7.787	Natural
Clvt 6	50b	52b	5.510	5.150	7.787	7.624	Circular
Chan B	52b	54b	5.350	4.520	7.624	7.267	Natural
Clvt 5	54b	56b	4.520	4.380	7.267	7.168	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	6.184	7.168	Natural
Chan D	Holly Lk	63b	4.750	4.330	6.481	6.428	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	6.428	6.312	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	6.312	6.184	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	5.078	4.513	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	8.144	5.592	Rectangle
124	27	123	15.60	15.30	23.72	23.80	Trapezoid
Spanish1	4	2	18.53	18.41	25.66	26.37	Circular
IndianDr1	15	17	18.20	18.10	25.34	25.58	Circular
2042" RCP	21	23	17.90	17.50	25.77	24.32	Circular
Driveway1	32	30	16.30	16.20	23.23	23.60	Circular
2024"	68	64	20.96	20.41	26.13	25.67	Circular
36" RCP	125	123	16.82	16.78	24.56	23.80	Circular
48" RCP	125	123	15.50	15.30	24.56	23.80	Circular

Table S20 - Junction Flooding and Volume Listing.
The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts.
The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation
Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time(min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	0.0000	28.2600	43515.6914	61.6991	0.0000
2	49.8595	49.8734	0.0000	3012.8631	0.0000
4	831.0750	0.0000	0.0000	89.5786	0.0000
6	852.1387	0.0000	0.0000	89.8045	0.0000
8	584.9153	0.0000	0.0000	88.3745	0.0000
15	0.0000	0.0000	0.0000	89.6688	0.0000
17	143.7785	0.0000	0.0000	94.0435	0.0000
19	163.1033	0.0000	0.0000	97.6688	0.0000
21	0.0000	0.0000	0.0000	482575.067	0.0000
23	0.0000	0.0000	0.0000	85.7114	0.0000
25	0.0000	0.0000	0.0000	83.3801	0.0000
27	0.0000	0.0000	0.0000	122698.737	0.0000
30	493.8875	395.9651	4932802.0795	92.9884	0.0000
32	0.0000	0.0000	0.0000	87.0353	0.0000
34	44.2793	44.2863	0.0000	8557.2670	0.0000
36	0.0000	0.0000	0.0000	61.9755	0.0000
38	0.0000	0.0000	0.0000	71.8722	0.0000
41	39.7793	0.0000	0.0000	88.9436	0.0000
45	62.2637	0.0000	0.0000	111.7314	0.0000
48	57.2453	0.0000	0.0000	97.2801	0.0000
52	0.0000	0.0000	0.0000	1424604.532	0.0000
54	0.0000	578.5570	2189603.7481	50.2640	0.0000
55	0.0000	304.3222	1008206.1465	43.9810	0.0000
56	0.0000	235.1032	1578633.6204	43.9810	0.0000
62	844.3788	180.6276	703734.9929	87.0824	0.0000
64	331.4875	22.0764	7137.1104	66.0972	0.0000
68	89.8919	85.8992	0.0000	9333.4916	0.0000
72	0.0000	0.0000	0.0000	41.5579	0.0000
76	0.0000	0.0000	0.0000	551154.780	0.0000
78	0.0000	364.3938	374515.7812	31.4150	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	2191288.953	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2819597.329	0.0000
38b	0.0000	0.0000	0.0000	49.5601	0.0000
44b	0.0000	0.0000	0.0000	24.9811	0.0000
46b	0.0000	0.0000	0.0000	34.1643	0.0000
48b	0.0000	0.0000	0.0000	36.7381	0.0000
50b	0.0000	0.0000	0.0000	32.8899	0.0000
52b	0.0000	0.0000	0.0000	28.5757	0.0000
54b	0.0000	0.0000	0.0000	34.5210	0.0000
56b	0.0000	0.0000	0.0000	35.0382	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	108755.327	0.0000
60b	0.0000	0.0000	0.0000	31.5128	0.0000
Holly Lk	0.0000	0.0000	0.0000	101902.750	0.0000
63b	0.0000	0.0000	0.0000	26.3617	0.0000
65b	0.0000	0.0000	0.0000	26.0400	0.0000
69b	0.0000	0.0000	0.0000	25.1651	0.0000
71b	0.0000	0.0000	0.0000	31.3196	0.0000
73b	141.0362	0.0000	0.0000	66.8943	0.0000
123	601.6343	136.5921	242027.0573	106.8110	0.0000
125	457.8955	458.0333	0.0000	40971.2819	0.0000

APPENDIX E

Alternative 3 - 10 year storm

Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	XS #2	431.00	Natural	89.71	0.03000	46.39	4.95		
3	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
4	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
5	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
6	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
7	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
8	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
9	XS #9	75.00	Natural	124.19	0.03000	37.81	6.90		
10	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
11	STUB	8.00	Circular	19.63	0.01300	5.00	5.00		
12	FRONTAGE	66.00	Circular	28.27	0.01300	6.00	6.00		
13	HWY 17 S	75.00	Circular	28.27	0.01300	6.00	6.00		
14	HWY 17 N	77.00	Circular	28.27	0.01300	6.00	6.00		
15	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
16	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
17	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
18	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
19	61	350.00	Natural	49.50	0.03000	50.00	3.50		
20	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
21	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.90		
22	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
23	80	150.00	Natural	18.00	0.03000	39.00	2.50		
24	Bx 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
25	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
26	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
27	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
28	Chan A	270.00	Natural	54.55	0.05000	23.95	4.90		
29	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
30	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
31	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
33	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
34	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
35	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
36	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
37	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
38	124	200.00	Trapezoid	140.00	0.03500	11.00	7.00	1.00	1.00
39	Spanish1	45.00	Circular	7.07	0.01300	3.00	3.00		
40	IndianDr1	42.00	Circular	7.07	0.01300	3.00	3.00		
41	2042" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
42	Driveway1	59.00	Circular	28.27	0.01300	6.00	6.00		
43	2024"	40.00	Circular	3.14	0.01300	2.00	2.00		
44	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
45	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14406.0000 feet

Table E16. New Conduit Information Section
Conduit Invert (IE) Elevation and Conduit
Maximum Water Surface (WS) Elevations

Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	24.18	22.88	Natural
XS #2	4	6	18.53	18.40	22.60	22.55	Natural
XS #3	6	63	18.40	18.40	22.55	22.70	Natural
XS #4	8	15	18.30	18.20	22.71	22.71	Natural
XS #5	17	19	18.10	18.00	22.95	23.27	Natural
XS #6	19	21	18.00	17.90	23.27	23.27	Natural
XS #7	23	25	17.50	17.20	22.43	21.01	Natural
XS #8	25	27	17.20	15.60	21.01	20.95	Natural
XS #9	30	27	16.20	15.60	20.93	20.95	Natural
XS #10	32	34	16.10	15.30	20.34	20.40	Natural
STUB	34	36	15.30	14.80	20.40	18.99	Circular
FRONTAGE	36	38	14.80	13.30	18.99	19.10	Circular
HWY 17 S	38	41	13.30	11.60	19.10	19.04	Circular
HWY 17 N	41	45	11.60	9.900	19.04	18.76	Circular
PARKINGLOT	48	45	9.900	9.100	18.45	18.76	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	11.59	18.45	Circular
SOUTH BAY	72	54	21.60	20.60	24.20	24.19	Natural
58	1	54	21.10	20.60	24.18	24.19	Natural
61	56	55	22.50	22.10	25.00	25.60	Natural
62	55	1	22.10	21.10	25.60	24.18	Natural
XS #3a	63	8	18.40	18.30	22.70	22.71	Natural
XS MALLARD	64	63	20.41	18.40	22.77	22.70	Natural
80	79	68	21.50	20.96	33.98	24.30	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.420	10.75	7.396	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.420	7.388	7.396	Rectangle
Palmto Lk	44b	46b	6.230	5.460	7.388	7.339	Natural
Clvt 7	46b	48b	5.460	5.170	7.339	7.290	Circular
Chan A	48b	50b	5.510	5.170	7.290	7.041	Natural
Clvt 6	50b	52b	5.510	5.350	7.041	6.918	Circular
Chan B	52b	54b	5.350	4.520	6.918	6.590	Natural
Clvt 5	54b	56b	4.520	4.380	6.590	6.541	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	5.751	6.541	Natural
Chan D	Holly Lk	63b	4.750	4.330	5.960	5.910	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	5.910	5.846	Rectangle
Chan E	69b	Myrtle Lk	4.240	4.200	5.846	5.751	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	4.320	3.908	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	6.104	4.382	Rectangle
124	27	123	15.60	15.30	20.95	20.95	Trapezoid
Spanish1	4	2	18.53	18.41	22.60	22.88	Circular
IndianDr1	15	17	18.20	18.10	22.71	22.95	Circular
2042" RCP	21	23	17.90	17.50	23.27	22.43	Circular
Driveway1	32	30	16.30	16.20	20.34	20.93	Circular
2024"	68	64	20.96	20.41	24.30	22.77	Circular
36" RCP	125	123	16.82	16.78	21.00	20.95	Circular
48" RCP	125	123	15.50	15.30	21.00	20.95	Circular

Table E20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts. The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time (min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	0.0000	0.0000	0.0000	38.7456	0.0000
2	0.0000	0.0000	0.0000	2137649.606	0.0000
4	0.0000	0.0000	0.0000	51.0829	0.0000
6	0.0000	0.0000	0.0000	52.1365	0.0000
8	0.0000	0.0000	0.0000	55.3617	0.0000
15	0.0000	0.0000	0.0000	56.6547	0.0000
17	0.0000	0.0000	0.0000	60.9356	0.0000
19	0.0000	0.0000	0.0000	66.2204	0.0000
21	0.0000	0.0000	0.0000	35890.0176	0.0000
23	0.0000	0.0000	0.0000	61.8973	0.0000
25	0.0000	0.0000	0.0000	47.8407	0.0000
27	0.0000	0.0000	0.0000	174025.675	0.0000
30	0.0000	0.0000	0.0000	59.4517	0.0000
32	0.0000	0.0000	0.0000	50.7160	0.0000
34	0.0000	0.0000	0.0000	64.1472	0.0000
36	0.0000	0.0000	0.0000	52.6299	0.0000
38	0.0000	0.0000	0.0000	72.6329	0.0000
41	13.4079	0.0000	0.0000	93.5182	0.0000
45	20.3802	0.0000	0.0000	121.4199	0.0000
48	19.4841	0.0000	0.0000	111.1877	0.0000
52	0.0000	0.0000	0.0000	1041628.881	0.0000
54	0.0000	0.0000	0.0000	45.1552	0.0000
55	0.0000	114.3993	26383.9208	43.9810	0.0000
56	0.0000	169.4485	771641.6248	43.9810	0.0000
63	0.0000	0.0000	0.0000	54.0539	0.0000
64	0.0000	0.0000	0.0000	29.6006	0.0000
68	0.0000	0.0000	0.0000	198929.474	0.0000
72	0.0000	0.0000	0.0000	32.7162	0.0000
76	0.0000	0.0000	0.0000	132772.023	0.0000
78	0.0000	0.0000	0.0000	31.1665	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	1469079.234	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2220177.419	0.0000
38b	0.0000	0.0000	0.0000	23.9264	0.0000
44b	0.0000	0.0000	0.0000	14.5591	0.0000
46b	0.0000	0.0000	0.0000	23.6055	0.0000
48b	0.0000	0.0000	0.0000	26.6420	0.0000
50b	0.0000	0.0000	0.0000	23.5141	0.0000
52b	0.0000	0.0000	0.0000	19.6984	0.0000
54b	0.0000	0.0000	0.0000	26.0125	0.0000
56b	0.0000	0.0000	0.0000	27.1526	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	80610.4308	0.0000
60b	0.0000	0.0000	0.0000	22.0873	0.0000
Holly Lk	0.0000	0.0000	0.0000	65314.6285	0.0000
63b	0.0000	0.0000	0.0000	19.8599	0.0000
65b	0.0000	0.0000	0.0000	20.1847	0.0000
69b	0.0000	0.0000	0.0000	17.5711	0.0000
71b	0.0000	0.0000	0.0000	16.1151	0.0000
73b	17.0000	0.0000	0.0000	66.8943	0.0000
123	0.0000	0.0000	0.0000	121561.891	0.0000
125	0.0000	0.0000	0.0000	3498543.515	0.0000

Table #1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	XS #2	411.00	Natural	89.71	0.03000	46.39	4.95		
3	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
4	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
5	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
6	XS #6	586.00	Natural	161.13	0.03000	60.60	6.34		
7	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
8	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
9	XS #9	75.00	Natural	124.19	0.03000	37.81	6.90		
10	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
11	STUB	8.00	Circular	19.63	0.01300	5.00	5.00		
12	FRONTAGE	66.00	Circular	28.27	0.01300	6.00	6.00		
13	HWY 17 S	75.00	Circular	28.27	0.01300	6.00	6.00		
14	HWY 17 N	77.00	Circular	28.27	0.01300	6.00	6.00		
15	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
16	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
17	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
18	58	1490.00	Natural	52.60	0.03000	50.00	3.60		
19	61	350.00	Natural	49.50	0.03000	50.00	3.50		
20	62	1300.00	Natural	49.20	0.03500	50.00	3.30		
21	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.90		
22	XS MALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
23	80	150.00	Natural	18.00	0.03000	19.00	2.50		
24	Pk 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
25	Clvt 10	42.00	Rectangle	40.50	0.01500	13.50	3.00		
26	Palmto Lk	700.00	Natural	173.00	0.05000	56.00	4.50		
27	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
28	Chan A	270.00	Natural	54.55	0.05000	23.95	4.90		
29	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
30	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
31	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
33	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
34	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
35	Chan E	150.00	Trapezoid	106.19	0.03000	29.00	3.70	1.00	1.00
36	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
37	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
38	124	200.00	Trapezoid	140.00	0.03500	13.00	7.00	1.00	1.00
39	Spanish1	45.00	Circular	7.07	0.01300	3.00	3.00		
40	IndianDr1	42.00	Circular	7.07	0.01300	3.00	3.00		
41	2042" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
42	Driveway1	59.00	Circular	28.27	0.01300	6.00	6.00		
43	2024"	40.00	Circular	3.14	0.01300	2.00	2.00		
44	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
45	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14406.0000 feet

Table B16. New Conduit Information Section
Conduit Invert (IE) Elevation and Conduit
Maximum Water Surface (WS) Elevations

Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	24.21	23.49	Natural
XS #2	4	6	18.53	18.40	23.12	23.10	Natural
XS #3	6	63	18.40	18.40	23.10	23.11	Natural
XS #4	8	15	18.30	18.20	23.11	23.12	Natural
XS #5	17	19	18.10	18.00	23.43	23.73	Natural
XS #6	19	21	18.00	17.90	23.73	23.73	Natural
XS #7	23	25	17.50	17.20	22.67	21.70	Natural
XS #8	25	27	17.20	15.60	21.70	21.66	Natural
XS #9	30	27	16.20	15.60	21.65	21.66	Natural
XS #10	32	34	16.30	15.30	21.08	21.15	Natural
STUB	34	36	15.30	14.80	21.15	19.53	Circular
FRONTAGE	36	38	14.80	13.30	19.53	19.55	Circular
HWY 17 S	38	41	13.30	11.60	19.56	19.38	Circular
HWY 17 N	41	45	11.60	9.900	19.38	18.97	Circular
PARKINGLOT	49	45	9.900	9.100	18.71	18.97	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	11.89	18.71	Circular
SOUTH BAY	72	54	21.60	20.60	24.29	24.25	Natural
58	1	54	21.10	20.60	24.21	24.25	Natural
61	56	55	22.50	22.10	26.00	25.60	Natural
62	55	1	22.10	21.10	25.60	24.21	Natural
XS #3a	63	8	18.40	18.30	23.11	23.11	Natural
XS KALLARD	64	63	20.41	18.40	23.13	23.11	Natural
80	78	69	21.50	20.96	24.00	24.86	Natural
Ex 54"CMP	73b	Dgwood Lk	5.430	5.220	10.75	7.492	Circular
Clvt 10	44b	Dgwood Lk	6.230	5.420	7.485	7.492	Rectangle
Palmto Lk	44b	46b	6.230	5.460	7.485	7.437	Natural
Clvt 7	46b	48b	5.460	5.170	7.437	7.385	Circular
Chan A	48b	50b	5.510	5.170	7.385	7.132	Natural
Clvt 6	50b	52b	5.510	5.350	7.132	7.007	Circular
Chan B	52b	54b	5.350	4.520	7.007	6.675	Natural
Clvt 5	54b	56b	4.520	4.380	6.675	6.621	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	5.915	6.621	Natural
Chan D	Holly Lk	63b	4.750	4.310	6.162	6.110	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	6.110	6.026	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	6.026	5.915	Trapezoid
Clvt2 Out	60b	69b	2.570	2.510	4.612	4.138	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	6.629	4.703	Rectangle
124	27	123	15.60	15.30	21.66	21.67	Trapezoid
Spanish1	4	2	18.53	18.41	23.12	23.49	Circular
IndianDr1	15	17	18.20	18.10	23.12	23.43	Circular
2042" RCP	21	23	17.90	17.50	23.73	22.67	Circular
Driveway1	32	30	16.30	16.20	21.08	21.65	Circular
2024"	68	64	20.96	20.41	24.86	23.13	Circular
36" RCP	125	123	16.82	16.78	21.78	21.67	Circular
48" RCP	125	123	15.50	15.30	21.78	21.67	Circular

Table E20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts. The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time (min)	Out of System Flooded Volume	Maximum Volume	Stored in System - Ponding Allowed Flood Pond Volume
1	0.0000	0.0000	0.0000	39.1290	0.0000
2	0.0000	0.0000	0.0000	2438016.041	0.0000
4	0.0000	0.0000	0.0000	57.7081	0.0000
6	0.0000	0.0000	0.0000	58.9979	0.0000
8	0.0000	0.0000	0.0000	60.4794	0.0000
15	0.0000	0.0000	0.0000	61.7893	0.0000
17	0.0000	0.0000	0.0000	66.9979	0.0000
19	0.0000	0.0000	0.0000	71.9704	0.0000
21	0.0000	0.0000	0.0000	85479.2781	0.0000
23	0.0000	0.0000	0.0000	65.0273	0.0000
25	0.0000	0.0000	0.0000	56.5848	0.0000
27	0.0000	0.0000	0.0000	199599.181	0.0000
30	0.0000	0.0000	0.0000	68.4466	0.0000
32	0.0000	0.0000	0.0000	60.0751	0.0000
34	0.0000	0.0000	0.0000	73.5730	0.0000
36	0.0000	0.0000	0.0000	59.4933	0.0000
38	8.8021	0.0000	0.0000	78.6058	0.0000
41	18.5364	0.0000	0.0000	97.7908	0.0000
45	24.6508	7.6869	5751.3928	124.0264	0.0000
48	23.6032	0.0000	0.0000	314.4896	0.0000
52	0.0000	0.0000	0.0000	1257026.009	0.0000
54	0.0000	0.0000	0.0000	49.9275	0.0000
55	0.0000	152.6051	32268.9651	43.9810	0.0000
56	0.0000	193.6371	1058515.2487	43.9810	0.0000
63	0.0000	0.0000	0.0000	59.1628	0.0000
64	0.0000	0.0000	0.0000	34.1589	0.0000
68	0.0000	0.0000	0.0000	237183.871	0.0000
72	0.0000	0.0000	0.0000	31.8605	0.0000
76	0.0000	0.0000	0.0000	278719.681	0.0000
78	0.0000	48.7500	21733.5781	31.4150	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	1591713.965	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2289615.864	0.0000
18b	0.0000	0.0000	0.0000	30.5231	0.0000
44b	0.0000	0.0000	0.0000	15.7641	0.0000
46b	0.0000	0.0000	0.0000	24.8397	0.0000
48b	0.0000	0.0000	0.0000	27.8346	0.0000
50b	0.0000	0.0000	0.0000	24.6563	0.0000
52b	0.0000	0.0000	0.0000	20.8167	0.0000
54b	0.0000	0.0000	0.0000	27.0756	0.0000
56b	0.0000	0.0000	0.0000	28.1619	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	91295.6551	0.0000
60b	0.0000	0.0000	0.0000	25.6613	0.0000
Holly Lk	0.0000	0.0000	0.0000	79089.8170	0.0000
63b	0.0000	0.0000	0.0000	22.3693	0.0000
65b	0.0000	0.0000	0.0000	22.4442	0.0000
69b	0.0000	0.0000	0.0000	20.4545	0.0000
71b	0.0000	0.0000	0.0000	20.1438	0.0000
73b	17.0000	0.0000	0.0000	66.8943	0.0000
123	0.0000	0.0000	0.0000	147004.763	0.0000
125	0.0000	0.0000	0.0000	4006919.851	0.0000

Table E1 - Conduit Data

Inp Num	Conduit Name	Length (ft)	Conduit Class	Area (ft^2)	Manning Coef.	Max Width (ft)	Depth (ft)	Trapezoid Side Slopes	
1	XS #1	550.00	Natural	100.67	0.03500	50.00	4.91		
2	XS #2	431.00	Natural	89.71	0.03000	36.39	4.95		
3	XS #3	191.00	Natural	81.11	0.03000	45.03	4.93		
4	XS #4	130.00	Natural	99.88	0.03000	57.76	5.62		
5	XS #5	1089.00	Natural	130.11	0.03000	44.40	7.20		
6	XS #6	586.00	Natural	161.13	0.03000	60.60	8.34		
7	XS #7	1608.00	Natural	181.54	0.03000	41.07	9.11		
8	XS #8	761.00	Natural	172.35	0.03000	51.30	8.77		
9	XS #9	75.00	Natural	114.19	0.03000	37.81	6.90		
10	XS #10	446.00	Natural	170.10	0.03000	44.08	7.46		
11	STUB	8.00	Circular	19.63	0.01300	5.00	5.00		
12	FRONTAGE	66.00	Circular	28.27	0.01300	6.00	6.00		
13	HWY 17 S	75.00	Circular	28.27	0.01300	6.00	6.00		
14	HWY 17 N	77.00	Circular	28.27	0.01300	6.00	6.00		
15	PARKINGLOT	73.00	Circular	28.27	0.01300	6.00	6.00		
16	TO LAKE	175.00	Circular	28.27	0.01300	6.00	6.00		
17	SOUTH BAY	1800.00	Natural	62.50	0.03000	50.00	4.00		
18	58	1490.00	Natural	52.60	0.03000	50.00	3.40		
19	61	350.00	Natural	49.50	0.03000	50.00	3.50		
20	62	1300.00	Natural	49.20	0.03500	50.00	3.50		
21	XS #3a	66.00	Natural	87.00	0.03000	67.00	4.90		
22	XS HALLARD	158.00	Natural	40.31	0.03000	25.00	4.20		
23	80	150.00	Natural	19.00	0.03000	39.00	2.50		
24	Ex 54"CMP	50.00	Circular	15.90	0.02400	4.50	4.50		
25	Clvt 10	42.00	Rectangle	40.58	0.01500	13.50	3.00		
26	Palmto Lk	700.00	Natural	172.00	0.05000	56.00	4.50		
27	Clvt 7	41.00	Circular	12.57	0.01300	4.00	4.00		
28	Chan A	270.00	Natural	54.85	0.05000	23.95	4.90		
29	Clvt 6	41.00	Circular	12.57	0.01300	4.00	4.00		
30	Chan B	210.00	Natural	58.35	0.05000	20.00	5.30		
31	Clvt 5	42.00	Circular	12.57	0.01300	4.00	4.00		
32	Chan C	400.00	Natural	43.50	0.05000	28.00	4.00		
33	Chan D	150.00	Trapezoid	81.25	0.02000	25.00	3.25	0.00	0.00
34	Oak Clvt	35.00	Rectangle	24.00	0.01300	8.00	3.00		
35	Chan E	150.00	Trapezoid	106.19	0.03000	25.00	3.70	1.00	1.00
36	Clvt2 Out	40.00	Rectangle	32.00	0.01300	8.00	4.00		
37	Clvt1 Out	50.00	Rectangle	28.00	0.01300	7.00	4.00		
38	124	200.00	Trapezoid	149.00	0.03500	13.00	7.00	1.00	1.00
39	Spanish1	45.00	Circular	7.07	0.01300	3.00	3.00		
40	IndianDr1	42.00	Circular	7.07	0.01300	3.00	3.00		
41	2042" RCP	64.00	Circular	9.62	0.01300	3.50	3.50		
42	Driveway1	59.00	Circular	28.27	0.01300	6.00	6.00		
43	2024"	40.00	Circular	3.14	0.01300	2.00	2.00		
44	36" RCP	40.00	Circular	7.07	0.01300	3.00	3.00		
45	48" RCP	40.00	Circular	12.57	0.01300	4.00	4.00		

Total length of all conduits .... 14406.0000 feet

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# Table E16. New Conduit Information Section            #
#            Conduit Invert (IE) Elevation and Conduit  #
#            Maximum Water Surface (WS) Elevations      #
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Conduit Name	Upstream Node	Downstream Node	IE Up	IE Dn	WS Up	WS Dn	Conduit Type
XS #1	1	2	21.10	20.70	24.55	24.47	Natural
XS #2	4	6	18.53	18.40	24.00	23.97	Natural
XS #3	6	63	18.40	18.40	23.97	23.95	Natural
XS #4	8	15	18.30	18.20	23.95	23.96	Natural
XS #5	17	19	18.10	18.00	24.41	24.68	Natural
XS #6	19	21	18.00	17.90	24.68	24.69	Natural
XS #7	23	25	17.50	17.20	23.13	22.93	Natural
XS #8	25	27	17.20	15.60	22.93	22.90	Natural
XS #9	30	27	16.20	15.60	22.89	22.90	Natural
XS #10	32	34	16.30	15.30	22.29	22.86	Natural
STUB	34	36	15.30	14.80	22.36	20.06	Circular
FRONTAGE	36	38	14.80	13.30	20.06	19.89	Circular
HWY 17 S	38	41	13.30	11.60	19.89	19.51	Circular
HWY 17 N	41	45	11.60	9.900	19.51	18.97	Circular
PARKINGLOT	48	45	9.900	9.100	18.66	18.97	Circular
TO LAKE	Lk-Elzbth	48	9.900	9.600	12.40	18.66	Circular
SOUTH BAY	72	54	21.60	20.60	24.94	24.60	Natural
58	1	54	21.10	20.60	24.55	24.60	Natural
61	56	55	22.50	22.10	26.00	25.60	Natural
62	55	1	22.10	21.10	25.60	24.55	Natural
XS #3a	63	8	18.40	18.30	23.95	23.95	Natural
XS MALLARD	64	63	20.41	18.40	23.96	23.95	Natural
80	78	68	21.50	20.96	24.00	25.67	Natural
Sx 54"CMP	73b	Dgwood Lk	5.410	5.220	10.75	7.681	Circular
Clvt 10	44b	Dgwood Lk	6.210	5.420	7.673	7.681	Rectangle
Palmto Lk	44b	46b	6.210	5.460	7.673	7.630	Natural
Clvt 7	46b	48b	5.460	5.170	7.630	7.572	Circular
Chan A	48b	50b	5.510	5.170	7.572	7.309	Natural
Clvt 6	50b	52b	5.510	5.350	7.309	7.180	Circular
Chan B	52b	54b	5.350	4.520	7.180	6.855	Natural
Clvt 5	54b	56b	4.520	4.380	6.855	6.795	Circular
Chan C	Myrtle Lk	56b	4.500	4.380	6.197	6.795	Natural
Chan D	Holly Lk	63b	4.750	4.330	6.506	6.452	Trapezoid
Oak Clvt	63b	65b	4.330	4.240	6.452	6.330	Rectangle
Chan E	65b	Myrtle Lk	4.240	4.200	6.330	6.197	Trapezoid
Clvt1 Out	60b	69b	2.570	2.510	5.101	4.531	Rectangle
Clvt1 Out	38b	71b	4.200	3.100	7.464	5.220	Rectangle
124	27	123	15.60	15.30	22.90	22.91	Trapezoid
Spanish1	4	2	18.53	18.41	24.00	24.47	Circular
IndianDr1	15	17	18.20	18.10	23.96	24.41	Circular
2042" RCP	21	23	17.90	17.50	24.69	23.13	Circular
Driveway1	32	30	16.30	16.20	22.29	22.89	Circular
2024"	68	64	20.96	20.41	25.67	23.96	Circular
36" RCP	125	123	16.02	16.78	23.18	22.91	Circular
48" RCP	125	123	15.50	15.30	23.18	22.91	Circular

Table B20 - Junction Flooding and Volume Listing. The maximum volume is the total volume in the node including the volume in the flooded storage area. This is the max volume at any time. The volume in the flooded storage area is the total volume above the ground elevation, where the flooded pond storage area starts.
The fourth column is instantaneous, the fifth is the sum of the flooded volume over the entire simulation. Units are either ft^3 or m^3 depending on the units.

Junction Name	Surcharged Time (min)	Flooded Time (min)	Out of System Flooded Volume	Maximum Volume	Stored in System Ponding Allowed Flood Pond Volume
1	0.0000	0.0000	0.0000	43.3149	0.0000
2	0.0000	0.0000	0.0000	2926538.387	0.0000
4	884.4659	0.0000	0.0000	68.7156	0.0000
6	949.7812	0.0000	0.0000	70.0502	0.0000
8	36.2222	0.0000	0.0000	71.0436	0.0000
15	428.9737	0.0000	0.0000	72.3637	0.0000
17	0.0000	0.0000	0.0000	79.3484	0.0000
19	0.0000	0.0000	0.0000	83.9578	0.0000
21	0.0000	0.0000	0.0000	173213.739	0.0000
23	0.0000	0.0000	0.0000	70.7697	0.0000
25	0.0000	0.0000	0.0000	71.9516	0.0000
27	0.0000	0.0000	0.0000	244732.902	0.0000
30	0.0000	0.0000	0.0000	84.0358	0.0000
32	0.0000	0.0000	0.0000	75.2780	0.0000
34	0.0000	0.0000	0.0000	88.6666	0.0000
36	0.0000	0.0000	0.0000	66.1335	0.0000
38	13.6600	0.0000	0.0000	82.7531	0.0000
41	27.4643	0.0000	0.0000	99.4379	0.0000
45	31.5253	11.1455	12259.1070	124.0264	0.0000
48	28.0018	0.0000	0.0000	113.7944	0.0000
52	0.0000	0.0000	0.0000	1437746.209	0.0000
54	0.0000	515.4186	357371.6295	50.2640	0.0000
55	0.0000	228.7001	162663.2001	43.9810	0.0000
56	0.0000	232.2403	1615464.5307	43.9810	0.0000
63	937.6083	0.0000	0.0000	69.7239	0.0000
64	0.0000	0.0000	0.0000	44.5694	0.0000
68	0.0000	12.3583	18548.7369	292389.241	0.0000
72	0.0000	0.0000	0.0000	41.9273	0.0000
76	0.0000	0.0000	0.0000	510073.812	0.0000
78	0.0000	94.8348	97430.1886	31.4150	0.0000
Lk-Elzbth	0.0000	0.0000	0.0000	1806343.603	0.0000
Dgwood Lk	0.0000	0.0000	0.0000	2425914.665	0.0000
38b	0.0000	0.0000	0.0000	41.0195	0.0000
44b	0.0000	0.0000	0.0000	18.1380	0.0000
46b	0.0000	0.0000	0.0000	27.2621	0.0000
48b	0.0000	0.0000	0.0000	30.1804	0.0000
50b	0.0000	0.0000	0.0000	26.8726	0.0000
52b	0.0000	0.0000	0.0000	22.9935	0.0000
54b	0.0000	0.0000	0.0000	29.3364	0.0000
56b	0.0000	0.0000	0.0000	30.3414	0.0000
Myrtle Lk	0.0000	0.0000	0.0000	109617.642	0.0000
60b	0.0000	0.0000	0.0000	31.8027	0.0000
Holly Lk	0.0000	0.0000	0.0000	103698.994	0.0000
63b	0.0000	0.0000	0.0000	26.6596	0.0000
65b	0.0000	0.0000	0.0000	26.2691	0.0000
69b	0.0000	0.0000	0.0000	25.3986	0.0000
71b	0.0000	0.0000	0.0000	26.6370	0.0000
73b	17.0000	0.0000	0.0000	66.8943	0.0000
123	0.0000	0.0000	0.0000	192951.206	0.0000
125	0.0000	0.0000	0.0000	4931901.222	0.0000

STATE OF SOUTH CAROLINA
IN THE COURT OF APPEALS

RECEIVED
DEC 12 2011
SC Court of Appeals

APPEAL FROM THE ADMINISTRATIVE LAW COURT
John D. McLeod, Administrative Law Judge

Case No. 08-ALC-07-0221-CC

Deerfield Plantation Phase IIB Property Owners Association ..... Appellant,

vs.

South Carolina Department of Health and Environmental Control,
Deertrack Golf, Inc., and Bill Clark Homes of Myrtle Beach, LLC ..... Respondents.

RETURN TO RESPONDENT'S MOTION SEEKING ESTABLISHMENT OF AN APPELLATE BRIEFING SCHEDULE AND MOTION TO REMAND

TO: THE COURT OF APPEALS AND THE RESPONDENTS

The Appellant Deerfield Plantation Phase IIB Property Owners Association hereby responds to the Respondent Deertrack Golf, Inc.'s motion seeking establishment of an appellate briefing schedule and concurrently moves this honorable Court, pursuant to SCACR 240 and S.C. Code § 1-23-380(3), for an order remanding this matter to the Administrative Law Court ("ALC") with directions to remand to the Department of Health and Environmental Control ("DHEC") for consideration of new and additional evidence, and to complete all required permitting and certification processes triggered as a result of a new "jurisdictional determination" made by the U.S. Army Corps of Engineers regarding the presence of "waters of the United States" on the property that is the subject of this appeal. The basis for this request is that the S.C. Department of Health and Environmental Control's

("DHEC") permit which is the subject matter of this appeal no longer authorizes the construction activities proposed by Deertrack Golf, Inc. and further administrative action on the permit is required in order for Deertrack Golf to proceed with development on the property at issue, as stated by DHEC's letter of October 6, 2011. (Exhibit A, letter of DHEC's Shannon Hicks).

BACKGROUND

This case involves the appeal of a storm water permit and coastal zone consistency certification issued to Deertrack Golf, Inc., by the South Carolina Department of Health and Environmental Control (DHEC), in connection with the proposed development of a 278-lot residential subdivision on a portion of an old golf course. The DHEC decision in this case, and the decision of the Administrative Law Court, relied on a determination by the U.S. Army Corps of Engineers (Corps) that there were no "waters of the United States" on the subject property. Because the Corps initially determined that there were no "waters of the United States," DHEC's permit decision relied on the applicant's representation that there were no "waters of the State" on the property.

Based on the erroneous finding that there were no "waters of the United States" on the site, the agency did not authorize discharges into "waters of the United States" and conditioned the permit on there being no waters of the United States on the project site.[1] (Exhibit A). Shannon Hicks, manager of the stormwater and State certification section for DHEC's Office of Ocean and Coastal Resource Management, testified that if there are

[1]In addition, DHEC did not conduct a 401 water quality certification review, as required by Section 401 of the federal Clean Water Act, 33 U.S.C. § 1341. A 401 water quality certification is required for all Section 404 Clean Water Act ("CWA") permits. Section 404 permits are required for discharges into "waters of the United States." Since the Corps had found no "waters of the United States" on the property when DHEC made a decision on Deertrack's permit, this 401 certification review was not conducted.

"waters of the United States" on the site, the analysis of the stormwater permit would change, and additional requirements might be imposed. (Exhibit B, Deposition of Shannon Hicks, pages 15-18).

In April, 2009, the Appellant filed an action in the United States District Court for the District of South Carolina challenging the validity of the federal jurisdictional determination made by the Corps for this property. Again, the Corps initially determined that the Deertrack Golf property contained no "waters of the United States" and this determination was what DHEC relied on in conducting its review of the permit on appeal. But on March 17, 2010, the Corps issued a new superseding jurisdictional determination in which it now asserts Clean Water Act jurisdiction over portions of the Deertrack Golf property that the Corps has determined to be "waters of the United States." In other words, there are now "waters of the United States" on the subject property, whereas there were not recognized "waters of the United States" when DHEC made the decision at issue here. The areas deemed jurisdictional waters of the United States are depicted on the map identified as Exhibit C.

On May 4, 2010, the Appellant Deerfield moved to remand this case to the Administrative Law Court with instructions to remand to DHEC to consider this new information, which triggers additional approvals. At that time, DHEC responded suggesting that the appeal be held in abeyance. Rather than remand the case, this Court held the case in abeyance to give DHEC the opportunity to conduct additional administrative action.[2] Since that time, DHEC's Shannon Hicks issued a letter informing Deertrack Golf that modifications

[2]Appellant notes that in order for DHEC to conduct administrative action, it must have a request pending before it. The permit at issue is under this Court's jurisdiction so DHEC cannot take action on this permit, and Deetrack Golf has not submitted any other permits or requests for approvals in light of the new Corps jurisdictional determination. Thus, the agency cannot take administrative action until the permit is remanded to it.

to the permit are required; that the existing permit cannot authorize construction; and that DHEC would need to conduct additional reviews prior to any construction activities.

Deertrack Golf, Inc., admits that the current approved plans at issue in this appeal show road and lot construction impacting the areas deemed jurisdictional by the Corps, and "reflect and intent to pipe, fill, and eliminate the jurisdictional connection." (Exhibit D, Shahid letter dated Nov. 10, 2011).

ARGUMENT

Establishing a briefing schedule in a case where the Respondent DHEC, the permitting agency, has unequivocally stated that the activity proposed by Deertrack Golf, Inc., is "**without authorization and certification from . . . DHEC**" is not prudent or warranted. (Exhibit A, Hicks letter). DHEC notified Deertrack that the impacts to newly declared "waters of the United States" proposed by Deertrack require modification of the permit at issue, as well as additional authorization and certification from DHEC to fill the "waters of the United States" via DHEC's 401 water quality certification program. *See* S.C. Code Ann. Regs. 61-101, *et seq.* This Court has the authority under S.C. Code § 1-23-380(E) to remand this case for further proceedings and allow DHEC to review the necessary modifications and provide the necessary approvals.

Deertrack Golf, Inc., cites to the October 6, 2011, letter of Shannon Hicks of DHEC in its motion – the very document that declares that the permit on appeal cannot authorize the proposed activity and that the agency must conduct a new review. Specifically, Ms. Hicks' letter states that "additional administrative action on the permit [is] warranted," which was necessitated by the U.S. Army Corps of Engineers' assertion of Clean Water Act jurisdiction over a portion of the Deertrack Golf, Inc. property **after** DHEC had issued the permit on

appeal and **after** the Administrative Law Court's Final Order and Decision which is pending before this Court. Recognizing that the Corps' decision to assert jurisdiction alters the agency's permit decision, Ms. Hicks notified Mary Shahid, counsel for Deertrack Golf, Inc., that

> **your client does not have authorization and certification from** the Corps of Engineers and **DHEC to impact waters of the Unites States.** In addition, your client's permit does not authorize storm water discharges into waters of the United States without appropriate controls. The application that resulted in the DHEC permit coverage issued for this site [the permit on appeal] represented that there wre no waters of the United States on the site, based on the Corps delineation in effect at the time. **It is a condition of your permit that there be no waters of the United States on the site.**

(Exhibit A, p. 1).

DHEC unequivocally states that "modifications need to be made to the permit before the permitted activity may be conducted" in order to comply with the applicable regulations. (Exhibit A, p. 2).

Additional Review is Required for Compliance with the Applicable Regulations

As of October 6, 2011, there can be no dispute that the permit will have to be modified and additional approvals obtained before construction can commence on the Deertrack Golf site. Under the development plans proposed by Deertrack Golf, Inc., and approved by DHEC, most of the areas that are now deemed "waters of the United States" would be filled. *Compare* Corps delineation map Exhibit C, to the map entitled Master Site Plan, attached hereto as Exhibit E. A portion of the designated "waters of the United States" would be excavated, which is an activity that may not require a Section 404 Clean Water Act permit. However, the excavation would have to be assessed by DHEC under the requirements of the Coastal Management Program and the 401 water quality certification regulations. In addition, the discharge of materials into "waters of the United States" as depicted in

Deertrack's plans, will require a permit under Section 404 of the Clean Water Act. 33 U.S.C. § 1344 and a Section 401 water quality certification from DHEC required by Section 401 of the Clean Water Act, 33. U.S.C. 1341.[3]

The DHEC regulations require Deertrack Golf, Inc., to submit an application to DHEC and require the application to be put out on public notice. S.C. Code Regs. § R.61-101.C. & D. DHEC is required to prepare a written assessment of the water quality impacts of the proposed project and make conclusions about compliance with water quality standards and protection of classified uses. S.C. Code Regs. § R.61-101.F.1.

All of this will have to be done in order for Deertrack to obtain the approvals necessary to begin construction. Because additional approvals will be necessary, and the project will require modifications to obtain those approvals, a decision in this case for a project that is certain to change will not bring any finality to the permit or the issues raised in this appeal, and a briefing schedule is not appropriate.

---

[3]The water quality certification review is conducted by DHEC's Bureau of Water, utilizing the 401 Water Quality Regulations codified as S.C. Code Regs. § R.61-101, *et seq.* Specifically, the regulations require:

> 2. Any applicant for a Federal license or permit to conduct any activity which during construction or operation may result in any discharge to navigable waters is required by Federal law to first obtain a certification from the Department. Potential applicants are encouraged to contact the Department prior to submitting an application. Federal law provides that no Federal license or permit is to be granted until such certification is obtained. Federal permits or licenses for which certification is required as determined by the Federal agency include but are not necessarily limited to:
>
> (a) individual or general Federal permits issued pursuant to Section 404 of the Clean Water Act, 33 U.S.C. Section 1344.
>
> (b) Federal permits issued pursuant to Sections 9 and 10 of the Federal River and Harbor Act, 33 U.S.C. Sections 401 and 403.
>
> (c) permits or licenses issued by the Federal Energy Regulatory Commission, 16 U.S.C. Section 1791, et seq.

S.C. Code Regs. § R.61-101.A.

The new Corps jurisdictional determination is a critical factual and legal consideration under the Clean Water Act, the state water quality certification regulations, and the Coastal Management Program. The new Corps determination dramatically changes the context of the legal analysis of the proposed development, and requires a new review process by the Corps and DHEC. Deertrack Golf, Inc., will have to apply for and obtain a Section 404 permit prior to discharging into the "waters of the United States," as indicated in its approved plans. The Section 404 permit triggers the requirements for Section 401 water quality certification as well as a new coastal zone consistency certification by DHEC. DHEC must ensure that the project meets the standards set forth in the 401 water quality certification regulations and the Coastal Management Program. This new information which requires additional review by DHEC was not available during the contested case hearing before the Administrative Law Court. Moreover, during the contested case hearing, the Administrative Law Judge specifically excluded the presentation of evidence on the issue of whether the subject property contains "waters of the United States" and the Corps original ruling – that there were **no** waters of the United States on the property – was accepted as an established fact.

Accordingly, the new Corps' jurisdictional determination changes the factual and legal underpinning of the permit and certification decisions, and warrants a remand to the ALC with instructions to remand to DHEC for a new permit review including new reviews for consistency with S.C. Code Regs. § R.61-101 and consistency with the Coastal Management Program. As of October 6, 2011, DHEC has officially confirmed that new reviews and approvals will be necessary. In the interest of judicial economy, the new public notice, review and approval process should occur before this appeal is heard or decided given that the appeal could effectively become moot by the additional administrative action that is

necessary.

The New Evidence Requires That This Case Be Remanded for Factual Determinations

The new jurisdictional determination constitutes additional evidence justifying a remand of this case to the Administrative Law Court or to DHEC, pursuant to Section 1-23-380(4) of the South Carolina Administrative Procedures Act:

> (3) If a timely application is made to the court for leave to present additional evidence, and it is shown to the satisfaction of the court that the additional evidence is material and that there were good reasons for failure to present it in the proceeding before the agency, the court may order that the additional evidence be taken before the agency upon conditions determined by the court. The agency may modify its findings and decision by reason of the additional evidence and shall file the evidence and modifications, new findings, or decisions with the reviewing court.

S.C. Code § 1-23-380(3). The decisions of DHEC and the Administrative Law Court – the decisions on appeal in this case – relied upon the original Corps jurisdictional determination. The new Corps jurisdictional determination shows that the original permit and certification were issued upon a flawed factual basis as to the presence of federal or state jurisdictional waters.

This matter is presently before the Court of Appeals on appeal from the Administrative Law Court. Since a reviewing court has no authority to determine factual issues, this case should be remanded to the agency for new consideration of the matter in light of the new factual situation. *Fox v. Newberry County Memorial Hosp.*, 319 S.C. 278, 461 S.E.2d 392 (1995). Respondent DHEC has formally stated that it must take additional administrative action in light of the Corps' new decision to assert Clean Water Act jurisdiction over waters on the Deertrack property.

A new agency review, and new factual findings in light of the new federal jurisdictional determination, are necessary to determine compliance with S.C. Code Regs. §

R.61-101 and the Coastal Management Program.

The Appellant has been informed that Deertrack Golf, Inc., may seek to modify its plans in order to avoid review for consistency with Regulation 61-101, either by eliminating fill in the "waters of the United States" or by applying for a "Nationwide Permit" – a general permit authorized under the Clean Water Act – or by bridging or avoiding impacts to the "waters of the United States." If Deertrack Golf, Inc., intends to alter in any way the development plans which were approved by DHEC, then DHEC would need to review the new plans to ensure compliance with the Stormwater Regulations, the Coastal Management Program, and the 401 Water Quality Certification Regulations.

Under some circumstances, new evidence would warrant a remand to the Administrative Law Judge simply for the purpose of having the ALJ consider the new evidence and make any modifications to the ALJ's ruling as the ALJ may deem appropriate. However, in this case, the new evidence triggers the requirement for a permit and certification that were not part of the original agency review: (1) a Section 404 permit under the Clean Water Act, and (2) a water quality certification under Section 401 of the Clean Water Act and DHEC Regulation 61-101. In addition, the new factual scenario triggers a new coastal zone consistency certification under S.C. Code § 48-39-80. These new requirements will require new public notices, an opportunity for public comments, and a new initial agency decision under S.C. Code § 44-1-60. Accordingly, any new plan must be reviewed initially by DHEC, not by the Administrative Law Court, and thus the order remanding this case to the Administrative Law Court should instruct the Administrative Law Court to further remand the case to DHEC for the purpose of conducting a review.

WHEREFORE, the Appellant, Deerfield Plantation Phase II-B Property Owners

Association respectfully requests that the Court of Appeals issue an Order Denying Respondent Deertrack Golf, Inc.'s Motion Seeking Establishment of an Appellate Briefing Schedule and Remanding this matter back to the Administrative Law Court with instructions to remand the staff decision to the Department of Health and Environmental Control for DHEC to take new administrative action on the permit in light of the presence of "waters of the United States," which was not disclosed or considered in DHEC's permitting decision.

Respectfully submitted,

Amy E. Armstrong
SOUTH CAROLINA ENVIRONMENTAL LAW PROJECT
Mailing address: Post Office Box 1380
Pawleys Island, SC 29585
Office address: 430 Highmarket Street
Georgetown, SC 29440
Telephone (843) 527-0078
FAX (843) 527-0540

Attorney for the Appellant, Deerfield Plantation Phase IIB Property Owners Association

Georgetown, South Carolina

December 8, 2011

D H E C
PROMOTE PROTECT PROSPER
C. Earl Hunter, Commissioner
Promoting and protecting the health of the public and the environment

October 6, 2011

VIA U.S. MAIL
Mary D. Shahid, Esq.
Member
Nexsen Pruet, LLC
205 King Street, Suite 400
Charleston, SC 29401

Re: Deerfield Plantation Phase IIB Property Owners Association v. SCDHEC, Deertrack Golf, Inc., and Bill Clark Homes of Myrtle Beach, Case Tracking No.: 2009135686

EXHIBIT
A

Dear Mary:

As you know, the Court of Appeals issued an Order on October 6, 2010 granting the Joint Motion to Stay that was filed on behalf of all parties. The motion requested that the appeal be held in abeyance pending resolution of the action in the United States District Court **and any subsequent administrative action on the permit if necessary.** In the motion, the Department represented that additional administrative action on the permit was warranted at the time of the filing of the motion, but SCDHEC agreed to refrain from taking any action on the permit until resolution of the action in the United States District Court. In July of this year, you asked the Court to set a briefing schedule given Judge Harwell's order in the U.S. District Court action. Amy's client opposed briefing and we asked for time to consider administrative action, consistent with the previous orders in this case. The Court of Appeals issued an Order on September 8, 2011 holding this in abeyance for thirty days for the Department to take administrative action. The purpose of this letter is to find out how you would like to proceed administratively with the permit.

As you know, your client does not have authorization and certification from the Corps of Engineers and DHEC to impact waters of the United States. In addition, your client's permit does not authorize storm water discharges into waters of the United States without appropriate controls. The application that resulted in the DHEC permit coverage issued for this site represented there were no waters of the United States on the site, based on the Corps delineation in effect at the time. It is a condition of your permit that there be no waters of the United States on the site. Subsequent to the ALC hearing in this case, the Corps issued a modified jurisdictional determination that shows there are waters of the United States on the site. This requires changes to your permit. If the activity shown on your permit drawings were to be conducted, there would be impacts to waters of the United States, which involve the storm water management system, without authorization and certification from the Corps of Engineers and DHEC. Since this is not authorized by the permit, the permit needs to be modified. How you modify the permit depends on your clients intentions. Your client's intentions will likely dictate whether this process follows that for major modification, which reopens the permit, or minor

modification. You also need additional authorization and certification from the Corps of Engineers and DHEC if you intend to fill the waters of the United States.

In addition, the issued permit coverage does not authorize the discharge of untreated storm water into waters of the State. It is a condition of permit coverage that there be no waters of the State on the site. The NOI represented that there are no waters of the State on the site and by law certified fact is a condition of the permit. Judge McLeod found that there are waters of the State on the site. Accordingly, there needs to be some form of pre-treatment before storm water can be discharged into waters of the State unless it can be demonstrated that the areas classified as waters of the State have been utilized as stormwater management ponds for water quality treatment. As I testified in my deposition, if there are waters of the state on the site, then DHEC needs to do additional reviews.

Additionally, after the decision to grant NPDES general permit coverage was appealed to the ALC, your client submitted revised plans to the Department. These revised plans have never been approved by the Department, as this matter was in litigation. The revised plans include technical changes such as pipe additions, pipe sizes, removal of outlet structures, outlet structure elevations, and post-development discharge flows. I understand that some aspects of the revised plans may be a result of requirements imposed by Horry County. Staff has determined that some of the proposed changes are major in nature and require additional technical review and a formal permit modification. How, if at all, would you like DHEC to proceed with review of the revised plans?

What administrative action, if any, to be taken on your clients permit really depends on your clients' intentions with regard to the property. With regards to the waters of the United States, I understand that you have acknowledged the need to modify your plans and get additional approvals. Since the permit does not authorize untreated storm water discharges into waters of the State, you will need to modify your plans to show the waters of the State. You will also need to meet pretreatment requirements or provide supporting information showing the waters of the State have been used to provide water quality treatment for stormwater discharges. How you meet these requirements is in large part up to your client. Thus, how to proceed administratively is really dependent upon your client's plans. Should your client wish to proceed with a permit modification the Notice of Intent/permit application will need to be modified accordingly. In addition, you will need to confirm that Jeffrey Farrell is authorized to represent and provide signatory authority for Deertrack Golf, Inc. as represented on the current Notice of Intent for this project. If he is no longer an authorized representative, the NOI needs to be modified to reflect an authorized representative.

If you think it more prudent to address these issues after the appeal is resolved, I am receptive to hear your opinion. However, in order to comply with the NPDES regulations, these modifications need to be made to the permit before the permitted activity may be conducted.

Please let me know how you would like to proceed administratively so that your permit is one that can be utilized by your client. I am also happy to facilitate a meeting with your client and staff (and Amy Armstrong's client, if necessary) if you think that would help resolve these issues more expeditiously. Please let me know. I will be standing by.

Sincerely,

Shannon Hicks, P.E., Manager
Stormwater & State Certification Section

cc: Amy E. Armstrong, Esq.
Richard M. Smith, Esq.
Davis A. Whitfield-Cargile, Esq.
Rheta Geddings DiNovo
Jill Stewart

STATE OF SOUTH CAROLINA
BEFORE THE ADMINISTRATIVE LAW COURT

DEERFIELD PLANTATION PHASE IIB PROPERTY OWNERS ASSOCIATION,	)	CASE NO. 08-ALC-07-0221-CC
Petitioner,	)	
vs.	)	
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL, AND DEERTRACK GOLF, INC.,	)	
Respondents.	)	
BILL CLARK HOMES OF MYRTLE BEACH, LLC,	)	
Intervenor.	)	

* *

DEPOSITION OF: SHANNON M. HICKS

DATE TAKEN: Monday, November 3, 2008

TIME: 1:10 p.m.

PLACE: Suite 400
1362 McMillan Avenue
North Charleston, SC

REPORTED BY: TERI L. SAMPSON,
Registered Professional
Reporter and Notary Public

* *

Exhibit B

Electronically signed by Teri Sampson (401-251-957-7637)

A P P E A R A N C E S

REPRESENTING THE PETITIONER:

JAMES STUART CHANDLER, JR., ESQUIRE
SC ENVIRONMENTAL LAW PROJECT
430 Highmarket Street
Georgetown, SC 29440
(843) 527-0078
email: jchandler@scelp.org

REPRESENTING THE RESPONDENT SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL:

ELIZABETH A. DIECK, ESQUIRE
DHEC-OCRM
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1362 McMillan Avenue
North Charleston, SC 29405
(843) 953-0213
email: dieckea@dhec.sc.gov

REPRESENTING THE RESPONDENT DEERTRACK GOLF, INC.:

MARY A. SHAHID, ESQUIRE
McNair Law Firm
Suite 400, 100 Calhoun Street
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(843) 723-7831
email: mshahid@mcnair.net

REPRESENTING THE INTERVENOR:

STANLEY E. BARNETT, ESQUIRE
Smith, Bundy, Bybee & Barnett
Suite 100, Building F
1037 Chuck Dawley Blvd.
Mt. Pleasant, SC 29464
(843) 881-1623
email: stanleyb@s3blaw.com

ALSO PRESENT:

FRANK YELINKO

Electronically signed by Teri Sampson (401-251-957-7637) 41d4d06d-dbdd-41a7-85f2-9ebdbe343ceb

I N D E X

WITNESS: SHANNON M. HICKS

Examination Page

BY MR. CHANDLER. 4

REPORTER'S CERTIFICATE 19
ERRATA SHEET 20

EXHIBITS:

(No exhibits were offered or marked for identification.)

- - - - -

S T I P U L A T I O N S

It is hereby stipulated and agreed by and between the parties hereto, through their respective counsel, that the reading and signing of the transcript is expressly reserved by the Deponent.

Electronically signed by Teri Sampson (401-251-957-7637)
41d4d06d-dbdd-41a7-85f2-9ebdbe343ceb

NORTH CHARLESTON, SC, MONDAY, NOVEMBER 3, 2008

1:10 P.M.

P R O C E E D I N G S

- - - - -

WHEREUPON,

SHANNON M. HICKS

being first duly sworn, testified as follows:

EXAMINATION

BY MR. CHANDLER:

Q Would you tell us your full name?

A Shannon Michelle Hicks.

Q And where do you live?

A I live in Mt. Pleasant, South Carolina.

Q Okay. What's your street address?

A 1653 Baltusrol Lane.

Q Okay. And you're employed by the South Carolina Department of Health and Environmental Control?

A Yes.

Q And for how long have you worked for this agency?

A I've worked here for almost five years.

Q Okay. And what is your position?

A I'm currently the manager of the stormwater and State certification section.

Electronically signed by Teri Sampson (401-251-957-7637) 41d4d06d-dbdd-41a7-85f2-9ebdbe343ceb

Q Okay. How long have you been in that position?

A For almost two years.

Q Okay. And what are your duties and responsibilities in that position?

A Overseeing the plan reviewers and asking questions -- excuse me, answering questions that they have regarding plan review, making sure that they have an understanding of what's required in the regulations and in the policies of the management program, and then overseeing the incoming numbers and outgoing numbers and general management to make sure we have enough stuff.

Q Okay. And prior to taking your current position, did you have a different position at this agency?

A I had a couple, actually. I had a short extent, for about four months, as the acting manager of the enforcement section. And then prior to that, I served as stormwater project manager. The latter part of that, for about eight months, I managed the Myrtle Beach office of OCRM on an acting basis.

Q Okay. What's your educational background?

A I have a degree in civil engineering and a Master of Business Administration.

Electronically signed by Teri Sampson (401-251-957-7637) 41d4d06d-dbdd-41a7-85f2-9abdba343cab

Q Where did you get those degrees?
A Clemson University.
Q Okay. What year did you get your degrees?
A In 1998, I finished my bachelor's, and in 2000, I finished my master, master's.
Q Okay. Did you come directly to work for the agency?
A No, I did not.
Q Who did you work for after you got your degree?
A I worked for an engineering consulting firm.
Q What was the name of that?
A Armstrong Glen.
Q And where were they?
A Charlotte, North Carolina.
Q How long did you work for them?
A I worked for them from August of 2000 to October of 2003.
Q And what types of work did you do while you were there?
A I worked on stormwater planning studies for large municipal projects, capital improvement projects, flood improvement projects. There's a little bit of water quality design, but mainly government type projects for stormwater.

Electronically signed by Teri Sampson (401-251-957-7637)
41d4d06d-dbdd-41a7-85f2-9ebdbe343ceb

Q Okay. And when you left there, was that when you came to the Department of Health and Environmental Control?

A Yes.

Q Okay. Now, we're here today about a case that's been filed by the Deerfield Phase IIB Property Owners Association about a permit issued for a project known as the Old South Course Phase I. Are you familiar with that project?

A Yes.

Q Okay. Tell me about your involvement with this project as it came to the agency and moved through the approval process.

A My involvement was oversight of Tara's review, Tara Maddock, the project manager's review. We had a public hearing and I assisted with that portion as well, and we -- Tara, throughout her review, we discussed the project and I took care of any concerns that she had related to the review and looked over the project in general terms myself.

Q Okay. Is it your understanding that the property involved in this matter has no wetlands, no waters of the State?

A That's correct.

Q Okay. Do you know whether there are any

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ponds on the property?

A Yes.

Q Okay. And can you tell me about those ponds?

A They are ponds that were constructed for the golf course that was there when it was built.

Q Okay. And what's the source of your information about those ponds?

A My source comes from the plans that we looked at.

Q Okay. Do you know -- or do you have any information regarding whether there were any wetlands at the golf course site before the golf course was constructed?

A I do not have any information that would tell me that there were wetlands on the site.

Q Okay. Do you know whether the ponds that are on the site are linked together by any connection?

A Not that I recall.

Q Okay. Do you know whether there are any drainage channels on the property that connect to a larger drainage system that ultimately goes to the Atlantic Ocean?

A Could you repeat the question?

Q Do you know whether there are any drainage channels on the golf course property that link together

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and flow into another channel that eventually goes to the ocean?

A I know that there's a channel at the downstream end of the project, but I'm not sure if that's the exact outfall to the Atlantic Ocean.

Q Okay. Do you consider the ponds on the property to be waters of the State?

A During the review, they were considered golf course ponds and not waters of the State.

Q Okay. Will you tell me how you distinguish between a water of the State and a pond that's not a water of the State?

A My understanding during the review was that waters of the State would be something more of a natural pond. Those ponds appeared that they were constructed for the golf course. So that's what I utilized during the review, my understanding at the time.

Q Okay. And your information about that, did it come from anywhere other than the documents and information submitted by the applicant?

A Not at the time, no.

Q Have you received some information since then?

A I've read through the definition of waters of

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the State in Regulation 61-9.

Q Okay. And has that new information changed any of your view about whether those ponds are waters of the State?

A A strict reading of the definition includes ponds, and it doesn't distinguish on what type of pond.

Q Okay. Have you ever been to the site?

A No, I have not.

Q Have you ever looked at any aerial photographs of the site?

A I don't think so.

Q Okay. Are any of the existing ponds shown on any of the plan sheets that were submitted by the applicant?

A There are some plan sheets that show the locations of some existing ponds.

Q Okay. Do those plan sheets show any open channels on the property?

A Not that I recall.

Q Now, do I understand that you did attend the public hearing that was held?

A Yes, sir.

Q Okay. And can you tell me what types of public comments were received at the public hearing?

A Generally speaking, the concerns were

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regarding flooding issues.

Q. Okay. And what was your understanding of the nature of the flooding that was occurring?

A. From what I recall, there was some flooding that may have occurred during a tropical storm event.

Q Okay. Did you get an understanding that there was any flooding that ever occurred that was outside a tropical storm?

A Not that I recall. The review of the flooding issues was mainly done by the project manager, and I over -- I took an overview, looked at the project as to how the stormwater for the site was being handled.

Q Okay. Do you know anything about the history of this property and the history of the development that's already in existence adjacent to this golf course?

A I do not know much about the history of the development.

Q Did you or Tara Maddock undertake any investigation of the concerns about flooding in the area?

A Tara reviewed the documents provided by the neighborhood association, any individuals that submitted flooding. We do know that the County went

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out on site several times to investigate the flooding, but like I said, we did not go out on site and do any flooding investigation.

Q Okay. How were the issues related to concerns about flooding resolved?

A Well, the proposed drainage system routes the off-site flow coming above the development through ponds, and it appears to route the flow around the existing Plantation Estates neighborhood.

Q Okay. Do you know whether the drainage would ultimately go to the same channel that all the drainage currently goes to?

A The outlet point for all of the flow at the very downstream end is the same.

Q Okay. And what is your understanding of the capacity of that downstream outlet point?

A I'm not sure I understand.

Q Well, I mean, do you see anything that is -- could be a constriction of flow at the downstream point?

A Not that I recall.

Q Okay. Do you know what size pipe there is at the downstream point?

A I know that one of the -- the main outlet for the neighborhood area, there's, I think, an existing 36

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inch and 42 inch, but that would be speculation. I can't remember the exact sizes, but I know that the main outfall is being replaced to be a 60-inch pipe.

Q Okay. And the -- you're saying that it's your understanding that the main outfall would be replaced with a 60-inch pipe?

A Yes.

Q Okay. And do you know how large an area is going to be draining into -- ultimately into this 60-inch pipe?

A I do not recall the exact area.

Q Did you ever receive any information indicating questions raised about whether the ponds on the site were dug out of high ground or would constitute wetlands or waters of the State during the review phase?

A During the review, no. Not that I can remember.

Q Do you recall whether the new residential development that is proposed to this site was going to be -- whether the lots were going to be elevated above the existing grade?

A They are proposing to raise the site.

Q And do you know why they're going to raise the site?

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A I don't recall the specifics of the site grading.

Q Would raising this site raise any concerns if there is flooding on the existing development?

A Raising the site the way the project is proposed, during my review, I saw that the flow is routed to ponds around the development, the Plantation Estates, so the project appears to reduce flow going through Plantation Estates from off site.

Q And if it's all going to the same discharge point, it's your understanding that by going around the subdivision before getting there, that that's going to resolve any flooding problems?

A Well, for the purposes of the State regulations, they're routing existing off-site flow around the subdivision, so that would be to say it would not contribute to increasing flooding problems.

Q Did you or anybody at your agency take a look at what it would take to resolve existing flooding problems within the existing neighborhood?

A No. That's outside the scope of our jurisdiction, as it's a neighborhood that was built prior to our regulations becoming effective.

Q Okay. Were you aware that that neighborhood was built by the same family that now owns the golf

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course?

A I don't think I knew that, no.

Q Okay. If the ponds that are on the golf course were considered waters of the State during your review, would it affect your review in any way?

A It may change it, but during this review, they weren't considered waters of the State. I would have to do another review.

Q Okay. If there were areas that were considered to be wetlands on this property in addition to waters of the State, would it affect your review?

A Again, I would have to do a different review. It may change it, but during this review, those weren't taken into consideration.

Q In a review of a project that did have ponds that were waters of the State and wetlands that were waters of the State, would you be assessing this project under the wetlands provisions of the coastal management program?

A The wetlands section would assess -- the OCRM wetlands would assess any wetland impacts during the review. If there was stormwater flowing to the wetlands, then we would make sure there was pretreatment prior to stormwater flowing into the wetlands. But other impacts are reviewed by the

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wetlands section.

Q Okay. But in this project, all of your review was based on the assumption that there were no wetlands and no waters of the State on this property?

A That's correct, yes.

Q Are you familiar with the term "jurisdictional wetlands"?

A Yes.

Q And what does that term mean to you?

A Wetlands that the U.S. Army Corps of Engineers has jurisdiction over is my understanding of that definition.

Q Okay. And are you also familiar with the term "non-jurisdictional wetlands"?

A Yes.

Q And what does that mean to you?

A Wetlands that the U.S. Army Corps of Engineers does not have jurisdiction over.

Q Okay. If non-jurisdictional wetlands are in the coastal zone, do you consider them to be within State jurisdiction for regulatory purposes under the coastal management program?

A I know our wetlands section reviews impacts to non-jurisdictional wetlands.

Q Okay. A minute ago you said that if the

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ponds were waters of the State, they would have to -- any flow into them would have to be -- something would have to be done to that before the flow went into those waters. Can you tell me again what it was you said?

A That if waters of the State are on site and stormwater flows to those waters of the State, a pretreatment mechanism must be implemented.

Q Okay. Is it your understanding that the ponds that are at the site now are going to be incorporated into and become part of the stormwater system for this proposed development?

A Some ponds are being incorporated into the proposed system.

Q Okay. And are you saying that if these ponds are considered waters of the State, then under your rules, they would have to have pretreatment, but not become part of the stormwater management plan?

A Under our rules, there would have to be pretreatment provided for any flow, any stormwater flow that enters waters of the State.

Q Okay.

MR. CHANDLER: Let me take a brief break.

(Recess from 1:32 p.m. to 1:36 p.m.)

MR. CHANDLER: No further questions.

A (Continuing) Okay. Can I clarify -- I

wanted to clarify the first question that you asked, I wanted to make sure that it was during my review that we didn't find any wetlands or waters of the state on site.

Q Okay. Well, I mean, in terms of not finding any, what did you do to determine whether there were any?

A We used our understanding at the time and the information provided by the consultant.

MR. CHANDLER: Okay. Thanks.

(Deposition concluded at 1:37 p.m.)

Electronically signed by Teri Samoson (401-251-957-7637)

C E R T I F I C A T E

STATE OF SOUTH CAROLINA:

COUNTY OF BERKELEY:

I, TERI L. SAMPSON, Registered Professional Reporter and Notary Public, State of South Carolina at Large, certify that I was authorized to and did stenographically report the foregoing deposition; and that the transcript is a true record of the testimony given by the witness.

I further certify that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

WITNESS MY HAND AND OFFICIAL SEAL this 8th day of November, 2008, in the Town of Hanahan, County of Berkeley, State of South Carolina.

Teri L. Sampson,
Registered Professional
Reporter and Notary Public

My commission expires:
May 15, 2015

Electronically signed by Teri Sampson (401-251-957-7637) 41d4d06d-dbdd-41a7-85f2-9ebdbe343ceb

ERRATA SHEET

I have read the transcript of my deposition and find that no changes are necessary.

_____

Shannon M. Hicks

Having read the transcript of my deposition, I wish to make the following corrections (Please state reason):

Page _____ Line _____: _____

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Page _____ Line _____: _____

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Shannon M. Hicks

Sworn to and subscribed before me this _____ day of _____, 2008, _____ County, South Carolina.

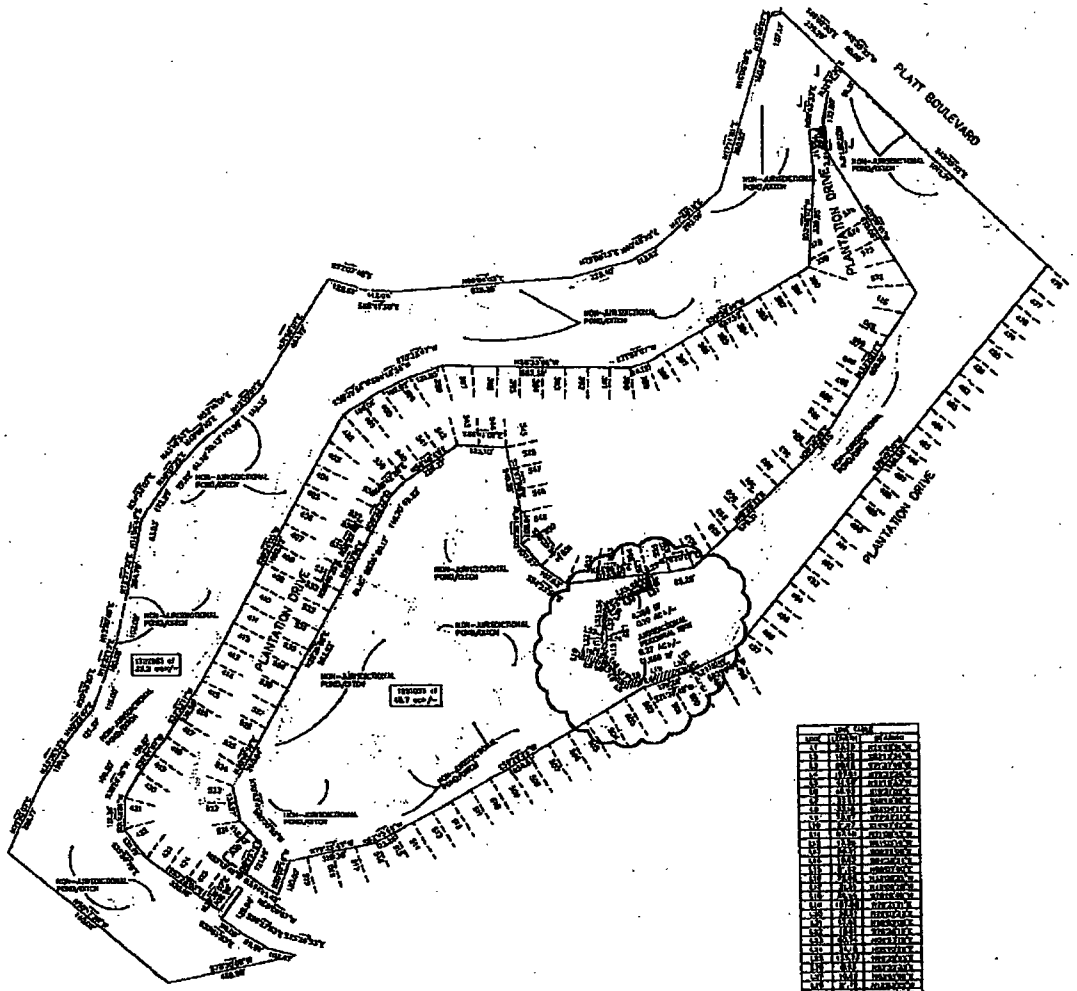
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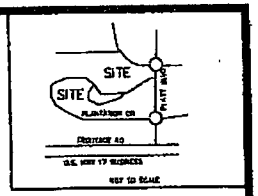
Notary Public

My commission expires _____

Electronically signed by Teri Sampson (401-251-957-7637)

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PRELIMINARY
DEERTRACK GOLF COURSE
OLD SOUTH COURSE
JURISDICTIONAL DETERMINATION

BEGINNING _____ TOWNSHIP, _____ HORRY _____ COUNTY, SOUTH CAROLINA, RECORDED IN THE OFFICE OF THE CLERK OF COURT FOR _____ HORRY _____ COUNTY IN PLAT BOOK 88, PAGE 133.
DEED BOOK _____ PAGE _____ SURVEY MARKER BOOKET OF DALE SEARCH
SUBJECT TO EASEMENTS AND RESTRICTIONS
TAX MAP: 141-00-01-008
FLOOD HAZARD ZONE "X" BASE FLOOD ELEVATION/LEGISLATIVE AGENCY PANEL ASSOCIATED IN DATE 9-29-1989

I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS _____ SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.

BESSLEY LAND SURVEYING, INC.
3008 TIDEWATER LANE
P.O. BOX 27261
MURRELLS INLET, SC 29576
843-651-7720
FAX 843-651-9733

SCALE 1" = 200'
0' 100' 200'

JOSEPH E. BESSLEY, S.C. REG. #5340
DATE: FEBRUARY 19, 1998

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Exhibit C

000694

NEXSEN|PRUET

Mary D. Shahid
Member
Admitted in SC

November 10, 2011

VIA E-MAIL AND U. S. MAIL

Shannon Hicks, P. E., Manager
Stormwater & State Certification Section
1362 McMillan Avenue
Suite 400
Charleston, SC 29405

Re: Deerfield Plantation Phase IIB Property Owners Association v. SCDHEC, Deertrack Golf Inc., and Bill Clark Homes of Myrtle Beach
2008-ALC-07-00221 (on Appeal to Court of Appeals)

Dear Ms. Hicks:

Charleston
Charlotte
Columbia
Greensboro
Greenville
Hilton Head
Myrtle Beach
Raleigh

Thank you for your letter of October 6, 2011, which was sent following the issuance of an Order of the South Carolina Court of Appeals regarding whether any administrative action was necessary before proceeding with the pending appeal. As you may know based on my filings, my client's preference is to proceed with briefing and obtaining resolution of the appeal, rather than delaying the progress of the appeal by focusing on administrative matters that have no bearing on the outcome of the appeal and can be addressed if, necessary, at the conclusion of the appeal.

You identified the following issues related to the NOI that was submitted to OCRM on March 5, 2007, to obtain permit coverage under the NPDES General Permit authorizing Stormwater Discharges from Large and Small Construction Activities:

1. New findings by the Corps of Engineers, in 2010, that .37 (37/100ths of an acre) of the 158 acre site owned by Deertrack Golf, Inc., ("Deertrack Golf") and formerly under contract to Bill Clark Homes of Myrtle Beach ("Bill Clark Homes"), is jurisdictional under the Clean Water Act.

Specifically, the lower reaches of a drainage ditch were determined by the Corps of Engineers to be a RPW, or jurisdictional connection, to traditional navigable waters.

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Nexsen Pruet, LLC
Attorneys and Counselors at Law

Exhibit D

Deertrack Golf Response

We are aware that the current approved plans show road and lot construction impacting this drainage ditch, and reflect an intent to pipe, fill, and eliminate the jurisdictional connection. Of course, at the time the plans were approved Deertrack Golf was in possession of a valid upland verification, or "no wet" letter, from the Corps of Engineers. The fact that the Corps determined three years later that .37 acres (920 linear feet) of an existing drainage feature is jurisdictional does not impact our ability to proceed with development of a 278 lot subdivision. We can simply build less than shown on the plans by eliminating development in the .37 care area in the lower reaches of the drainage ditch. Alternatively, we can seek authorization by the Corps of Engineers to pipe and fill the drainage feature.

I am cognizant of the terms and conditions of the General Permit authorization as relates to the necessity of a 404 permit. I remind you that the project as approved by your staff and the Administrative Law Judge was consistent with this requirement. I understand that, given the new Corps' action in 2010, in order to comply with the CGP my client must submit a modification request reflecting the jurisdictional areas and either a) eliminate impacts in the areas deemed jurisdictional or b) provide OCRM with approval from the Corps to eliminate the jurisdictional connection. However, the appropriate time for my clients to address this issue with OCRM is after this appeal is concluded. The appeal encompasses the entire proposed 278 lot residential development, and not simply the .37 acres of drainage ditch. Clearly, before spending time and money to produce modified plans or to obtain Nationwide Permit coverage to pipe and fill the ditch, my clients need to know whether they can proceed with this development by obtaining judicial finality.

2) Findings by the Administrative Law Court related to the golf course ponds.

Deertrack Golf Response

In contrast to the statement in your letter that Judge McLeod found that there are waters of the state located on the golf course, and these waters require pre-treatment, the lower court actually found that the golf course ponds were stormwater detention ponds, and that it was illogical to interpret the Department's regulations to require pre-treatment of discharges into stormwater ponds. I'm attaching the ALC's Final Order and Decision and I have high-lighted the applicable findings and conclusions for your review.

Moreover, the permit application was pending before SCDHEC staff for a year. The ponds in question were depicted on the pre-development drawings and assumed for

purposes of pre-development calculations. OCRM staff conducted at least one site visit to inspect the golf course. OCRM staff knew when it issued its authorization to Bill Clark Homes and Deertrack Golf that there was an interconnected system of ornamental drainage and irrigation ponds on the site. Nothing has changed, since the permit was issued, the underlying contested case was presented to the S. C. Administrative Law Court, and the lower court issued its order affirming issuance of the permit, an order that was not appealed by your agency.

If the Court of Appeals affirms the lower court's order, then there is no basis for you to add additional requirements related to the ponds. The findings and conclusions of the Court of Appeals, and of the ALC, become the law of the case. Consequently, I don't think that this is an issue that can be, or should be, addressed administratively at this time. Of course, if the Court of Appeals reverses the lower court's order or remands this case to the agency, these issues may need to be addressed. It is premature to address the status of the existing ponds until the Court of Appeals has had the opportunity to review the attached findings and conclusions of the ALC.

3) Submitted Plan Revisions.

Deertrack Golf Response

With regard to the plan revisions that were submitted by Bill Clark Homes, that submittal was to insure consistency between the stormwater permit application pending before Horry County and the stormwater permit issued by SCDHEC. Unfortunately, because Deerfield Plantation Phase II B filed an appeal of the ALJ order, Horry County cannot issue its stormwater permit. Horry County will not issue its stormwater permit until we have obtained judicial finality on the challenges made by Deerfield Plantation Phase II B.

Therefore, on behalf of Deertrack Golf, who obtained ownership of all professional work product produced by Bill Clark Homes upon termination of the purchase and sales agreement, I am withdrawing the plan revisions.

If the Court of Appeals affirms the ALC, and Horry County issues its stormwater approval, then we will submit the plan revisions. I understand that these constitute a major modification of the previously approved NOI and authorization.

4) Insufficiency of Permit Signators.

In 2009, Deerfield Plantation Phase IIB filed its ultimately unsuccessful citizens suit in Federal District Court. Once the action was filed in federal court, Bill Clark Homes realized that it faced a long, expensive and protracted battle in multiple forums. Bill

Clark Homes terminated the Purchase and Sale Agreement with Deertrack Golf. The termination was amicable between the Deertrack Golf and Bill Clark Homes. Bill Clark Homes has agreed to transfer and assign all entitlements to Deertrack Golf. Once Deertrack Golf has secured all entitlements, which it will be able to do upon successful conclusion of this appeal, it will give Bill Clark Homes an opportunity to purchase the property or, alternatively, Deertrack Golf will develop the property. We understand that the NOI upon which authorization was issued needs to be signed by the party undertaking the land disturbing activity. Assuming a successful outcome in the Court of Appeals, we will correct that deficiency before commencing any construction or land disturbance on the South golf course.

CONCLUSION

It is premature to address the issue noted in your October 6, 2011 letter. However, I can provide you the following assurances. My client will not commence land disturbing activities on the South golf course until it has addressed to OCRM's satisfaction the .37 acres of RPW (jurisdictional connection) obtains newly designated in 2010 and provides the appropriate signature on an NOI and/or approval of a transfer of the existing authorization. With regard to the revisions, Deertrack Golf understands that those revisions constitute a major modification to the previously approved permit. However, we are withdrawing those revisions and will re-submit them when, and if, we obtain a stormwater permit from Horry County. As relates to whether Deertrack is required to pre-treat a permitted discharge before it enters an existing stormwater pond, that is an issue that is before the Court of Appeals and Deertrack Golf will be bound, and will abide by, the ultimate judicial conclusions on this issue.

I'm going to provide a copy of your letter, and my response, to the Court of Appeals and request that the Court set a briefing schedule.

Very truly yours,

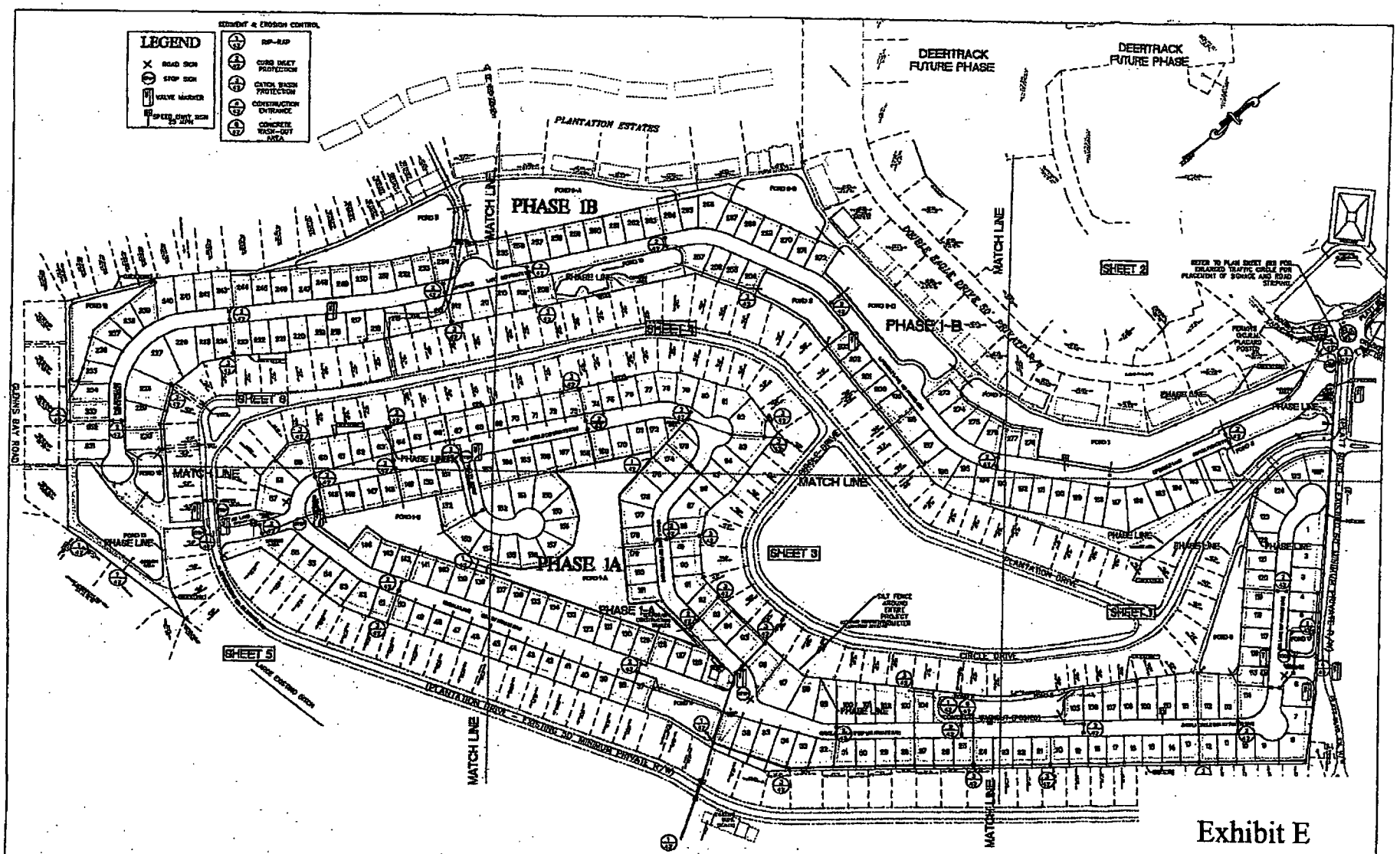
Nexsen Pruet, LLC

/s/ Mary D. Shahid

Mary D. Shahid
Member

MS/mds

cc: Deertrack Golf, Inc.
Bill Clark Homes of Myrtle Beach, LLC
Richard M. Smith, Esq.
Amy E. Armstrong, Esq.
Davis A. Whitfield-Cargile, Esq.
Rheta Dinovo, SCDHEC-OCRM
Jill Stewart, SCDHEC-BOW



GRAPHIC SCALE

ETS
ENGINEERING AND TECHNICAL SERVICES, INC.

OLD SOUTH COURSE
PHASES 1A AND 1B

CONSTRUCTION DRAWING
MASTER SITE PLAN

000700

STATE OF SOUTH CAROLINA
IN THE
COURT OF APPEALS

Appeal from the South Carolina Administrative Law Court
Honorable John D. McLeod, Administrative Law Judge
Docket No. 2008-ALJ-07-00221

Deerfield Plantation Phase II B
Property Owners Association,

Appellant,

v.

South Carolina Department of Health and
Environmental Control, Deertrack Golf, Inc.,
and Bill Clark Homes of Myrtle Beach, LLC,

Respondents.

RESPONDENT DEERTRACK GOLF, INC.'S REPLY TO APPELLANT'S RETURN TO PETITION FOR REHEARING

This Court's Order of August 14, 2013, is based on the Court's erroneous conclusion that "DHEC has effectively revoked [Deertrack's] permit." DHEC has confirmed in its Petition for Rehearing that the permit has not been revoked. Regardless of Appellant's disagreement with DHEC's conclusions, as expressed in Appellant's Return, Deertrack Golf, Inc., ("Deertrack") is in possession of an NPDES authorization to discharge

storm water from construction activities arising from proposed redevelopment of the Old South Golf Course. This permit was affirmed by the S. C. Administrative Law Court ("ALC"). This permit underlies this appeal and this appeal has not been mooted by any action taken by DHEC.

DHEC's authority to regulate storm water discharges and issue this storm water permit derives from the Federal Water Pollution Control Act, 33 U.S.C. Sec. 1251 et. seq. Federal regulations have been adopted governing revocation and DHEC has adopted and promulgated the federal regulatory program. 40 CFR Sec. 122 and 40 CFR Sec. 124 are identical to S. C. Code Reg. 61-9.122 and R. 61-9.124, setting forth the grounds and procedures relative to revocation of NPDES permits. These procedures have not been invoked by DHEC.

Respondent Deertrack would remind this Court that the only thing that has changed, since the ALC affirmed the issuance of this storm water permit giving rise to this appeal, is that 1/3rd of an acre, located in the lower reaches of a drainage ditch, has been designated as a water of the United States. This is 1/3rd of an acre on a ± 90 acre construction site and represents significantly less than 1% of the construction site. Deertrack's plans showed construction impacts in this section of the drainage ditch and, under the storm water authorization provided by DHEC, Deertrack must now obtain a permit from the Army Corps of Engineers authorizing these impacts or, alternatively, just eliminate any construction in these areas. Deertrack is prepared to do one or the other of these options.

But this has little to do with the real issues that were litigated before the ALC and that need to be finally resolved by this Court. This is simply a side-show, created by

Appellant[1] who sought to have the Corps of Engineers assert jurisdiction over every water feature on the construction site and who was greatly disappointed by the Corps' limited assertion of jurisdiction. While Appellant was successful in using this side show to further delay resolution of the matters raised in this appeal, such delay has been resolved with the favorable opinion of the Fourth Circuit Court of Appeals which was final in March of 2013.

Deertrack requests that the Court of Appeals grant its Petition for Rehearing as it is undisputed that DHEC has taken no action to revoke or terminate NPDES permit coverage and this appeal is ripe for briefing, argument, review, and resolution by this Court.

Respectfully submitted:

NEXSEN PRUET, LLC

By: Deertrack with permission

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Attorneys for the Respondent,
Deertrack Golf, Inc.

Charleston, South Carolina

16 September 2013

---

1 Appellant sent a notification letter to the Corps of Engineers threatening legal action against the Corps based on the Corps' initial findings that there were no waters of the United States on the golf course. This caused the Corps to revoke its initial determination and perform another jurisdictional determination, resulting in the conclusion that the site included 1/3rd of an acre of area subject to the jurisdiction of the Clean Water Act.

Certificate of Counsel

The undersigned does hereby certify that this Record on Appeal complies with SCRAP Rule 210.

Michael Corley
Amy E. Armstrong
SOUTH CAROLINA ENVIRONMENTAL LAW PROJECT
Mailing address: Post Office Box 1380
Pawleys Island, SC 29585
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Attorneys for the Appellants

Georgetown, South Carolina

March 5, 2014