Martin County, Florida
Growth Management Department
DEVELOPMENT REVIEW DIVISION
2401 SE Monterey Road, Stuart, FL 34996 772-288-5495 www.martin.fl.us

DEVELOPMENT REVIEW APPLICATION

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A. GENERAL INFORMATION

Type of Application: Major Master & Final Site Plan

Name or Title of Proposed Project: Cove Royale PUD

Brief Project Description:

Cove Royale PUD received approval from the Martin County Board of County Commissioners on March 26, 2019. The applicant would like to revise the approval to include phasing of development. Phase one of the development will include 82 lots and phase two will include the final 36 lots. There are no other proposed changes to the approved Master and Final Site Plan.

Was a Pre-Application Held? ☑ **YES/NO** ☐ **Pre-Application Meeting Date:** _____

Is there Previous Project Information? ☑ **YES/NO** ☐

Previous Project Number if applicable: Resolution Number 19-3.22

Previous Project Name if applicable: Cove Royale PUD

Parcel Control Number(s)

34-38-41-000-000-0001.0-1
34-38-41-001-000-0009.0-3

B. PROPERTY OWNER INFORMATION

Owner (Name or Company): TLH-82 DOT LLC

Company Representative: Michael Tuttle

Address: 2240 West Woolbright Road, Suite 403

City: Boynton Beach, State: FL Zip: 33426

Phone: 561 676-3402 Email: tuttle111@hotmail.com

C. PROJECT PROFESSIONALS

Applicant (Name or Company): TLH-82 DOT LLC
Company Representative: Michael Tuttle
Address: 2240 West Woolbright Road, Suite 403
City: Boynton Beach, State: FL Zip: 33426
Phone: 561 676-3402 Email: tuttle111@hotmail.com

Agent (Name or Company): Evans Land Consulting
Company Representative: Jeff Evans
Address: 1440 SW 20 Street
City: Boca Raton, State: FL Zip: 33486
Phone: 561 866-9739 Email: jeff@tuttleli.com

Contract Purchaser (Name or Company): _____
Company Representative: _____
Address: _____
City: _____, State: _____ Zip: _____
Phone: _____ Email: _____

Land Planner (Name or Company): _____
Company Representative: _____
Address: _____
City: _____, State: _____ Zip: _____
Phone: _____ Email: _____

Landscape Architect (Name or Company): Conceptual Design Group, Inc.
Company Representative: Jeffrey W. Smith, RLA
Address: 900 E. Ocean Drive, Suite 130D
City: Stuart, State: FL Zip: 34994
Phone: _____ Email: _____

Surveyor (Name or Company): The Engenuity Group, Inc.
Company Representative: C. Andre Raymam, P.S.M.
Address: 1280 N. Congress Avenue, Suite 101
City: West Palm Beach, State: FL Zip: 33409
Phone: 561 655-1151 Email: arayman@engenuitygroup.com

Civil Engineer (Name or Company): The Engenuity Group, Inc.
Company Representative: Adam Swaney, P.E.
Address: 1280 N. Congress Avenue, Suite 101
City: West Palm Beach, State: FL Zip: 33406
Phone: 561 655-1151 Email: aswaney@engenuitygroup.com

PROJECT PROFESSIONALS CONTINUED

Traffic Engineer (Name or Company): O'Rourke Engineering & Planning
Company Representative: Susan E. O'Rourke, P.E.
Address: 969 SE Federal Highway, Suite 402
City: Stuart, State: FL Zip: 34994
Phone: 772 781-7918 Email: seorourke@comcast.net

Architect (Name or Company): _____
Company Representative: _____
Address: _____
City: _____, State: _____ Zip: _____
Phone: _____ Email: _____

Attorney (Name or Company): The Wallace Law Group, PL
Company Representative: Steven E. Wallace, Esq
Address: 2240 West Woolbright Road, Suite 403
City: Boynton Beach, State: FL Zip: 33426
Phone: 561 877-6020 Email: wallacelaw1@me.com

Environmental Planner (Name or Company): Ecotone Services
Company Representative: Jerry Renick, MS, CEP
Address: 13945 89th Street
City: Fellsmere, State: FL Zip: 32948
Phone: 772 453-3339 Email: ecotoneservices@gmail.com

Other Professional (Name or Company): _____
Company Representative: _____
Address: _____
City: _____, State: _____ Zip: _____
Phone: _____ Email: _____

D. Certification by Professionals

Section 10.2.D.7., Article 10, Development Review Procedures, Land Development Regulations (LDR), Martin County Code (MCC) provides the following:

> When reviewing an application for a development permit that is certified by a professional listed in s. 403.0877. F.S., the County shall not request additional information from the application more than three times, unless the applicant waives the limitation in writing. If the applicant believes the request for additional information is not authorized by ordinance, rules, statute, or other legal authority, the County, at the applicant's request, shall proceed to process the application for approval or denial. (**125.022(1), Fla. Stat.)**

☑ This box must be check if the applicant waives the limitations.

E. APPLICANT or AGENT CERTIFICATION

I have read this application, and to the extent that I participated in the application, I have answered each item fully and accurately.

Michael Tuttle
Applicant Signature

8/8/19
Date

Michael Tuttle
Printed Name

NOTARY ACKNOWLEDGMENT

STATE OF: Florida **COUNTY OF:** Broward

I hereby certify that the foregoing instrument was acknowledged before me this 8 **day of** August, **20** 19, **by** Michael Tuttle.

He or She ___ **is personally known to me or** / **has produced** FL. Drivers Lic **as identification.**

Ilene Castronovo
Notary Public Signature

Ilene Castronovo
Printed name

STATE OF: FL **at-large**

ILENE CASTRONOVO
Commission # GG 257400
Expires September 11, 2022
Bonded Thru Budget Notary Services

Martin County County Florida Growth Management Department
DEVELOPMENT REVIEW DIVISION
2401 SE Monterey Road, Stuart, FL 34996
772-288-5495 **www.martin.fl.us**

Digital Submittal Affidavit

I, Jeff Evans, attest that the electronic version included for the project Cove Royale PUD is an exact copy of the documents that were submitted for sufficiency, excluding any requested modifications made by the sufficiency review team. All requested modifications, if any, have been completed and are included with the packet.

Applicant Signature — 7/2/19 Date

NOTARY ACKNOWLEDGMENT

STATE OF: Florida **COUNTY OF:** Palm Bch.

I hereby certify that the foregoing instrument was acknowledged before me this 2nd **day of** July, **20** 19, **by** Michael Tuttle.

He or She ___ **is personally known to me or** ✓ **has produced** FLDL **as identification.**

Notary Public Signature — S. Almeida **Printed name**

STATE OF: Florida **at-large**

Notary Public State of Florida
Starr Almeida
My Commission GG 257106
Expires 11/13/2022

Narrative for Proposed Phasing Plan

Cove Royale, PUD

Resolution of Approval Number: 19-3.22

The Cove Royale PUD received Master and Final Plan Approval from the Martin County Board of County Commissioners on March 26, 2019. The approved plan provides for a 118-unit single family home PUD on 97.06 acres fronting on SE Cove Road.

The PUD was approved pursuant to including the following public benefits:

- Construction of a sidewalk to connect the projects road frontage westward to Anderson Middle School (approximately 1,850 feet).
- Provision of a passenger van for the Samaritan House for boys, the non-profit next to the project site.
- Environmental benefits.

Requested Amendment

One feature of the proposed plan is the improvement of an existing east/west dirt road through a portion of the wetlands connecting proposed lots on the east side of the property to the balance of the lots located on the western side of the property. The purpose of this revision to the approved plan is to divide the project into two phases based on the described eastern and western portions of the site. Phase One will include the 81 lots and other improvements located on the west side of the property. Phase Two will include the improvement of the existing dirt road and the 37 proposed lots on the eastern side of the property. The total unit count remains 118 units as originally approved.

The proposed amendment includes no modifications to the approved plan other than the phasing line.

Post Approval Requirements

Subsequent to the approval of the Master and Final Site Plan, the applicant was obligated, by County Code, to comply with Post Approval Requirements. The applicant has complied with all of the requirements enumerated in the Project Post Approval Requirements letter dated March 29, 2019 and attached as **Exhibit A**. There are several items included in the Project Post Approval Requirements letter of specific importance to the amendment that is presently being requested. They are:

#2 Post Approval Fees – Applicant paid $4,241.15 in advertising and inspection fees.

#9 Water and Wastewater Service Agreement – The applicant paid $589,460.00 in Utility Reservation fees pursuant to this agreement. Item # 13 on the Revised Major Master and & Final Site Plan Checklist submitted with this application requires reservation of adequate public facilities. A copy of the recorded Water and Wastewater Service Agreement is attached as **Exhibit B**.

#15 Mandatory Impact Fees – The applicant paid $597,649.94 in mandatory impact fees.

Exhibit A

MARTIN COUNTY

BOARD OF COUNTY COMMISSIONERS

2401 S.E. MONTEREY ROAD • STUART, FL 34996

DOUG SMITH	Commissioner, District 1	**TARYN KRYZDA, CPM**	County Administrator
STACEY HETHERINGTON	Commissioner, District 2	**KRISTA A. STOREY**	Acting County Attorney
HAROLD E. JENKINS II	Commissioner, District 3		
SARAH HEARD	Commissioner, District 4	**TELEPHONE**	(772) 288-5400
EDWARD V. CIAMPI	Commissioner, District 5	**WEBSITE**	www.martin.fl.us

March 28, 2019

Don Cuozzo, President
Cuozzo Planning Solutions, LLC
Post Office Box 564
Jensen Beach, FL 34958-0564

via Electronic Mail

Project No.:	C165-002
Project Name:	Cove Royale PUD Master and Final Site Plan
Record No.:	D008201700129
Deadline:	March 25, 2019
Re:	Project Post Approval Requirements

Dear Mr. Cuozzo:

Enclosed is the list of post approval requirements for the above project. The post approval documents list was included in Section U of the Staff Report. The items required for post approval must be submitted as one (1) complete original packet accompanied by the required copies. Please arrange the items in the packet in the same order as the list. Please also provide a disk containing .pdf copies of all documents.

You have 60 days to submit the documents and fees. After all required documents, plans, and fees are received and approved, and the documents have been recorded, you will be sent a post-approval completion letter.

You may wish to submit the Option 2 materials at this time. As a reminder, all applicable local, state and federal approved permits are to be submitted and reviewed by the County, along with a review fee of $600.00 prior to the scheduling of a pre-construction meeting. If an application is

made to any permitting agency for a modification to a permit that was required to be issued prior to final site plan approval, the application of the permit modification must be submitted concurrently to Martin County.

You may check the post-approval status on-line at the Accela Citizen Access system (ACA), located at https://aca3.accela.com/MARTINCO/Default.aspx. The best way to search is by using the Record Number noted above. If you need assistance, please contact me by email to pwalden@martin.fl.us or by telephone at 772-288-5495.

Sincerely,

Peter Walden, Principal Planner
Project Coordinator

PW/mh

Enclosure

Copy: Anthony Gironda, ANG Holdings, LLC (ynotg@comcast.net)
Brian Tuttle, TLH-Cove Rd LLC (tuttlelandscape@aol.com)

PROJECT POST-APPROVAL REQUIREMENTS LIST
Project No.: C165-002 Record No.: D008201700129
Project Name: COVE ROYALE PUD MASTER AND FINAL SITE PLAN

Item #1:
Post Approval Requirements List: After approval the applicant will receive a letter and a Post Approval Requirements List that identifies the documents and fees required. The applicant will return the Post Approval Requirements List along with the required documents in a packet with the documents arranged in the order shown on the list. Please also provide a disk containing .pdf copies of all documents.

Item #2:
Post Approval Fees: The applicant is required to pay all remaining fees when submitting the post approval packet. If an extension is granted, the fees must be paid within 60 days from the date of the development order. Checks should be made payable to Martin County Board of County Commissioners. **– Advertising Fees $241.15; Inspection Fees $4,000.00**

Item #3:
Recording Costs: The applicant is responsible for all recording costs. Once the staff review has been completed and the post submittal has been found to be in compliance, the Growth Management Department will calculate the recording costs and contact the applicant with the payment amount required. Checks should be made payable to the Martin County Clerk of Court.
– To be determined

Item #4:
One (1) copy of the recorded warranty deed if a property title transfer has occurred since the site plan approval. If there has not been a property title transfer since the approval, provide a letter stating that no title transfer has occurred.

Item #5:
Ten (10) copies 24" x 36" of the approved master and final site plan. Fold to 8" x 12".
– Ten copies of the master and final site plan, dated 3/18/2019, were previously received. If there are no additional changes, we can use those hard copies. Do please still include a .pdf copy on your disk.

Item #6:
Original approved master and final site plan on Mylar or other plastic, stable material.

Item #7:
One (1) digital copy of approved master and final site plan in AutoCAD 2010 – 2017 drawing format (.dwg). The digital version of the site plan must match the hardcopy version as submitted.

Item #8:
Original and one (1) copy of the executed approved PUD zoning agreement.

Item #9:
The applicant has submitted the information for a draft Water and Wastewater Service Agreement as requested. The applicant must execute the Agreement and pay the resultant fees within sixty (60) days of final Martin County approval of the request. [ref. Code, LDR, s.5.32.D.1, 2.(a)(b) and (c)Code, LDR, Art.5, Div.2]

1. Provide directly to the Martin County Utilities & Solid Waste Department:
    a. The original Water and Wastewater Service Agreement and payment, and
2. Provide to the Growth Management Department as part of the Post Approval Submittal either:
    a. One (1) copy of the recorded Water and Wastewater Service Agreement, or
    b. One (1) copy of the executed and signed Water and Wastewater Service Agreement and one (1) copy of the check submitted for payment of the Capital Facility Charge (CFC) and engineering and recording fees. Please redact account no. on the check copy.

Item #10:
Original of the Engineer's Design Certification, on the County format which is available on the Martin County website, signed and sealed by the Engineer of Record licensed in the State of Florida.

Item #11:
Two (2) copies of the documents verifying that the right-of-way, property, or easements have been adequately dedicated to the Board of County Commissioners and recorded in the public records of Martin County within sixty (60) calendar days of the project approval – **N/A**

Item #12:
Two (2) originals of the Cost Estimate, on the County format which is available on the Martin County website, signed and sealed by the Engineer of Record licensed in the State of Florida.

Item #13:
An original of the construction schedule.

Item #14:
The approved construction plans are reviewed by the Engineering Department during post approval. Please provide ten (10) 24" x 36" copies of the approved construction plans signed and sealed by the Engineer of Record licensed in the State of Florida. Fold to 8" x 12".

Item #15:
Post Approval Impact Fees: Mandatory Impact Fees **($597,649.94)** must be paid after the development order has been approved. Submit a check made payable to Martin County Board of County Commissioners within 60 days of project approval. Non-Mandatory Impact Fees are to be paid at the time of Building Permit issuance. Please note that, if the impact fee amounts were to increase prior to your Building Permit(s) being issued, the new amounts would apply.

Exhibit B

Please Initial
County: _____
Developer: _____

WATER AND WASTEWATER SERVICE AGREEMENT
Cove Royale

THIS AGREEMENT made this _____ day of _____, _____, by and between MARTIN COUNTY, a political subdivision of the State of Florida, hereinafter referred to as "COUNTY" and **TLH-82 DOT, LLC** hereinafter referred to as "DEVELOPER".

WHEREAS, DEVELOPER is the owner of a parcel of land within the COUNTY's water and wastewater consolidated system service area and is desirous of purchasing water and wastewater treatment service from COUNTY; and

WHEREAS, COUNTY has sufficient capacity to supply DEVELOPER with service;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency whereof is acknowledged, and intending to be legally bound, the parties covenant and agree as follows:

1. GENERAL PURPOSE

The general purpose of this Agreement is to provide water and wastewater treatment service to **Cove Royale** development legally described in Exhibit "A" attached hereto and made a part hereof.

2. MARTIN COUNTY WATER AND SEWER ORDINANCE

All of the terms and conditions of the Code of Laws and Ordinances of Martin County, Chapter 31, Water and Sewers, as may be amended from time to time, are hereby incorporated by reference in this Agreement.

3. EQUIVALENT RESIDENTIAL CONNECTIONS (ERCs) RESERVED; PAYMENT OF CAPITAL FACILITY CHARGES (CFCs), RIVER CROSSING SURCHARGES AND SYSTEM AVAILABILITY CHARGES (SACs)

3.1 COUNTY shall reserve **186** ERCs for water and **119** ERCs for wastewater service to DEVELOPER. DEVELOPER agrees to pay for said ERCs according to the following schedule:

_119_ Potable Water CFCs - _119_ X $1710/ERC:	$ 203,490.00
_67_ Potable Water CFCs for Irrigation - _67_ X $1710/ERC:	$ 114,570.00
_119_ Wastewater CFCs - _119_ X $2100/ERC:	$ 249,900.00
_305_Engineering Review Fees - _305_ X $70/ERC:	$ 21,350.00
Recording Fee's:	$ 150.00
Total:	$ 589,460.00

3.2 The charges for reserved ERCs shall include the Capital Facility Charge (CFC) and the river-crossing surcharge if applicable. DEVELOPER agrees to pay the current CFC being imposed by COUNTY at the time of payment for each group of ERCs.

3.3 DEVELOPER agrees to pay the effective monthly service availability charge (SAC) for each and all ERCs reserved for DEVELOPER beginning on the date this Agreement is approved by COUNTY. No certificate of occupancy shall be issued while any SAC payments required under this Agreement remain unpaid or are delinquent.

3.4 In addition to any other obligations of this Agreement, DEVELOPER may be required by COUNTY to make modifications to COUNTY's water and wastewater system because of the development's impact on the system. The modifications are set forth in Exhibit "B" attached hereto and made a part hereof and shall be performed by DEVELOPER prior to the issuance of the first certificate of occupancy, unless otherwise stated in this Agreement.

3.5 No Martin County Building Permit shall be issued to DEVELOPER or its agents for any unit unless and until DEVELOPER has paid for ERCs for said unit and all monthly system availability charges required by this Agreement. Written approval by Martin County Utilities and Solid Waste Department shall be required prior to the issuance of any building permit.

3.6 Cost Reimbursement for Accounting, Administrative, Engineering and Legal Cost Reimbursement:

The DEVELOPER agrees to pay COUNTY upon execution of this Agreement the sum of Seventy Dollars ($70.00) per ERC wastewater connection and Seventy Dollars ($70.00) per ERC water connection for the agreed amount of proposed Equivalent Residential Connections (ERCs) to cover accounting, administrative, engineering and legal costs prudently incurred by COUNTY in the execution of performance of this Agreement.

In the event of DEVELOPER default, as defined in Paragraph 14, DEVELOPER shall forfeit all sums paid as an advance deposit and DEVELOPER and COUNTY agree that because actual damages to COUNTY are indeterminable and incapable of being defined, COUNTY shall be entitled to retain as liquidated damages all funds paid.

The DEVELOPER shall pay a Geographic Information System (GIS) update fee of $0.75 per linear foot of utility pipeline to be installed for the project both on and off site and a parcel map update fee of $400 per plat plus $7.00 per lot or subdivided parcel. Prior to the Utility Department's

final acceptance, the DEVELOPER shall provide the Utility Department with a copy of the final plat in a digital AutoCad release 14 "DWG" file format, georeferenced to the state plane coordinate system in accordance with the current plat ordinance.

DEVELOPER further agrees to pay recording fees for this document and the Bill of Sale to be submitted as a condition of this Agreement. The amount of these fees is based upon the number of pages to be recorded and the current fee structure set out by the COUNTY's Clerk of the Circuit Court.

4. CONNECTION CHARGES

Every user of COUNTY's water and wastewater system shall pay the connection charge in effect on the date the connection request is made.

5. POINTS OF DELIVERY

5.1 The water furnished to DEVELOPER hereunder will be delivered by COUNTY and will be accepted and received by DEVELOPER at the time the meters are installed in the development by COUNTY upon acceptance of application for connection. The size and location of the meters shall be determined by the COUNTY.

5.2 Under no circumstances shall COUNTY provide water and/or wastewater service to an area encompassed under this DEVELOPER's Agreement when, in fact, that area has not been completed, tested, certified, approved and accepted by the COUNTY in accordance with this Agreement.

6. OBLIGATIONS OF DEVELOPER

6.1 It will be the obligation of the DEVELOPER, at his expense, to design, construct and install water and wastewater service lines over, through, under, across and past DEVELOPER's property in accordance with plans, specifications and engineering data as submitted by a Florida registered engineer to be approved by the regulatory agencies having jurisdiction over the subject matter and by the COUNTY's Utilities and Solid Waste Director or his designated representative. Such water and wastewater service lines shall be connected to the COUNTY's existing water and wastewater service lines at DEVELOPER's expense, and shall comply with the COUNTY's Minimum Standards for Construction.

6.2 DEVELOPER shall, at his expense, retain the services of the same Florida registered engineer who prepared plans and specifications, for the purpose of providing necessary inspections and supervision of the construction work to insure that construction is at all times in compliance with accepted sanitary engineering practices and the approved plans and specifications.

A copy of each field report shall be submitted to the COUNTY as each inspection is made. Should there subsequently be cause or reason for the DEVELOPER to engage the services of another Florida registered engineer with respect to the water and wastewater service lines that are the subject of this Agreement, DEVELOPER must notify the COUNTY within five (5) days of such engagement.

6.3 DEVELOPER will arrange for a pre-construction meeting to be attended by the COUNTY's Utilities and Solid Waste Director or his authorized representative and the DEVELOPER or DEVELOPER's engineer and contractor. Notification of such meeting shall be made in writing and received by all parties no less than seventy-two (72) hours in advance of, and such meeting shall be held at least twenty-four (24) hours prior to the start of any and all phases of construction.

6.4 The work to be performed by DEVELOPER, as provided for above, may not commence until all plans and specifications covering the work to be performed are approved in writing by the COUNTY's Utilities and Solid Waste Director or his authorized representative.

6.5 DEVELOPER will notify the COUNTY before any construction is begun and at the times when inspection will be required. Said notification shall be made in writing and shall be received by COUNTY at least twenty-four (24) hours in advance of the time construction is to begin or inspections are to be made.

6.6 During construction, at the time when periodic inspections are required, COUNTY's Utilities and Solid Waste Director or his authorized representative, together with DEVELOPER's engineer, will be present to observe and jointly witness tests for determination of conformance to approved plans and specifications.

6.7 The work to be performed by DEVELOPER, pursuant to the provisions set forth herein, shall be in accordance with all requirements of the regulatory agencies having jurisdiction over the subject matter of the Agreement.

6.8 When the water and wastewater service systems have been satisfactorily installed, inspected, tested, and approved in writing by the DEVELOPER's engineer, together with the COUNTY's Utilities and Solid Waste Director or his authorized representative, COUNTY will thereafter maintain the water and wastewater service systems up to and only within granted easements upon DEVELOPER's property without cost to DEVELOPER. The obligations of COUNTY to maintain the water and wastewater service systems will not take effect, however, until such time as DEVELOPER has conveyed title to the systems to the COUNTY; and furnished the as-

built drawings prescribed in Paragraph 6.9.1 below, and the 12 month maintenance bond has expired.

6.9 The following are the required documents, equipment and other information that must be executed and received by COUNTY in order to accept a water and/or wastewater service system and provide service:

6.9.1. DEVELOPER shall, at his sole expense, and at no cost to the COUNTY, provide one 4" vacuum Assisted, dry priming sewage pump(s) for each lift station(s) that are constructed and dedicated to the COUNTY pursuant to this agreement. The specifications for the 4" vacuum Assisted, dry priming sewage pump(s) are described in the Martin County Utilities and Solid Waste Department Minimum Design and Construction Standards.

6.9.2. DEVELOPER shall, at his expense, and at no cost to the COUNTY, furnish to the COUNTY one (1) complete set of reproducible as-built drawings of the completed works or installation on mylar or on such other transparent material as approved by the COUNTY plus two (2) sets of as-built prints made from the original as-built drawing. The as-built drawing on transparent material and the prints shall be certified and sealed by a Florida registered engineer and must show all pertinent information thereon. As-built drawings to include information as to easements, correct location of all mains, service grades, invert elevations, heights related to known datum, and all appurtenances belonging to the completed works or installations, at option of the COUNTY, shall also be certified and sealed by a Florida registered professional land surveyor. The as-built drawings and all information shown thereon shall be to the approval of the COUNTY.

6.9.3. Final acceptable inspection by the COUNTY Utilities and Solid Waste Department (Item 6.9.1 above must be received prior to final inspection).

6.9.4. Bacterial samples collected by the COUNTY and approved by regulatory agency.

6.9.5. Florida registered engineer certification that system has been constructed according to approved plans.

6.9.6. Regulatory agency approval for service by letter of permit.

6.9.7. Notarized Bill of Sale from DEVELOPER in a form approved by the COUNTY.

6.9.8. Itemized cost list, certified by a Florida registered engineer, of materials used in construction of the water and wastewater systems installed by the DEVELOPER/Contractor.

Please Initial
County: _____
Developer: _____

6.9.9. Release of Liens and Statement of Warranty from DEVELOPER/Contractor and equipment suppliers.

6.9.10. Release of Lien by project engineer and surveyor.

6.9.11. Recorded easements with survey attached.

6.9.12. Approved recorded plats if applicable.

6.9.13. Maintenance bond or letter of credit from any United States banking institution with an office in Florida for guarantee of maintenance for 12 months following acceptance by the COUNTY as follows:

BOND REQUIREMENT FORM

The bond or letter of credit shall be in the following amount:

a. 100% of the first $5,000 of improvements; plus

b. 10% of the balance of the cost of improvements; plus

Maintenance bonds or letters of credit shall contain the following terms:

If at any time before one (1) year from the date of final acceptance of the work, defects therein shall be found, the DEVELOPER shall promptly correct such defects and remove and dispose of all defective or unsatisfactory work or materials, in accordance with the approved plans. Previous inspection of such work will not relieve DEVELOPER of the responsibility for good work or materialism, although the defects may have been overlooked by the engineer of their COUNTY or may have been the result of damage from any cause.

Should DEVELOPER fail or refuse to remove and renew any defective work performed, or to make any necessary repairs in an acceptable manner and in accordance with the requirements of the approved plans within the time specified in writing by the COUNTY. The COUNTY shall have the authority to cause the unacceptable or defective work to be removed and renewed, or such repairs as may be necessary to be made, at DEVELOPER's expense. In an emergency situation, the COUNTY may make emergency repair at DEVELOPER's expense, without providing notice to DEVELOPER.

All equipment, materials and installation thereon which are furnished by DEVELOPER shall be guaranteed by DEVELOPER and his

surety, through the performance and maintenance bond, against defective workmanship, mechanical and physical defects, leakage, breakage, and other damages and failure, under normal use and operation for a period of one year from and after the date of final acceptance by the COUNTY.

6.9.14. When the COUNTY receives all of the above documents, equipment and approves the system, the COUNTY will provide a letter of acceptance. The Contractor's guarantee will begin on that date and the service to be provided by the COUNTY shall commence. DEVELOPER may apply for meters and installation of meters within ten (10) working days.

7. COUNTY TO FURNISH WATER

The COUNTY shall make its best efforts to furnish water of the quality and purity meeting the standards required by the Florida Department of Health and Rehabilitative Services, the COUNTY Health Department and any other regulatory agency having jurisdiction. The COUNTY shall make its best efforts to supply, at all times, for the use of each of the properties connected to its water system, a quantity of water under adequate pressure satisfactory for domestic use at the customer's side of the meter.

8. RATE STRUCTURE

The COUNTY covenants and agrees to charge DEVELOPER, his successors and assigns, the same rates that the COUNTY charges other users in the COUNTY water and wastewater system.

Notwithstanding any provision in this Agreement, the COUNTY may establish, amend or revise from time to time rates and/or rules and regulations covering water and wastewater service by the COUNTY. Any such initial or future lower or increased rates, rate schedules, and rules and regulations establish, amended or revised, and enforced by the COUNTY, shall be binding on DEVELOPER, upon any person or other entity holding by, through or under DEVELOPER, and upon any user of the water and wastewater service provided to DEVELOPER by the COUNTY.

9. NO ASSIGNMENT OR SALE OF RIGHTS

DEVELOPER may not assign or sell any of its rights or obligations under this Agreement without the express written consent of the COUNTY, which consent shall not be unreasonably withheld. The Reserve Service Availability under this Agreement may not be transferred from the property described in Exhibit "A" to any other property except with the consent of the COUNTY and under such conditions as shall reasonably be required.

Please Initial
County: _____
Developer: _____

10. PRIORITY

Reserved

11. RECORDATION

A copy of this Agreement, by the COUNTY at DEVELOPER'S sole cost and expense, shall be filed in the Public Records of Martin County, without the plans and specifications referred to in "Exhibit "B."

12. PROJECT APPROVAL

Nothing in this Agreement shall be considered approval by the COUNTY of any part of DEVELOPER's proposed project.

13. MODIFICATION, INTERPRETATION, BINDING NATURE

This Agreement may be amended only by written documentation, properly authorized, executed and delivered by both parties hereto. All interpretations shall be governed by the laws of the State of Florida. Waiver of any breach shall not constitute waiver of any other breach. Invalidation of any portion of this Agreement shall not automatically invalidate the entire Agreement. This Agreement shall bind and the benefits and advantages shall inure to the respective heirs, executors, administrators, successors or assigns of the parties hereto.

14. DEFAULT

Upon failure of the DEVELOPER to pay any monies due under this Agreement for a period greater than thirty (30) days from the date they became due, the COUNTY shall send DEVELOPER a letter by registered or certified mail demanding payment in full within thirty (30) days. Upon failure of DEVELOPER to make the full payment due within the stated period, the COUNTY Board of County Commissioners or designee may declare this Agreement terminated. Upon termination of this Agreement by the COUNTY, as provided for therein, no further service capacity shall be reserved nor shall any further COUNTY building permits or certificates of occupancy be issued for the project described herein.

DEVELOPER shall pay an interest penalty on all monies past due for any period greater than thirty (30) days. Said interest penalty shall equal the U.S. prime rate as published by the Wall Street Journal at the time of default plus three (3%) percent.

Please Initial
County: ____
Developer: ____

15. NOTICE

Until further written notice by either party to the other, all notices provided for therein shall be in writing and transmitted by messenger, by mail or by telegram, and if to the COUNTY, shall be mailed or delivered to the COUNTY at:

Martin County Board of County Commissioners
c/o Utilities and Solid Waste Department
P. O. Box 9000, Stuart, FL 34995-9000

with required copy to:

Martin County Attorney
2401 S.E. Monterey Road
Stuart, FL 34996-3397

and

Martin County Administrator
2401 S.E. Monterey Road
Stuart, FL 34996-3397

and if to DEVELOPER, shall be mailed or delivered to:

TLH – 82 DOT, LLC
Michael Tuttle, Manager
2240 West Woolbright Road
Suite 403
Boyton Beach, FL 33426
(561)718-4816
Michael@tuttleli.com

Please Initial
County: _____
Developer: _____

IN WITNESS WHEREOF, this agreement has been fully executed on behalf of the parties and hereto have set their hand and seal as of the date first set forth above.

COUNTY:

Board of County Commissioners
Martin County, Florida

By: _____
Samuel Amerson, P.E.,
Utilities and Solid Waste Director

Approved as to Form and Legal Sufficiency:

By: _____
Krista A. Storey, Acting County Attorney

Please Initial
County: BM
Developer: MT

(CORPORATE)

IN WITNESS WHEREOF, the parties hereto have set their hand and seal as of the date first set forth above.

DEVELOPER:

Saba Aamir
Witness Signature

Authorized Agent Signature

Saba Aamir
Witness Printed Name

Michael Tuttle, Manager
Authorized Agent Printed Name and Title

ADDRESS:
2240 W. Woolbright Road, #403
Boyton Beach, Florida 33426

Witness Signature

Jean Toussaint
Witness Printed Name

State of ~~Brow~~ DC Florida
County of Broward

The foregoing instrument was acknowledged before me this 15 day of May, 2019, by Michael A. Tuttle, President, ~~and~~ Secretary, ~~of~~ ~~(name of corporation)~~, personally known to me or have produced Florida Drivers Lic. (type of identification) as identification.

WITNESS my hand and official seal at Broward County, Florida this 15 day of May, 2019.

Ilene Castronovo
Notary

My commission expires: Sept. 11. 2022

(SEAL)

ILENE CASTRONOVO
Commission # GG 257400
Expires September 11, 2022
Bonded Thru Budget Notary Services

Note: Florida Statutes requires one of the following: corporate officer's signature attested by the corporate secretary and corporate seal applied; or, corporate officer's signature and corporate seal applied and one witness; or, corporate officer's signature and two witnesses.

Please Initial
County: _____
Developer: _____

EXHIBIT "A"
LEGAL DESCRIPTION

A PARCEL OF LAND LYING IN LOTS 9, 10 AND 11, WACO FIELD PLACE, AS RECORDED IN PLAT BOOK 5, PAGE 62, PUBLIC RECORDS OF PALM BEACH (NOW MARTIN) COUNTY, FLORIDA, AND A PORTION OF GOVERNMENT LOTS 1, 2 AND 3, SECTION 34, TOWNSHIP 38 SOUTH, RANGE 41 EAST, AND BEING FURTHER DESCRIBED AS FOLLOWS;

COMMENCE AT THE SOUTHEAST CORNER OF SECTION 34, TOWNSHIP 38 SOUTH, RANGE 41 EAST, THENCE SOUTH 89°28'28" WEST, ALONG THE SOUTH LINE OF SAID SECTION 34, FOR A DISTANCE OF 817.02 FEET TO THE POINT OF BEGINNING; THENCE, CONTINUE SOUTH 89°28'28" WEST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1627.89 FEET; THENCE, CONTINUE SOUTH
89°28'22" WEST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1409.18 FEET; THENCE, DEPARTING SAID SOUTH LINE, NORTH 00°16'33" WEST, CONTINUING THROUGH THE WEST LINE OF LOT 9, WACO FIELD PLACE, AS RECORDED IN PLAT BOOK 5, PAGE 62, PUBLIC RECORDS OF PALM BEACH (NOW MARTIN) COUNTY, FLORIDA, FOR A DISTANCE OF 2162.97 FEET; THENCE, DEPARTING
SAID WEST LINE, NORTH 65°08'35" EAST, FOR A DISTANCE OF 616.08 FEET TO THE EAST LINE OF LOT 11, SAID PLAT OF WACO FIELD PLACE; THENCE SOUTH 00°17'32" EAST, ALONG SAID EAST LINE, FOR A DISTANCE OF 1099.24 FEET TO A POINT ON THE SOUTH LINE OF SAID PLAT OF WACO FIELD PLACE; THENCE NORTH 66°11'43" EAST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1614.95 FEET; THENCE, DEPARTING SAID SOUTH LINE, SOUTH 28°29'17" WEST, FOR A DISTANCE OF 471.12 FEET; THENCE, SOUTH 08°04'50" WEST, FOR A DISTANCE OF 207.58 FEET; THENCE SOUTH 52°16'10" EAST, FOR A DISTANCE OF 1140.59 FEET; THENCE SOUTH 12°46'04" EAST, FOR A DISTANCE
OF 345.66 FEET; THENCE SOUTH 43°51'50" EAST, FOR A DISTANCE OF 404.93 FEET TO A POINT ON THE SOUTH LINE OF SAID SECTION 34, AND THE POINT OF BEGINNING OF SAID PARCEL.

PCN: 34-38-41-001-000-00090-3
34-38-41-000-000-00010-1

Please Initial
County: _____
Developer: _____

EXHIBIT "B"

DESCRIPTION OF FACILITIES TO BE BUILT BY THE DEVELOPER

To that certain Agreement by and between MARTIN COUNTY and _TLH-82 DOT, LLC_ dated the _____ day of _____, _____, consists of plans and specifications made by:

Engenuity Group, Inc.
Adam Swaney, P.E.
1280 N. Congress Avenue
Suite 101
West Palm Beach, 33409
(561) 718-4816

the originals of which will be filed separately with MARTIN COUNTY and are incorporated herein by reference.

This document may be reproduced upon request in an alternative format by contacting the County ADA Coordinator (772) 320-3131, the County Administration Office (772) 288-5400, Florida Relay 711, or by completing our accessibility feedback form at www.martin.fl.us/accessibility-feedback

Martin County Growth
Management Department

POWER OF ATTORNEY

I, Michael Tuttle, as Manager of TLH 82 DOT, LLC
do hereby authorize Jeff Evans of Evans Land Consulting to act as my agent in submitting Cove Royale PUD development applications to Martin County. I understand that I am the owner of record responsible for the development applications submitted by my agent referenced above. I further understand that each time my agent submits an application or signs any required documents, that the individual must exhibit this authorization form at the discretion of Growth Management staff.

Michael Tuttle
(Owner's Signature)

8/8/19
(Date)

STATE OF FLORIDA
COUNTY OF Broward

The foregoing instrument was acknowledged before me this 8 day of August 2019. By Michael Tuttle who is personally known to me (/) or has provided the following identification Florida Drivers Lic

Notary Public Signature Ilene Castronovo Notary Public Stamp Here

NOTARY PUBLIC STATE OF FLORIDA
ILENE CASTRONOVO
Commission # GG 257400
Expires September 11, 2022
Bonded Thru Budget Notary Services

Recorded in Martin County, FL 10/2/2018 1:25 PM
Carolyn Timmann, Clerk of the Circuit Court & Comptroller
Rec Fees: $35.50Deed Tax: $15,750.00
CFN#2718402 BK 3019 PG 516 PAGE 1 of 4

THIS INSTRUMENT PREPARED BY:
RECORD AND RETURN TO:
ROBERT LEE SHAPIRO, P.A.
2401 PGA BOULEVARD, SUITE 280B
PALM BEACH GARDENS, FLORIDA 33410
(561) 691-0059

Property Control Number:
34-38-41-001-000-00090.30000
34-38-41-000-000-00010.10000

SPECIAL WARRANTY DEED

THIS SPECIAL WARRANTY DEED made as of the 25 day of SEPTEMBER, 2018, between ANG HOLDINGS, L.L.C., an Illinois limited liability company, whose post office address is 202 Lori Court, Medinah, IL 60157 (Grantor") and TLH-82 DOT, LLC, a Florida limited liability company, whose post office address is 2240 West Woolbright Road, Boynton Beach, FL 33246 ("Grantee").

(Wherever used herein the terms "grantor" and "grantee" include all the parties to this instrument and the heirs, legal representatives and assigns of individuals, and the successors and assigns of corporation.)

WITNESSETH: That the Grantor, for and in consideration of the sum of $10.00 and other valuable considerations, receipt whereof is hereby acknowledged, by these presents does grant, bargain, sell, alien, remise, release, convey and confirm unto the Grantee, all that certain land situate in Martin County, Florida, viz:

See Attached Exhibit A

Subject to: (i) comprehensive land use plans, zoning and other land use restrictions, prohibitions and requirements imposed by governmental authorities; (ii) easements, restrictions, reservations, conditions and limitations of record, including those set forth on Exhibit 2; (iii) matters appearing on the Plat or otherwise common to the subdivision; (iv) outstanding oil, gas and mineral rights of record; (v) taxes for the year of Closing; (vi) matters shown on the Survey; and (vii) matters caused by, through or under, Grantee ("Permitted Exceptions")

TOGETHER with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining.

TO HAVE AND TO HOLD, the same in fee simple forever.

AND the grantor hereby covenants with said grantee that: (a) it is lawfully seized of said land in fee simple; that it has good right and lawful authority to sell and convey said land; and (b) it hereby fully warrants the title to said land and will defend the same against the lawful claims of all persons claiming by, through or under the said grantor.

IN WITNESS WHEREOF, the grantor has caused these presents to be executed in its name, and its corporate seal to be hereunto affixed, by its proper officers thereunto duly authorized, the day and year first above written.

Signed, sealed and delivered in the presence of:

Witnesses:

Print Name: ANNA SANTELLI

Print Name: GABRIEL M. CAPORALE

Grantor:

ANG HOLDINGS, L.L.C., an Illinois limited liability company

By: _____
ANTHONY GIRONDA, Manager

STATE OF ILLINOIS
COUNTY OF COOK

The foregoing instrument was acknowledged before me this 25 day of September, 2018, by ANTHONY GIRONDA, as Manager of ANG HOLDINGS, L.L.C., an Illinois limited liability company, who is personally known to me or has produced DRIVER'S LICENSE as identification and did take an oath.

Notary Public GABRIEL M. CAPORALE
My Commission Expires: 12/30/19

"OFFICIAL SEAL"
Gabriel M Caporale
Notary Public, State of Illinois
My Commission Expires 12/30/2019

Exhibit A

A PARCEL OF LAND LYING IN LOTS 9, 10 AND 11, WACO FIELD PLACE, AS RECORDED IN PLAT BOOK 5, PAGE 62, PUBLIC RECORDS OF PALM BEACH (NOW MARTIN) COUNTY, FLORIDA, AND A PORTION OF GOVERNMENT LOTS 1, 2 AND 3, SECTION 34, TOWNSHIP 38 SOUTH, RANGE 41 EAST, AND BEING FURTHER DESCRIBED AS FOLLOWS;

COMMENCE AT THE SOUTHEAST CORNER OF SECTION 34, TOWNSHIP 38 SOUTH, RANGE 41 EAST, THENCE SOUTH 89°28'28" WEST, ALONG THE SOUTH LINE OF SAID SECTION 34, FOR A DISTANCE OF 817.02 FEET TO THE POINT OF BEGINNING; THENCE, CONTINUE SOUTH 89°28'28" WEST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1627.89 FEET; THENCE, CONTINUE SOUTH 89°28'22" WEST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1409.18 FEET; THENCE, DEPARTING SAID SOUTH LINE, NORTH 00°16'33" WEST, CONTINUING THROUGH THE WEST LINE OF LOT 9, WACO FIELD PLACE, AS RECORDED IN PLAT BOOK 5, PAGE 62, PUBLIC RECORDS OF PALM BEACH (NOW MARTIN) COUNTY, FLORIDA, FOR A DISTANCE OF 2162.97 FEET; THENCE, DEPARTING SAID WEST LINE, NORTH 65°08'35" EAST, FOR A DISTANCE OF 616.08 FEET TO THE EAST LINE OF LOT 11, SAID PLAT OF WACO FIELD PLACE; THENCE SOUTH 00°17'32" EAST, ALONG SAID EAST LINE, FOR A DISTANCE OF 1099.24 FEET TO A POINT ON THE SOUTH LINE OF SAID PLAT OF WACO FIELD PLACE; THENCE NORTH 66°11'43" EAST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1614.95 FEET; THENCE, DEPARTING SAID SOUTH LINE, SOUTH 28°29'17" WEST, FOR A DISTANCE OF 471.12 FEET; THENCE, SOUTH 08°04'50" WEST, FOR A DISTANCE OF 207.58 FEET; THENCE SOUTH 52°16'10" EAST, FOR A DISTANCE OF 1140.59 FEET; THENCE SOUTH 12°46'04" EAST, FOR A DISTANCE OF 345.66 FEET; THENCE SOUTH 43°51'50" EAST, FOR A DISTANCE OF 404.93 FEET TO A POINT ON THE SOUTH LINE OF SAID SECTION 34, AND THE POINT OF BEGINNING OF SAID PARCEL.

Exhibit 2

1. Easement granted in that certain instrument recorded in O.R. Book 246, Page 128, Public Records of Martin County, Florida.

2. Reservation of Easement recorded in O.R. Book 337, Page 1771, Public Records of Martin County, Florida.

3. Easement as set forth and recorded in O.R. Book 367, Page 2254, Public Records of Martin County, Florida.

4. Utility Easement recorded in O.R. Book 2537, Page 2227, as accepted by Resolution No. 11-8.16 recorded in O. R. Book 2537, Page 2226, Public Records of Martin County, Florida.

EXHIBIT C

UNIFIED CONTROL

The undersigned, being the OWNER of the property described in Exhibit A, to the Planned Unit Development Zoning Agreement (PUD) dated the _____ day of _____, 20___ between ANG HOLDINGS, LLC and COUNTY, does hereby covenant and agree that: (i) the property described in Exhibit A shall be held under single ownership, and shall not be transferred, conveyed, sold or divided in any unit other than in its entirety; provided, however that individual subdivision lots or fully constructed condominium units, if any, may be conveyed to individual purchasers in accordance with and subject to the terms and conditions of the PUD Agreement.

In addition, the following conveyances shall be permitted:

1. Common elements, common open areas and developed recreation areas, if any, may be conveyed to a property owners' association or other legal entity so long as such conveyance shall be subject to the express restriction that the subject property will never be used for any purpose other than as common elements, common open areas or developed recreation areas as applicable.
2. Other portions of the subject property may be conveyed and used or maintained by governmental, environmental, charitable or other organizations or agencies for such purposes as the Board of County Commissioners of Martin County, Florida may deem appropriate.

Nothing herein contained shall limit, in any manner, the undersigned, or their successors or assigns, to mortgage or encumber the property or any part thereof.

The undersigned further agrees that the conditions, restrictions and limitations contained herein shall be deemed a covenant running with the land and shall remain in full force and effect and be binding on the undersigned, its successors and assigns, until such time as the same may be released in writing by the Board of County Commissioners of Martin County, Florida.

The undersigned further agrees that this instrument may be recorded in the public records of Martin County, Florida.

IN WITNESS WHEREOF, the parties hereto have executed these presents on the dates indicated below.

OWNER

Witnesses

_____
Name of Corporation

_____ By: _____
Name Name and Title

_____ Attest:
Name

_____
Secretary
ADDRESS:

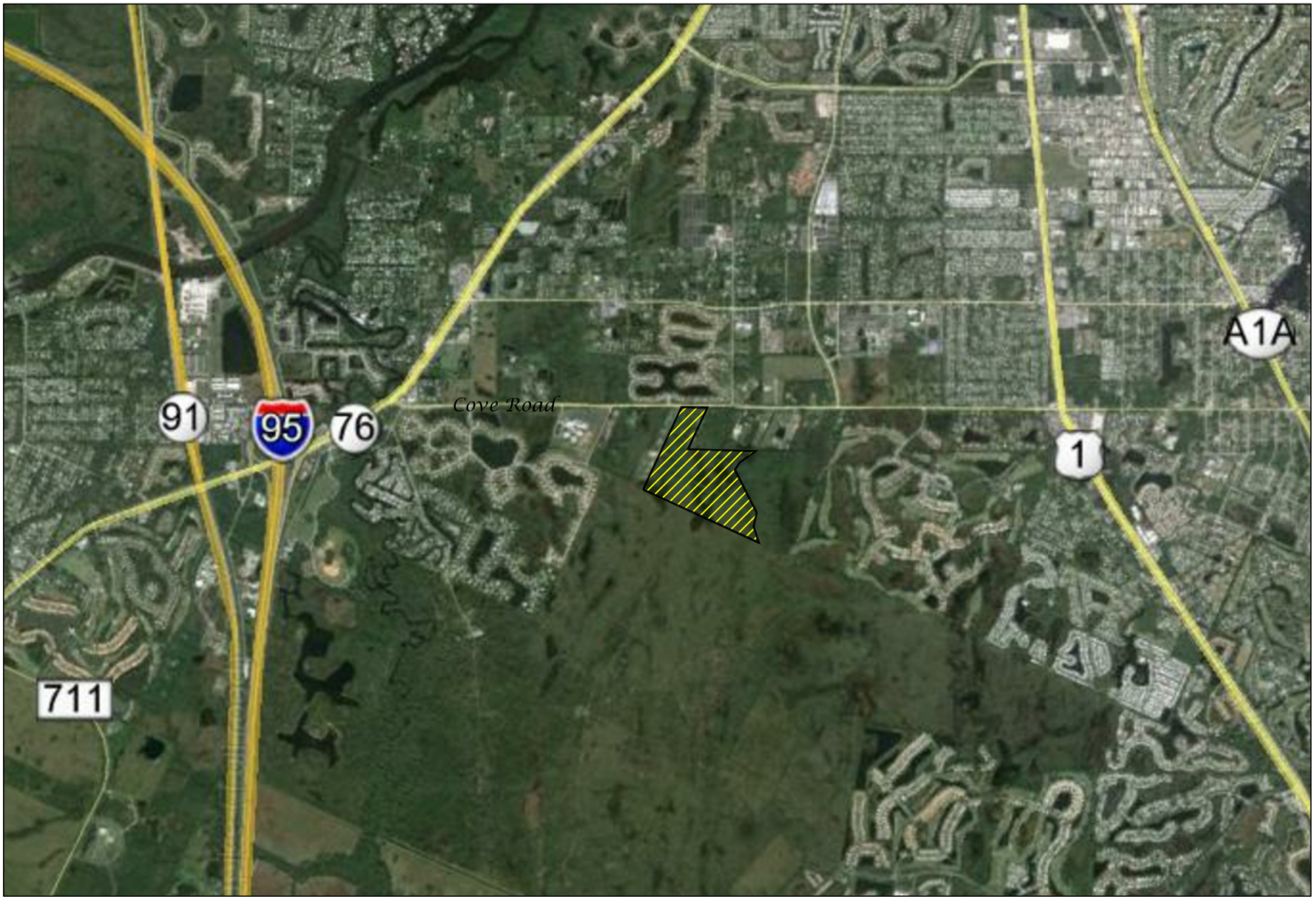
STATE OF FLORIDA
COUNTY OF_____

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State aforesaid and in the County aforesaid to take acknowledgments, personally appeared _____ and _____ President and Secretary of _____, a _____ corporation on behalf of the corporation, to me known to be the persons described herein and who executed the foregoing instrument and acknowledged before me that he executed same.

WITNESS my hand and official seal in the County and State last aforesaid this _____ day of _____, 20___.

(NOTARIAL STAMP)

_____
Notary Public
My commission expires:



Project Location

Location Map

North

Scale: 1" = 1,500'

0 750' 1,500' 3,000'

Conceptual Design Group, Inc.

Landscape Architecture - Site Planning

900 East Ocean Boulevard, Suite 130d
Stuart, Florida 34994
(772) 344-2340
LC: 26000198

Cove Royale

Martin County, Florida

Job No. 16-0203
Drawn By JWS
Submittal Dates 9-19-2016

Revision Dates

Please Initial
County: _____
Developer: _____

WATER AND WASTEWATER SERVICE AGREEMENT
Cove Royale

THIS AGREEMENT made this _____ day of _____, _____, by and between MARTIN COUNTY, a political subdivision of the State of Florida, hereinafter referred to as "COUNTY" and **TLH-82 DOT, LLC** hereinafter referred to as "DEVELOPER".

WHEREAS, DEVELOPER is the owner of a parcel of land within the COUNTY's water and wastewater consolidated system service area and is desirous of purchasing water and wastewater treatment service from COUNTY; and

WHEREAS, COUNTY has sufficient capacity to supply DEVELOPER with service;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency whereof is acknowledged, and intending to be legally bound, the parties covenant and agree as follows:

1. GENERAL PURPOSE

The general purpose of this Agreement is to provide water and wastewater treatment service to **Cove Royale** development legally described in Exhibit "A" attached hereto and made a part hereof.

2. MARTIN COUNTY WATER AND SEWER ORDINANCE

All of the terms and conditions of the Code of Laws and Ordinances of Martin County, Chapter 31, Water and Sewers, as may be amended from time to time, are hereby incorporated by reference in this Agreement.

3. EQUIVALENT RESIDENTIAL CONNECTIONS (ERCs) RESERVED; PAYMENT OF CAPITAL FACILITY CHARGES (CFCs), RIVER CROSSING SURCHARGES AND SYSTEM AVAILABILITY CHARGES (SACs)

3.1 COUNTY shall reserve **186** ERCs for water and **119** ERCs for wastewater service to DEVELOPER. DEVELOPER agrees to pay for said ERCs according to the following schedule:

_119_ Potable Water CFCs - _119_ X $1710/ERC:	$ 203,490.00
_67_ Potable Water CFCs for Irrigation - _67_ X $1710/ERC:	$ 114,570.00
_119_ Wastewater CFCs - _119_ X $2100/ERC:	$ 249,900.00
_305_Engineering Review Fees - _305_ X $70/ERC:	$ 21,350.00
Recording Fee's:	$ 150.00
Total:	$ 589,460.00

3.2 The charges for reserved ERCs shall include the Capital Facility Charge (CFC) and the river-crossing surcharge if applicable. DEVELOPER agrees to pay the current CFC being imposed by COUNTY at the time of payment for each group of ERCs.

3.3 DEVELOPER agrees to pay the effective monthly service availability charge (SAC) for each and all ERCs reserved for DEVELOPER beginning on the date this Agreement is approved by COUNTY. No certificate of occupancy shall be issued while any SAC payments required under this Agreement remain unpaid or are delinquent.

3.4 In addition to any other obligations of this Agreement, DEVELOPER may be required by COUNTY to make modifications to COUNTY's water and wastewater system because of the development's impact on the system. The modifications are set forth in Exhibit "B" attached hereto and made a part hereof and shall be performed by DEVELOPER prior to the issuance of the first certificate of occupancy, unless otherwise stated in this Agreement.

3.5 No Martin County Building Permit shall be issued to DEVELOPER or its agents for any unit unless and until DEVELOPER has paid for ERCs for said unit and all monthly system availability charges required by this Agreement. Written approval by Martin County Utilities and Solid Waste Department shall be required prior to the issuance of any building permit.

3.6 Cost Reimbursement for Accounting, Administrative, Engineering and Legal Cost Reimbursement:

The DEVELOPER agrees to pay COUNTY upon execution of this Agreement the sum of Seventy Dollars ($70.00) per ERC wastewater connection and Seventy Dollars ($70.00) per ERC water connection for the agreed amount of proposed Equivalent Residential Connections (ERCs) to cover accounting, administrative, engineering and legal costs prudently incurred by COUNTY in the execution of performance of this Agreement.

In the event of DEVELOPER default, as defined in Paragraph 14, DEVELOPER shall forfeit all sums paid as an advance deposit and DEVELOPER and COUNTY agree that because actual damages to COUNTY are indeterminable and incapable of being defined, COUNTY shall be entitled to retain as liquidated damages all funds paid.

The DEVELOPER shall pay a Geographic Information System (GIS) update fee of $0.75 per linear foot of utility pipeline to be installed for the project both on and off site and a parcel map update fee of $400 per plat plus $7.00 per lot or subdivided parcel. Prior to the Utility Department's

final acceptance, the DEVELOPER shall provide the Utility Department with a copy of the final plat in a digital AutoCad release 14 "DWG" file format, georeferenced to the state plane coordinate system in accordance with the current plat ordinance.

DEVELOPER further agrees to pay recording fees for this document and the Bill of Sale to be submitted as a condition of this Agreement. The amount of these fees is based upon the number of pages to be recorded and the current fee structure set out by the COUNTY's Clerk of the Circuit Court.

4. CONNECTION CHARGES

Every user of COUNTY's water and wastewater system shall pay the connection charge in effect on the date the connection request is made.

5. POINTS OF DELIVERY

5.1 The water furnished to DEVELOPER hereunder will be delivered by COUNTY and will be accepted and received by DEVELOPER at the time the meters are installed in the development by COUNTY upon acceptance of application for connection. The size and location of the meters shall be determined by the COUNTY.

5.2 Under no circumstances shall COUNTY provide water and/or wastewater service to an area encompassed under this DEVELOPER's Agreement when, in fact, that area has not been completed, tested, certified, approved and accepted by the COUNTY in accordance with this Agreement.

6. OBLIGATIONS OF DEVELOPER

6.1 It will be the obligation of the DEVELOPER, at his expense, to design, construct and install water and wastewater service lines over, through, under, across and past DEVELOPER's property in accordance with plans, specifications and engineering data as submitted by a Florida registered engineer to be approved by the regulatory agencies having jurisdiction over the subject matter and by the COUNTY's Utilities and Solid Waste Director or his designated representative. Such water and wastewater service lines shall be connected to the COUNTY's existing water and wastewater service lines at DEVELOPER's expense, and shall comply with the COUNTY's Minimum Standards for Construction.

6.2 DEVELOPER shall, at his expense, retain the services of the same Florida registered engineer who prepared plans and specifications, for the purpose of providing necessary inspections and supervision of the construction work to insure that construction is at all times in compliance with accepted sanitary engineering practices and the approved plans and specifications.

A copy of each field report shall be submitted to the COUNTY as each inspection is made. Should there subsequently be cause or reason for the DEVELOPER to engage the services of another Florida registered engineer with respect to the water and wastewater service lines that are the subject of this Agreement, DEVELOPER must notify the COUNTY within five (5) days of such engagement.

6.3 DEVELOPER will arrange for a pre-construction meeting to be attended by the COUNTY's Utilities and Solid Waste Director or his authorized representative and the DEVELOPER or DEVELOPER's engineer and contractor. Notification of such meeting shall be made in writing and received by all parties no less than seventy-two (72) hours in advance of, and such meeting shall be held at least twenty-four (24) hours prior to the start of any and all phases of construction.

6.4 The work to be performed by DEVELOPER, as provided for above, may not commence until all plans and specifications covering the work to be performed are approved in writing by the COUNTY's Utilities and Solid Waste Director or his authorized representative.

6.5 DEVELOPER will notify the COUNTY before any construction is begun and at the times when inspection will be required. Said notification shall be made in writing and shall be received by COUNTY at least twenty-four (24) hours in advance of the time construction is to begin or inspections are to be made.

6.6 During construction, at the time when periodic inspections are required, COUNTY's Utilities and Solid Waste Director or his authorized representative, together with DEVELOPER's engineer, will be present to observe and jointly witness tests for determination of conformance to approved plans and specifications.

6.7 The work to be performed by DEVELOPER, pursuant to the provisions set forth herein, shall be in accordance with all requirements of the regulatory agencies having jurisdiction over the subject matter of the Agreement.

6.8 When the water and wastewater service systems have been satisfactorily installed, inspected, tested, and approved in writing by the DEVELOPER's engineer, together with the COUNTY's Utilities and Solid Waste Director or his authorized representative, COUNTY will thereafter maintain the water and wastewater service systems up to and only within granted easements upon DEVELOPER's property without cost to DEVELOPER. The obligations of COUNTY to maintain the water and wastewater service systems will not take effect, however, until such time as DEVELOPER has conveyed title to the systems to the COUNTY; and furnished the as-

built drawings prescribed in Paragraph 6.9.1 below, and the 12 month maintenance bond has expired.

6.9 The following are the required documents, equipment and other information that must be executed and received by COUNTY in order to accept a water and/or wastewater service system and provide service:

6.9.1. DEVELOPER shall, at his sole expense, and at no cost to the COUNTY, provide one 4" vacuum Assisted, dry priming sewage pump(s) for each lift station(s) that are constructed and dedicated to the COUNTY pursuant to this agreement. The specifications for the 4" vacuum Assisted, dry priming sewage pump(s) are described in the Martin County Utilities and Solid Waste Department Minimum Design and Construction Standards.

6.9.2. DEVELOPER shall, at his expense, and at no cost to the COUNTY, furnish to the COUNTY one (1) complete set of reproducible as-built drawings of the completed works or installation on mylar or on such other transparent material as approved by the COUNTY plus two (2) sets of as-built prints made from the original as-built drawing. The as-built drawing on transparent material and the prints shall be certified and sealed by a Florida registered engineer and must show all pertinent information thereon. As-built drawings to include information as to easements, correct location of all mains, service grades, invert elevations, heights related to known datum, and all appurtenances belonging to the completed works or installations, at option of the COUNTY, shall also be certified and sealed by a Florida registered professional land surveyor. The as-built drawings and all information shown thereon shall be to the approval of the COUNTY.

6.9.3. Final acceptable inspection by the COUNTY Utilities and Solid Waste Department (Item 6.9.1 above must be received prior to final inspection).

6.9.4. Bacterial samples collected by the COUNTY and approved by regulatory agency.

6.9.5. Florida registered engineer certification that system has been constructed according to approved plans.

6.9.6. Regulatory agency approval for service by letter of permit.

6.9.7. Notarized Bill of Sale from DEVELOPER in a form approved by the COUNTY.

6.9.8. Itemized cost list, certified by a Florida registered engineer, of materials used in construction of the water and wastewater systems installed by the DEVELOPER/Contractor.

Please Initial
County: _____
Developer: _____

6.9.9. Release of Liens and Statement of Warranty from DEVELOPER/Contractor and equipment suppliers.

6.9.10. Release of Lien by project engineer and surveyor.

6.9.11. Recorded easements with survey attached.

6.9.12. Approved recorded plats if applicable.

6.9.13. Maintenance bond or letter of credit from any United States banking institution with an office in Florida for guarantee of maintenance for 12 months following acceptance by the COUNTY as follows:

BOND REQUIREMENT FORM

The bond or letter of credit shall be in the following amount:

a. 100% of the first $5,000 of improvements; plus

b. 10% of the balance of the cost of improvements; plus

Maintenance bonds or letters of credit shall contain the following terms:

If at any time before one (1) year from the date of final acceptance of the work, defects therein shall be found, the DEVELOPER shall promptly correct such defects and remove and dispose of all defective or unsatisfactory work or materials, in accordance with the approved plans. Previous inspection of such work will not relieve DEVELOPER of the responsibility for good work or materialism, although the defects may have been overlooked by the engineer of their COUNTY or may have been the result of damage from any cause.

Should DEVELOPER fail or refuse to remove and renew any defective work performed, or to make any necessary repairs in an acceptable manner and in accordance with the requirements of the approved plans within the time specified in writing by the COUNTY. The COUNTY shall have the authority to cause the unacceptable or defective work to be removed and renewed, or such repairs as may be necessary to be made, at DEVELOPER's expense. In an emergency situation, the COUNTY may make emergency repair at DEVELOPER's expense, without providing notice to DEVELOPER.

All equipment, materials and installation thereon which are furnished by DEVELOPER shall be guaranteed by DEVELOPER and his

surety, through the performance and maintenance bond, against defective workmanship, mechanical and physical defects, leakage, breakage, and other damages and failure, under normal use and operation for a period of one year from and after the date of final acceptance by the COUNTY.

6.9.14. When the COUNTY receives all of the above documents, equipment and approves the system, the COUNTY will provide a letter of acceptance. The Contractor's guarantee will begin on that date and the service to be provided by the COUNTY shall commence. DEVELOPER may apply for meters and installation of meters within ten (10) working days.

7. COUNTY TO FURNISH WATER

The COUNTY shall make its best efforts to furnish water of the quality and purity meeting the standards required by the Florida Department of Health and Rehabilitative Services, the COUNTY Health Department and any other regulatory agency having jurisdiction. The COUNTY shall make its best efforts to supply, at all times, for the use of each of the properties connected to its water system, a quantity of water under adequate pressure satisfactory for domestic use at the customer's side of the meter.

8. RATE STRUCTURE

The COUNTY covenants and agrees to charge DEVELOPER, his successors and assigns, the same rates that the COUNTY charges other users in the COUNTY water and wastewater system.

Notwithstanding any provision in this Agreement, the COUNTY may establish, amend or revise from time to time rates and/or rules and regulations covering water and wastewater service by the COUNTY. Any such initial or future lower or increased rates, rate schedules, and rules and regulations establish, amended or revised, and enforced by the COUNTY, shall be binding on DEVELOPER, upon any person or other entity holding by, through or under DEVELOPER, and upon any user of the water and wastewater service provided to DEVELOPER by the COUNTY.

9. NO ASSIGNMENT OR SALE OF RIGHTS

DEVELOPER may not assign or sell any of its rights or obligations under this Agreement without the express written consent of the COUNTY, which consent shall not be unreasonably withheld. The Reserve Service Availability under this Agreement may not be transferred from the property described in Exhibit "A" to any other property except with the consent of the COUNTY and under such conditions as shall reasonably be required.

Please Initial
County: _____
Developer: _____

10. PRIORITY

Reserved

11. RECORDATION

A copy of this Agreement, by the COUNTY at DEVELOPER'S sole cost and expense, shall be filed in the Public Records of Martin County, without the plans and specifications referred to in "Exhibit "B."

12. PROJECT APPROVAL

Nothing in this Agreement shall be considered approval by the COUNTY of any part of DEVELOPER's proposed project.

13. MODIFICATION, INTERPRETATION, BINDING NATURE

This Agreement may be amended only by written documentation, properly authorized, executed and delivered by both parties hereto. All interpretations shall be governed by the laws of the State of Florida. Waiver of any breach shall not constitute waiver of any other breach. Invalidation of any portion of this Agreement shall not automatically invalidate the entire Agreement. This Agreement shall bind and the benefits and advantages shall inure to the respective heirs, executors, administrators, successors or assigns of the parties hereto.

14. DEFAULT

Upon failure of the DEVELOPER to pay any monies due under this Agreement for a period greater than thirty (30) days from the date they became due, the COUNTY shall send DEVELOPER a letter by registered or certified mail demanding payment in full within thirty (30) days. Upon failure of DEVELOPER to make the full payment due within the stated period, the COUNTY Board of County Commissioners or designee may declare this Agreement terminated. Upon termination of this Agreement by the COUNTY, as provided for therein, no further service capacity shall be reserved nor shall any further COUNTY building permits or certificates of occupancy be issued for the project described herein.

DEVELOPER shall pay an interest penalty on all monies past due for any period greater than thirty (30) days. Said interest penalty shall equal the U.S. prime rate as published by the Wall Street Journal at the time of default plus three (3%) percent.

Please Initial
County: ____
Developer: ____

15. NOTICE

Until further written notice by either party to the other, all notices provided for therein shall be in writing and transmitted by messenger, by mail or by telegram, and if to the COUNTY, shall be mailed or delivered to the COUNTY at:

Martin County Board of County Commissioners
c/o Utilities and Solid Waste Department
P. O. Box 9000, Stuart, FL 34995-9000

with required copy to:

Martin County Attorney
2401 S.E. Monterey Road
Stuart, FL 34996-3397

and

Martin County Administrator
2401 S.E. Monterey Road
Stuart, FL 34996-3397

and if to DEVELOPER, shall be mailed or delivered to:

TLH – 82 DOT, LLC
Michael Tuttle, Manager
2240 West Woolbright Road
Suite 403
Boyton Beach, FL 33426
(561)718-4816
Michael@tuttleli.com

Please Initial
County: _____
Developer: _____

IN WITNESS WHEREOF, this agreement has been fully executed on behalf of the parties and hereto have set their hand and seal as of the date first set forth above.

COUNTY:

Board of County Commissioners
Martin County, Florida

By: _____
Samuel Amerson, P.E.,
Utilities and Solid Waste Director

Approved as to Form and Legal Sufficiency:

By: _____
Krista A. Storey, Acting County Attorney

Please Initial
County: BM
Developer: MT

(CORPORATE)

IN WITNESS WHEREOF, the parties hereto have set their hand and seal as of the date first set forth above.

DEVELOPER:

Saba Aamir
Witness Signature

Authorized Agent Signature

Saba Aamir
Witness Printed Name

Michael Tuttle, Manager
Authorized Agent Printed Name and Title

ADDRESS:
2240 W. Woolbright Road, #403
Boyton Beach, Florida 33426

Witness Signature

Jean Toussaint
Witness Printed Name

State of ~~Brow~~ DC Florida
County of Broward

The foregoing instrument was acknowledged before me this 15 day of May, 2019, by Michael A. Tuttle, President, ~~and~~ Secretary, ~~of~~ ~~(name of corporation)~~, personally known to me or have produced Florida Drivers Lic. (type of identification) as identification.

WITNESS my hand and official seal at Broward County, Florida this 15 day of May, 2019.

Ilene Castronovo
Notary

My commission expires: Sept. 11. 2022

(SEAL)

ILENE CASTRONOVO
Commission # GG 257400
Expires September 11, 2022
Bonded Thru Budget Notary Services

Note: Florida Statutes requires one of the following: corporate officer's signature attested by the corporate secretary and corporate seal applied; or, corporate officer's signature and corporate seal applied and one witness; or, corporate officer's signature and two witnesses.

Please Initial
County: _____
Developer: _____

EXHIBIT "A"
LEGAL DESCRIPTION

A PARCEL OF LAND LYING IN LOTS 9, 10 AND 11, WACO FIELD PLACE, AS RECORDED IN PLAT BOOK 5, PAGE 62, PUBLIC RECORDS OF PALM BEACH (NOW MARTIN) COUNTY, FLORIDA, AND A PORTION OF GOVERNMENT LOTS 1, 2 AND 3, SECTION 34, TOWNSHIP 38 SOUTH, RANGE 41 EAST, AND BEING FURTHER DESCRIBED AS FOLLOWS;

COMMENCE AT THE SOUTHEAST CORNER OF SECTION 34, TOWNSHIP 38 SOUTH, RANGE 41 EAST, THENCE SOUTH 89°28'28" WEST, ALONG THE SOUTH LINE OF SAID SECTION 34, FOR A DISTANCE OF 817.02 FEET TO THE POINT OF BEGINNING; THENCE, CONTINUE SOUTH 89°28'28" WEST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1627.89 FEET; THENCE, CONTINUE SOUTH
89°28'22" WEST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1409.18 FEET; THENCE, DEPARTING SAID SOUTH LINE, NORTH 00°16'33" WEST, CONTINUING THROUGH THE WEST LINE OF LOT 9, WACO FIELD PLACE, AS RECORDED IN PLAT BOOK 5, PAGE 62, PUBLIC RECORDS OF PALM BEACH (NOW MARTIN) COUNTY, FLORIDA, FOR A DISTANCE OF 2162.97 FEET; THENCE, DEPARTING
SAID WEST LINE, NORTH 65°08'35" EAST, FOR A DISTANCE OF 616.08 FEET TO THE EAST LINE OF LOT 11, SAID PLAT OF WACO FIELD PLACE; THENCE SOUTH 00°17'32" EAST, ALONG SAID EAST LINE, FOR A DISTANCE OF 1099.24 FEET TO A POINT ON THE SOUTH LINE OF SAID PLAT OF WACO FIELD PLACE; THENCE NORTH 66°11'43" EAST, ALONG SAID SOUTH LINE, FOR A DISTANCE OF 1614.95 FEET; THENCE, DEPARTING SAID SOUTH LINE, SOUTH 28°29'17" WEST, FOR A DISTANCE OF 471.12 FEET; THENCE, SOUTH 08°04'50" WEST, FOR A DISTANCE OF 207.58 FEET; THENCE SOUTH 52°16'10" EAST, FOR A DISTANCE OF 1140.59 FEET; THENCE SOUTH 12°46'04" EAST, FOR A DISTANCE
OF 345.66 FEET; THENCE SOUTH 43°51'50" EAST, FOR A DISTANCE OF 404.93 FEET TO A POINT ON THE SOUTH LINE OF SAID SECTION 34, AND THE POINT OF BEGINNING OF SAID PARCEL.

PCN: 34-38-41-001-000-00090-3
34-38-41-000-000-00010-1

Please Initial
County: _____
Developer: _____

EXHIBIT "B"

DESCRIPTION OF FACILITIES TO BE BUILT BY THE DEVELOPER

To that certain Agreement by and between MARTIN COUNTY and _TLH-82 DOT, LLC_ dated the _____ day of _____, _____, consists of plans and specifications made by:

Engenuity Group, Inc.
Adam Swaney, P.E.
1280 N. Congress Avenue
Suite 101
West Palm Beach, 33409
(561) 718-4816

the originals of which will be filed separately with MARTIN COUNTY and are incorporated herein by reference.

This document may be reproduced upon request in an alternative format by contacting the County ADA Coordinator (772) 320-3131, the County Administration Office (772) 288-5400, Florida Relay 711, or by completing our accessibility feedback form at www.martin.fl.us/accessibility-feedback

MARTIN COUNTY ENGINEERING DEPARTMENT
ENGINEER'S OPINION OF PROBABLE EXCAVATION, FILL, AND HAULING

(To be submitted with applications for Master Site Plan or Final Site Plan approval or Excavation and Fill Permits)

NAME OF FINAL SITE PLAN: Cove Royale - Phase I & II

TYPE OF APPLICATION

*If more than 10,000 cubic yards are hauled **to or from** the site, the applcation must be filed as a Major Developn*

1) Net cubic yards to be excavated: 20000 (37,000 both phases)
2) Net cubic yards to be filled: 92000 (140,000 both phases)
3) Cubic yards to be hauled ***from*** site: 72,000 CY (Ph 1) (subtract line 2 from line 1)
103,000 CY (both phases)

TYPE OF APPLICATION: #VALUE!

HAULING FEE CALCULATION

The hauling fee for fill hauled ***from*** the site is calculated at $0.21 per cubic yard and is due upon approval of the Final Site Plan application or issuance of the Excavation and Fill Permit

HAULING FEE: #VALUE!

Prepared by: Adam Swaney
Professional Engineer's Name

Professional Engineer's Signature / Seal

92235
P.E. No.

8/8/19
Date

Engenuity Group (#7095)
Firm's Name and Certificate of Authorization No. (if applicable)

1280 N Congress Ave, Suite 101, West Palm Beach, FL 33409
Address

561-655-1151
Phone No.

County Engineer's (or designee) Acceptance

COVE ROYALE

Martin County, FL
Township 38, Range 41, and Section 34

DRAINAGE CALCULATIONS

May 31, 2019
Engenuity Project No. 16042.02

Submitted To:

South Florida Water Management District
Martin County

Prepared For:

TLH 46 –Cove Rd, LLC

Prepared By:

EB # 0007095
1280 N Congress Ave, Suite 101
West Palm Beach, Florida 33409
(561) 655-1151
(561) 832-9390(fax)
www.engenuitygroup.com
Certificate of Authorization #7095

_____

Adam Swaney, PE
FL License #72235

Drainage Calculations
For
COVE ROYALE

Index Sheet

This project meets the applicable requirements of the following agencies As shown in this report:
SFWMD, Martin County

The computer program used for the stormwater routing model is ICPR v3.10.

STORMWATER REPORT

A) INTRODUCTION

Existing Conditions

The site is located in Township 38, Range 41, and Section 34 within Martin County, FL. It is located on the south side of Cove Road, just to the east of Grace Lane, and to the north of the Atlantic Ridge State Park. This is in the Tidal St Lucie Drainage Basin.

The property is currently undeveloped wooded area with wetlands onsite. The existing drainage pattern flows to the south into the wetland areas which discharge into Atlantic Ridge Preserve State Park. Once in the park the topography drops in elevation the southeast, where the runoff enters old agricultural ditches.

The existing 35 acre offsite area to the north is a mostly sparsely developed residential area bounded by Cove road to the north, which currently flows to the south through the onsite wetland. The existing roadway through the wetland currently blocks the historical flow to the south.

Proposed Conditions

The total site area is 97.06 Acres. The proposed improvements include development of the site into approximately 118 single family dwelling units with associated roadways, parking and dry retention/detention area. Civil engineering improvements will include a drainage collection and conveyance system of inlets and culverts connected to the detention system. Required treatment will be provided using these dry detention areas. Drainage control structures will be utilized to provide the necessary detention within the system prior to outfall to the existing wetlands onsite which will provide a positive drainage outfall. These wetlands flow to the south into the Atlantic Ridge Preserve State Park.

The proposed site is divided into two basins of development. Basin 1 is 28.82 acres, Basin 2 is 9.38 acres. These two basins discharge into the Wetland 2 Basin, which will remain as it exists undeveloped.

The existing 35 acre offsite area to the north will continue to flow to the south through the onsite wetland. The proposed roadway through the

wetland will have four new culverts added under the roadway that will allow drainage to continue to flow south into the State Park. These culverts have been sized to show proper sizing (see enclosed Wetland Interconnect pipe sizing calculations). The proposed design improves hydrology of the system. The existing roadway blocked the historical flow to the south, which will be restored with this project.

All related drainage criteria set forth by the South Florida Water Management District and Martin County Land Development Code will be adhered to as required.

B) DESIGN CRITERIA

South Florida Water Management District (SFWMD) and Martin County discharge, water quality, and pollutant removal requirements are provided.

Phosphorous and Nitrogen removal will be handled through the dry retention areas. The attached nutrient calculations show that the post-development discharge of Nitrogen and Phosphorous are less than the pre-development discharge.

The site is not in a FEMA flood zone.

Water Quantity

Discharge Rate. The post development discharge is less than the predevelopment discharge per the attached ICPR results.

Flood Protection. Building floors shall be at or above the 100-year, 3-day design storm flood elevation and 1.5' above the average roadway crown.

C) DESIGN INFORMATION

Rainfall

Cumulative rainfall depths for the specific storm events used in the design were determined from SFWMD rainfall maps. The design rainfall amounts are as follows:

DESIGN RAINFALL	
Design Storm Event	**Cumulative Rainfall**
3-year, 1-day	5.25 inches
5-year, 1-day	6.25 inches
10-year, 1-day	7 inches
10-year, 3-day	10 inches
25-year, 3-day	12 inches
100-year, 3-day	15 inches

Rainfall Distributions

- SFWMD 3 Day, SFWMD 1 Day

D) SURFACE WATER MANAGEMENT DESIGN

Control Water Elevation and Tailwater

The control water elevation for the site will be set at elevation 14.69 feet NAVD, which is the seasonal high water table of the wetlands onsite that are downstream of the detention areas and control structures. These elevations were collected throughout the wetland areas and the average elevation was taken for each wetland to determine the seasonal high water table.

E) CONCLUSIONS

Pre versus Post peak discharge and stage
25 year -3 day storm (12 inches rainfall)

Pre-Development Areas			Post-Development Areas			Conclusion
Basin	**Peak Stage (ft NAVD)**	**Peak Discharge (CFS)**	**Basin**	**Peak Stage (ft NAVD)**	**Peak Discharge (CFS)**	
Area 1	15.81	54.2	Wetland 1	15.59	70.3	Reduction in stage of this area shows improved water flow to the south. In pre-development, the flow was restricted by the dirt road crossing the site.
Area 2	15.57	111.6	Wetland 2	15.56	101.1	Overall discharge offsite is from these basins. Peak stage and discharge are reduced in Post Development
Offsite (35 ac to north)	15.81	246.3	Offsite (30 ac to north)	15.60	220.3	Reduction in stage, and increased flow, of this area shows improved water flow to the south. In pre-development, the flow was restricted by the dirt road crossing the site.
			Basin 1	17.94	8.57	Berm elevation to be set at 18.00
			Basin 2	18.39	6.55	Berm elevation to be set at 18.50

Water Quality
Per the attached water quality calculations (Martin County standards) 3.82 ac-ft of storage is required for Basin 1 and 1.57 Ac-ft of storage is required for Basin 2. In Basin 1 this is met at stage 16.47 NAVD. In Basin 2 this is met at stage 17.16 NAVD. The control structure weirs are set at these elevations. See attached stage storage calculations.

Finished Floor Elevations – 100 year 3 day storm
The 100 year 3 day storm stage for each basin was calculated to be:
Basin 1 = 18.26 NAVD
Basin 2 = 18.66 NAVD
The lowest proposed finished floor elevation in Basin 1 is 18.70 NAVD.
The lowest proposed finished floor elevation in Basin 2 is 19.30 NAVD.
See attached ICPR results.

Retention/detention recovery
The dry retention area in Basin 1 will fully recover the treatment volume in 11.4 days. The dry retention area in Basin 2 will fully recover the treatment volume in 11.7 days. Therefore, both basins meet the requirements for 90% recovery in 12 days.
The dry retention area in Basin 1 will recover 65% the treatment volume in 5 days. The dry retention area in Basin 2 will recover 52% of the treatment volume in 5 days. Therefore, both basins meet the requirements for 50% recovery in 5 days.
See attached retention recovery calculations.

Nutrient Summary
The post development total phosphorus load is reduced 5% from pre-development and the post development total nitrogen load is reduced 37% from pre-development. See attached nutrient calculations.

Pipe Sizing –Wetland Interconnects
For the proposed culverts connecting wetland areas, the pipe sizing calculations enclosed show that the pipes are sized appropriately.

	Velocity
Culvert	**50 year storm**
24” RCP (S81 to wetland)	4.48 FPS
(7) 29”x45” RCP (S83,S86,S88,S97,S99,S101 to wetland.)	1.88 FPS

Appendix A

TABLE OF CONTENTS

Exhibit 1- POST DEVELOPMENT -Area Breakdown and Comparison

				Civil Area		Site Plan Area	
AREAS WITHIN STORMWATER SYSTEM BASINS							
	Area	**sub-areas**		**Acres**	**Total Acres**	**Acres**	**Total Acres**
A.	Building (Lot impervious)				14.92		14.92
		Basin 1-lot imp		10.20		14.6	
		Basin 2-lot imp		4.40			
		Clubhouse		0.09		0.09	
		Clubhouse pool		0.23		0.23	
B.	Pervious				8.56		8.56
		Basin 1		6.71		8.56	
		Basin 2		1.85			
		Other areas					
C.	Sidewalk				1.62		1.62
		Basin 1		1.24		1.62	
		Basin 2		0.38			
D.	Roadways				4.99		4.99
		Basin 1 roads		3.51		3.3	
		Basin 2 roads		1.48		1.48	
		clubhouse parking		(incl in basin 1)		0.21	
E.	Dry Detention				6.37		6.37
		Basin 1 det		5.10		5.1	
		Basin 2 det		1.27		1.27	
F.	Upland Preserve				1.74		1.74
		Basin 1 Preserve		1.74		1.74	
TOTAL				**38.20**	**38.20**	**38.20**	**38.20**

				Civil Area		Site Plan Area	
AREAS OUTSIDE STORMWATER SYSTEM BASINS							
	Area	**sub-areas**			**Total Acres**		**Total Acres**
G.	Wetland Buffer				13.67		13.67
H.	Wetland				35.17		35.17
I.	Other open areas				4.75		4.75
J.	Upland preserve				4.29		4.29
K.	Existing Road (Grace Lane)				0.85		0.85
L.	Existing Pond (North East Buffer)				0.13		0.13
TOTAL					**58.86**		**58.86**
GRAND TOTAL					**97.06**		**97.06**

Exhibit 2- PRE DEVELOPMENT -Area Breakdown and Comparison

				Civil Area	
AREAS WITHIN STORMWATER SYSTEM BASINS					
	Area	**sub-areas**		**Acres**	**Total Acres**
A.	Pervious				52.8
		Area 1		26.64	
		Area 2		26.16	
B.	Wetland				24.9
		Area 1		17.46	
		Area 2		7.44	
TOTAL				**77.70**	**77.70**

				Civil Area	
AREAS OUTSIDE STORMWATER SYSTEM BASINS					
	Area	**sub-areas**			**Total Acres**
G.					
H.	Wetland				10.27
I.	Other open areas				8.11
J.					
K.	Existing Road (Grace Lane)				0.85
L.	Existing Pond (North East Buffer)				0.13
TOTAL					**19.36**
GRAND TOTAL					**97.06**

PROJECT: Cove Royale
JOB No: 16042.02
BY: Adam Swaney, PE
DATE: 5/20/2019

DRAINAGE CALCULATIONS SUMMARY

Basin 1

LAND USE DATA:

	POST Impervious (ac)	POST Pervious (ac)	Elev (NAVD) low	Elev (NAVD) high
A. Building (Lot impervious)	10.52			
B. Pervious		6.71	16.50	19.00
C. Sidewalk	1.24		17.20	18.50
D. Roadways	3.51		17.06	18.20
E. Preserve		1.74	15.50	16.50
H. Dry Detention Bottom		3.74	15.69	
I. Detention side		1.36	15.69	18.00
Sub-Totals =	15.27	13.55		

Total Site Area = 28.82 ac

STAGE-STORAGE:

See attached "Surface Storage" calculations.

FLOOD ROUTING SUMMARY:

DESIGN STORM[1]			POST		
Duration (days)	Frequency (years)	Rainfall (in)	Peak Stage (ft NGVD)	Peak Discharge (cfs)	Criteria
3	100	15	18.26		Zero discharge offsite, see ICPR calcs Finished Floor Minimum
3	25	12	17.94	8.57	Berm elevation minimum
1	10	7	17.23	3.18	Road Elevation minimum
1	3	5.25	16.95	1.58	

PROJECT: Cove Royale
JOB No: 16042.02
BY: Adam Swaney, PE
DATE: 5/20/2018

DRAINAGE CALCULATIONS SUMMARY

POST DEVELOPMENT

Basin 2

LAND USE DATA:

	POST Impervious (ac)	POST Pervious (ac)	Elev (NAVD) low	Elev (NAVD) high
A. Building (Lot impervious)	4.40			
B. Pervious		1.85	16.50	19.00
C. Sidewalk	0.38		17.80	18.50
D. Roadways	1.48		17.60	18.50
E. Preserve		0.00	15.50	16.50
H. Dry Detention Bottom		0.88	15.69	
I. Detention side		0.39	15.69	18.00
Sub-Totals =	6.26	3.12		

Total Site Area = 9.38 ac

STAGE-STORAGE:

See attached "Surface Storage" calculations.

FLOOD ROUTING SUMMARY:

DESIGN STORM[1]			POST		
Duration (days)	Frequency (years)	Rainfall (in)	Peak Stage (ft NGVD)	Peak Discharge (cfs)	Criteria
3	100	15	18.66		Zero discharge offsite, see ICPR calcs Finished Floor Minimum
3	25	12	18.39	6.55	Berm elevation minimum
1	10	7	17.68	1.79	Road Elevation minimum
1	3	5.25	17.43	0.69	

PROJECT: Cove Royale
JOB No: 16042.02
BY: Adam Swaney, PE
DATE: 5/20/2018

DRAINAGE CALCULATIONS SUMMARY

PRE DEVELOPMENT

DESCRIPTION: Undeveloped wooded areas and wetlands.

Area 1

LAND USE DATA:

	PRE Impervious (ac)	PRE Pervious (ac)	Elev (NAVD) low	Elev (NAVD) high
A. Pervious		24.64	14.69	17.00
B. Wetland	17.46		14.69	
Sub-Totals =	17.46	24.64		

Total Site Area = 42.10 ac CN=79

AREA 2

LAND USE DATA:

	PRE Impervious (ac)	PRE Pervious (ac)	Elev (NGVD) low	Elev (NGVD) high
A. Pervious		26.16	14.69	17.00
B. Wetland	7.44		14.69	
Sub-Totals =	7.44	26.16		

Total Site Area = 33.60 ac CN=79

STAGE-STORAGE:

See attached "Surface Storage" calculations.

FLOOD ROUTING SUMMARY:

	DESIGN STORM[1] Duration (days)	Frequency (years)	Rainfall (in)	PRE Peak Stage (ft NGVD)	PRE Peak Discharge (cfs)	Criteria
Area 1	3	25	12	15.81	54.23	
Area 2	3	25	12	15.57	111.60	
Total discharge					111.60	Post development discharge to be less.

PROJECT NAME:	Cove Royale
JOB No:	16042.02
BY:	Adam Swaney, PE
DATE:	5/18/2018

WATER QUALITY CALCULATIONS -BASIN 1 (Martin County Criteria)

SITE CHARACTERISTICS

	SF	AC
Total Area:	**1,255,399**	**28.82**
Water Surface Area:	**0**	**0.00**
	0	**0.00**
Impervious Area:	**665,161**	**15.27**
Pervious Area:	**590,238**	**13.55**

MC WATER QUALITY TREATMENT VOLUME

Site Area For Water Quality = Total Area - (Water Surface Area)
= 28.82 AC - (0.00 AC)
= 28.82 AC

Impervious Area For Water Quality = Site Area For Water Quality - Pervious Area
= 28.82 AC - 13.55 AC
= 15.27 AC

Impervious Percentage For Water Quality = (Impervious Area / Site Area W.Q.) x 100%
= (15.27 AC / 28.82 AC) x 100%
= 52.98%

MC Water Quality Treatment Volume = First Inch of Runoff Over the Total Area
= 1 IN x 28.82 AC
= 28.82 AC-IN x (1/12 FT/IN)
= 2.40 AC-FT
OR
= 3 Inches of Runoff Over the Impervious Area
= 3 IN x % Imperv. x (Tot. Area - Wtr. Srf. Area)
= 3 IN x 52.98% x (28.82 AC - 0.00 AC)
= 45.81 AC-IN x (1/12 FT/IN)
= 3.82 AC-FT

3.82 AC-FT > 2.40 AC-FT, Therefore the 3 Inch of Runoff Over the Impervious Area Controls.

Water Quality Treatment Volume = 3.82 AC-FT

This volume is held within the proposed dry retention.

PROJECT NAME:	Cove Royale
JOB No:	16042.02
BY:	Adam Swaney, PE
DATE:	5/18/2018

WATER QUALITY CALCULATIONS -BASIN 2 (Martin County Criteria)

SITE CHARACTERISTICS

	SF	AC
Total Area:	**408,593**	**9.38**
Water Surface Area:	**0**	**0.00**
	0	**0.00**
Impervious Area:	**272,686**	**6.26**
Pervious Area:	**135,907**	**3.12**

MC WATER QUALITY TREATMENT VOLUME

Site Area For Water Quality = Total Area - (Water Surface Area)
= 9.38 AC - (0.00 AC)
= 9.38 AC

Impervious Area For Water Quality = Site Area For Water Quality - Pervious Area
= 9.38 AC - 3.12 AC
= 6.26 AC

Impervious Percentage For Water Quality = (Impervious Area / Site Area W.Q.) x 100%
= (6.26 AC / 9.38 AC) x 100%
= 66.74%

MC Water Quality Treatment Volume = First Inch of Runoff Over the Total Area
= 1 IN x 9.38 AC
= 9.38 AC-IN x (1/12 FT/IN)
= 0.78 AC-FT
OR
= 3 Inches of Runoff Over the Impervious Area
= 3 IN x % Imperv. x (Tot. Area - Wtr. Srf. Area)
= 3 IN x 66.74% x (9.38 AC - 0.00 AC)
= 18.78 AC-IN x (1/12 FT/IN)
= 1.57 AC-FT

1.57 AC-FT > 0.78 AC-FT, Therefore the 3 Inch of Runoff Over the Impervious Area Controls.

Water Quality Treatment Volume = 1.57 AC-FT

This volume is held within the proposed dry retention.

A Higher Standard of Excellence
engenuity group inc.
ENGINEERS • SURVEYORS • GIS MAPPERS

PROJECT NAME:	Cove Royale
JOB No:	16042.02
BY:	Adam Swaney, PE
DATE:	11/3/2018

WATER QUALITY CALCULATIONS -BASIN 1 (SFWMD County Criteria)

SITE CHARACTERISTICS

	SF	AC
Total Area:	**1,255,399**	**28.82**
Retention Area:	**222,156**	**5.10**
Roof Area:	**458,251**	**10.52**
Other Impervious Area:	**206,910**	**4.75**
Pervious Area:	**368,082**	**8.45**

SFWMD WATER QUALITY TREATMENT VOLUME

Site Area For Water Quality = Total Area - (Water Surface Area + Roof Area)
= 28.82 AC - (5.10 AC + 10.52 AC)
= 13.20 AC

Impervious Area For Water Quality = Site Area For Water Quality - Pervious Area
= 13.20 AC - 8.45 AC
= 4.75 AC

Impervious Percentage For Water Quality = (Impervious Area / Site Area W.Q.) x 100%
= (4.75 AC / 13.20 AC) x 100%
= 35.98%

SFWMD Water Quality Treatment Volume = First Inch of Runoff Over the Total Area
= 1 IN x 28.82 AC
= 28.82 AC-IN x (1/12 FT/IN)
= 2.40 AC-FT
OR
= 2.5 Inches of Runoff Over the Impervious Area
= 2.5 IN x % Imperv. x (Tot. Area - Wtr. Srf. Area)
= 2.5 IN x 35.98% x (28.82 AC - 5.10 AC)
= 21.34 AC-IN x (1/12 FT/IN)
= 1.78 AC-FT

2.4 AC-FT > 1.78 AC-FT, Therefore the 1 Inch of Runoff Over the Area Controls.

Since this is an impaired basin, 150% of this volume is required:
Water Quality Treatment Volume = 2.40 AC-FT x 150% = 3.60 AC-FT

Reduction for Retention (50%)
Water Quality Treatment Volume = 1.80 AC-FT

This volume is held within the proposed dry retention.

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PROJECT NAME:	Cove Royale
JOB No:	16042.02
BY:	Adam Swaney, PE
DATE:	11/3/2018

WATER QUALITY CALCULATIONS -BASIN 2 (SFWMD Criteria)

SITE CHARACTERISTICS

	SF	AC
Total Area:	**408,593**	**9.38**
retention areas:	**55,321**	**1.27**
Roof Area:	**191,664**	**4.40**
Other Impervious Area:	**81,022**	**1.86**
Pervious Area:	**80,586**	**1.85**

SFWMD WATER QUALITY TREATMENT VOLUME

Site Area For Water Quality = Total Area - (Water Surface Area + Roof Area)
= 9.38 AC - (1.27 AC + 4.40 AC)
= 3.71 AC

Impervious Area For Water Quality = Site Area For Water Quality - Pervious Area
= 3.71 AC - 1.85 AC
= 1.86 AC

Impervious Percentage For Water Quality = (Impervious Area / Site Area W.Q.) x 100%
= (1.86 AC / 3.71 AC) x 100%
= 50.13%

SFWMD Water Quality Treatment Volume = First Inch of Runoff Over the Total Area
= 1 IN x 9.38 AC
= 9.38 AC-IN x (1/12 FT/IN)
= 0.78 AC-FT

OR

= 2.5 Inches of Runoff Over the Impervious Area
= 2.5 IN x % Imperv. x (Tot. Area - Wtr. Srf. Area)
= 2.5 IN x 50.13% x (9.38 AC - 1.27 AC)
= 10.16 AC-IN x (1/12 FT/IN)
= 0.85 AC-FT

0.85 AC-FT > 0.78 AC-FT, Therefore the 2.5 Inch of Runoff Over the Impervious Area Controls.

Since this is an impaired basin, 150% of this volume is required:
Water Quality Treatment Volume = 0.85 AC-FT x 150% = 1.27 AC-FT

Reduction for Retention (50%)
Water Quality Treatment Volume = 0.64 AC-FT

This volume is held within the proposed dry retention.

PROJECT NAME:	**Cove Royale**
JOB No:	**Basin 1**
BY:	**Adam Swaney, PE**
DATE:	**5/8/2018**

INPUTS: ELMAX= **21.00** ELMIN= **14.00** OUTPUT STAGE INCREMENT (FT) = **0.50**

VERTICAL SURFACE STORAGE

Area #	1	2	3	4	5	6	7	8
Name	**Detention**							
Area (Ac)	**3.74**							
Starting El	**15.69**							

Area #	9	10	11	12	13	14	15	16
Name								
Area (Ac)								
Starting El								

LINEAR SURFACE STORAGE

Area #	1	2	3	4	5	6	7	8
Name	**SWLK**	**Pervious**	**Road**	**Bank**	**Preserve**			
Area (Ac)	**1.24**	**6.71**	**3.51**	**1.36**	**1.74**			
Starting El	**17.20**	**16.50**	**17.30**	**15.69**	**15.50**			
Ending El	**18.50**	**19.00**	**18.30**	**18.00**	**16.50**			

Area #	9	10	11	12	13	14	15	16
Name								
Area (Ac)								
Starting El								
Ending El								

Area #	17	18	19	20	21	22	23	24
Name								
Area (Ac)								
Starting El								
Ending El								

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PROJECT NAME: **Cove Royale**
JOB No: **Basin 1**
BY: **Adam Swaney, PE**
DATE: **5/8/2018**

TOTAL SURFACE STORAGE

Stage	Vertical Storage (AcFt)	Linear Storage (AcFt)	Total Storage (AcFt)
14.00	0.00	0.00	0.00
14.50	0.00	0.00	0.00
15.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00
16.00	1.16	0.25	1.41
16.50	3.03	1.06	4.09
17.00	4.90	2.58	7.48
17.50	6.77	5.03	11.80
18.00	8.64	9.24	17.87
18.50	10.51	15.23	25.74
19.00	12.38	22.18	34.56
19.50	14.25	29.46	43.71
20.00	16.12	36.74	52.86
20.50	17.99	44.02	62.01
21.00	19.86	51.30	71.16

PROJECT NAME:	**Cove Royale**
JOB No:	**Basin 2**
BY:	**Adam Swaney, PE**
DATE:	**8/8/2017**

INPUTS: ELMAX= **21.00** ELMIN= **15.00** OUTPUT STAGE INCREMENT (FT) = **0.50**

VERTICAL SURFACE STORAGE

Area #	1	2	3	4	5	6	7	8
Name	**Detention**							
Area (Ac)	**0.88**							
Starting El	**15.69**							

Area #	9	10	11	12	13	14	15	16
Name								
Area (Ac)								
Starting El								

LINEAR SURFACE STORAGE

Area #	1	2	3	4	5	6	7	8
Name	**SWLK**	**Pervious**	**Road**	**Bank**				
Area (Ac)	**0.38**	**1.85**	**1.48**	**0.39**				
Starting El	**17.80**	**16.50**	**17.60**	**15.69**				
Ending El	**18.50**	**19.00**	**18.50**	**18.00**				

Area #	9	10	11	12	13	14	15	16
Name								
Area (Ac)								
Starting El								
Ending El								

Area #	17	18	19	20	21	22	23	24
Name								
Area (Ac)								
Starting El								
Ending El								

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PROJECT NAME: **Cove Royale**
JOB No: **Basin 2**
BY: **Adam Swaney, PE**
DATE: **8/8/2017**

TOTAL SURFACE STORAGE

Stage	Vertical Storage (AcFt)	Linear Storage (AcFt)	Total Storage (AcFt)
15.00	0.00	0.00	0.00
15.50	0.00	0.00	0.00
16.00	0.27	0.01	0.28
16.50	0.71	0.06	0.77
17.00	1.15	0.24	1.39
17.50	1.59	0.65	2.24
18.00	2.03	1.43	3.46
18.50	2.47	2.92	5.40
19.00	2.91	4.88	7.79
19.50	3.35	6.93	10.28
20.00	3.79	8.98	12.77
20.50	4.23	11.03	15.26
21.00	4.67	13.08	17.75

PROJECT NAME:	Cove Royale
JOB No:	16042.02
BY:	Adam Swaney, PE
DATE:	11/5/2018

12 Day Dry Retention Recovery -Basin 1

Data

		Units	Notes
Retention area top elevation (E_t)=	18.00	ft NAVD	
Retention area bottom elevation (E_b)=	15.69	ft NAVD	
Pond Bottom Width (W_b)=	70.00	ft	Average Width
Pond Bottom Length (Lb)=	2325.00	ft	Area/ avg width
Pond Area @ Pond Bottom (Ab)=	3.74	Ac.	
Hydraulic Conductivity (imported soil) (K):	0.001	cfs/ft^2	
Area of retention area bottom (A)	162,750	SF	
Kh (flow per day)=	86.40	ft/Day	
Kvu (2/3 Kh)=	57.60	ft/Day	
Factor of Safety (FS)	2		
Seasonal High Groundwater Table Elevation (EWT)	14.69	ft NAVD	
Water Table Depth below Pond (Hb)=	1.00	ft	
Imp. Layer Elevation (5 ft. down) (Ei)**	9.69	ft NAVD	
Fillable Porosity Value (f)	0.20	%	

Step 1

		Units
Volume to be retained-from WQ calcs (V)=	3.82	Ac-ft

Step 2

Treatment Elevation (From Stage Storage = Et)=	16.47	ft NAVD
Depth (Hv)=	0.78	ft

Step 3

Height of Water to Saturate Soil (Hu)=	0.2	ft

Step 4

Unsaturated Infiltration Volume (Vu=A*f*Hb)=	0.75	Ac-ft
Design Infiltration (Id=Kvu/FS)=	28.80	ft/Day
Time to Saturate Soil (tsat)=	0.01	Day

Step 5

Remaining Volume to be Recovered (Vs)=	3.07	Ac-ft
Elevation of Vs (from Stage Storage = Hs)	16.35	ft NAVD

Step 6

Avg. width of retention pond midway between pond bottom and time (W)=	70	
Depth of pond bottom to water table at time t=ttotal (Hc)=	1	ft
Water height above pond bottom at time t=0 (H2)=	0.66	ft
Water height above water table at time t=0 (HT)=	1.66	ft
Fy=	0.60	
Basin length to width ration at basin bottom=	33.2	
Fx (from figure 23-6 in SJWMD Applicants Handbook)=	0.95	

Step 7

Initial Saturated thickness of aquifer (H)=	5.00	ft
Average Saturated thickness (D)=	5.5	ft
t=	11.43	days

Step 8

Total Recovery time (ttotal)=	11.43	Days
Average infiltration rate=	0.168	cfs

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PROJECT NAME:	Cove Royale
JOB No:	16042.02
BY:	Adam Swaney, PE
DATE:	11/5/2018

12 Day Dry Retention Recovery-Basin 2

Data

		Units	Notes
Retention area top elevation (E_t)=	18.00	ft NAVD	
Retention area bottom elevation (E_b)=	15.69	ft NAVD	
Pond Bottom Width (W_b)=	70.00	ft	Average Width
Pond Bottom Length (Lb)=	550.00	ft	Area/ avg width
Pond Area @ Pond Bottom (Ab)=	0.88	Ac.	
Hydraulic Conductivity (imported soil) (K):	0.001	cfs/ft^2	
Area of retention area bottom (A)	38,500	SF	
Kh (flow per day)=	86.40	ft/Day	
Kvu (2/3 Kh)=	57.60	ft/Day	
Factor of Safety (FS)	2		
Seasonal High Groundwater Table Elevation (EWT)	14.69	ft NAVD	
Water Table Depth below Pond (Hb)=	1.00	ft	
Imp. Layer Elevation (11 ft. down) (Ei)**	3.69	ft NAVD	
Fillable Porosity Value (f)	0.20	%	

Step 1

		Units
Volume to be retained-from WQ calcs (V)=	1.57	Ac-ft

Step 2

Treatment Elevation (From Stage Storage = Et)=	17.16	ft NAVD
Depth (Hv)=	1.47	ft

Step 3

Height of Water to Saturate Soil (Hu)=	0.2	ft

Step 4

Unsaturated Infiltration Volume (Vu=A*f*Hb)=	0.18	Ac-ft
Design Infiltration (Id=Kvu/FS)=	28.80	ft/Day
Time to Saturate Soil (tsat)=	0.01	Day

Step 5

Remaining Volume to be Recovered (Vs)=	1.39	Ac-ft
Elevation of Vs (from Stage Storage = Hs)	17.02	ft NAVD

Step 6

Avg. width of retention pond midway between pond bottom and time (W)=	70	
Depth of pond bottom to water table at time t=ttotal (Hc)=	1	ft
Water height above pond bottom at time t=0 (H2)=	1.33	ft
Water height above water table at time t=0 (HT)=	2.33	ft
Fy=	0.43	
Basin length to width ration at basin bottom=	7.9	
Fx (from figure 23-6 in SJWMD Applicants Handbook)=	0.65	

Step 7

Initial Saturated thickness of aquifer (H)=	11.00	ft
Average Saturated thickness (D)=	11.5	ft
t=	11.67	days

Step 8

Total Recovery time (ttotal)=	11.68	Days
Average infiltration rate=	0.068	cfs

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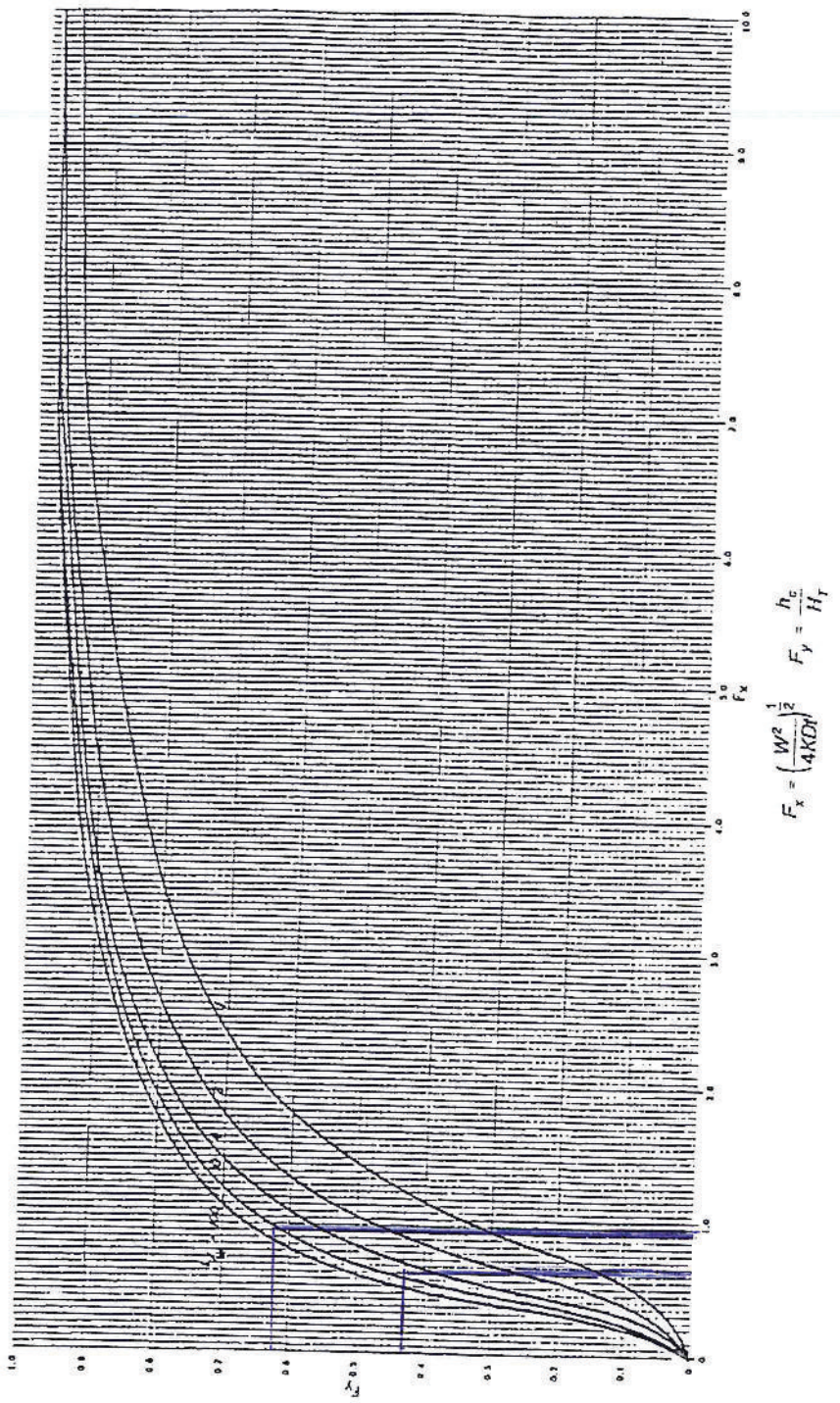

Figure 23-6. Dimensionless Curves Relating Basin Design Parameters to Basin Water Level in a Rectangular Retention Basin Over an Unconfined Aquifer ($f = 0.2$) (Source: Andreyev and Wiseman, 1989).

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PROJECT NAME:	Cove Royale
JOB No:	16042.02
BY:	Adam Swaney, PE
DATE:	11/5/2018

Dry Retention Recovery

50% recovery between 24 hours and 5 days

Summary table showing storage at end of of 24 hour storm and at 5 days later.
Refer to attached ICPR 10 year 1 day storm routing calculations

BASIN 1:

	Time (24 hours)	Time (5 days later)	Percent reduction in storage
Stage	17.24	16.40	-
Stored Volume (Ac-ft)	10.10	3.50	65.35%

BASIN 2:

	Time (24 hours)	Time (5 days later)	Percent reduction in storage
Stage	17.49	16.82	-
Stored Volume (Ac-ft)	2.50	1.20	52.00%

PROJECT I Cove Royale
JOB No: 16042.02
BY: Adam Swaney, PE
DATE: 6/13/2019

Nutrient Loading Analysis

Methodology: Harper/Baker publication "Evaluation of Current Stormwater Design Criteria within the State of Florida" for the FDEP

	Pre-Development												
Basin	Land Use	HSG	CN	DCIA	TP-Load Rate[1] (mg/L)	TN-Load Rate[1] (mg/L)	Land Use Area (ac)	C Value (Appendix C)	Annual rainfall (in/yr)	Runoff (ac-ft/yr)		Gross TP-Load (lb/yr)	Gross TN-Load (lb/yr)
	Upland Forest	C	77	0	0.090	0.600	28.82	0.135	55.60	18.03		4.40	29.35
												0.00	0.00
						total =	28.82				total =	4.40	29

	Post-Development																		Pre vs Post TP-Load Reduction (%)	Pre vs Post TN-Load Reduction (%)
Basin	Land Use	HSG	CN	DCIA	TP-Load Rate[1] (mg/L)	TN-Load Rate[1] (mg/L)	Land Use Area (ac)	C Value (Appendix C)	Annual rainfall (in/yr)	Runoff (ac-ft/yr)		Gross TP-Load (lb/yr)	Gross TN-Load (lb/yr)		P Removal Efficiency (%)	N Removal Efficiency (%)	Net TP-Load (lb/yr)	Net TN-Load (lb/yr)		
	Med Density Res	C	78	37	0.300	1.330	21.98	0.420	55.60	42.77		34.82	154.35		88	88	4.18	18.52		
	Retention Area	C	77	0	0.000	0.000	6.84	0.135	55.60	4.28		0.00	0.00				0.00	0.00		
									56	0.00		0.00	0.00				0.00	0.00		
								0.810	56	0.00		0.00	0.00				0.0	0.0		
						total =	28.82				total =	34.82	154.35			total =	4.18	19	5.1%	36.9%

Medium Density Residential:
DCIA= **37** %
Composite non DCIA Curve Number (CN)= **77** References TR-55 Assuming HSG C

Provided dry retention = **3.93** ac-ft (2.15" over site)

Mass Removal Efficiency= **88** % Reference Table 6-1 and Appendix D from the 2007 June Harvey Harper Evaluation of Current Stormwater Design Criteria

[1]References Table B-4 -Estimated runoff and TN and TP loads. 2012 South Florida Environmental Report (St Lucie Watershed)
[2]References Figures 5-9 and 5-10 from the 2007 June Harvey Harper Evaluation of Current Stormwater Design Criteria
[3]References Table 4-22 from the 2007 June Harvey Harper Evaluation of Current Stormwater Design Criteria. Assumes HSG C and 25% impervious single family.
[4]References Appendix D from the 2007 June Harvey Harper Evaluation of Current Stormwater Design Criteria. Zone 5.

CATCHMENTS AND TREATMENT SURFACE DISCHARGE SUMMARY V 8.6

CALCULATION METHODS:

1. The effectiveness of each BMP in a single catchment is converted to an equivalent capture volume.
2. Certain BMP treatment train combinations have not been evaluated and in practice they are at this time not used, an example is a greenroof following a tree well.
3. Wet detention is last when used in a single catchment with other BMPs, except when followed by filtration

PROJECT TITLE	Cove Royale	Optional Identification		
	B1	B2	Catchment 3	Catchment 4
BMP Name	Retention Basin	Retention Basin		
BMP Name				
BMP Name				

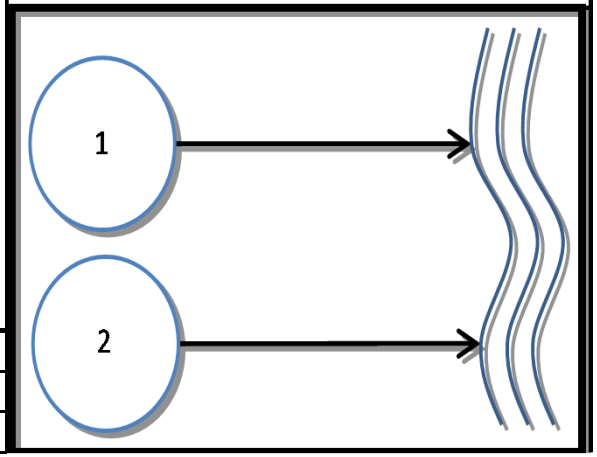
Surface Water Discharge Summary Performance of Entire Watershed

Catchment Configuration	C - 2 Catchment-Parallel		6/13/2019
Nitrogen Pre Load (kg/yr)	17.65		BMPTRAINS MODEL
Phosphorus Pre Load (kg/yr)	2.65		
Nitrogen Post Load (kg/yr)	93.98		
Phosphorus Post Load (kg/yr)	21.20		
Target Load Reduction (N) %	81		
Target Load Reduction (P) %	88		
Target Discharge Load, N (kg/yr)	17.86		
Target Discharge Load, P (kg/yr)	2.54		
Provided Overall Efficiency, N (%):	88		
Provided Overall Efficiency, P (%):	88		
Discharged Load, N (kg/yr & lb/yr):	11.60	25.56	
Discharged Load, P (kg/yr & lb/yr):	2.62	5.76	
Load Removed, N (kg/yr & lb/yr):	82.38	181.45	

Treatment Objectives or Target for

TN MET

TP MET



Load Removed, P (kg/yr & lb/yr):	**18.58**	**40.93**	

ICPR – Pre-development Input

```
================================================================================
==== Basins ====================================================================
================================================================================

        Name: Area 1                  Node: Area 1                Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh256                    Peaking Factor: 256.0
         Rainfall File:                       Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000                   Time of Conc(min): 30.00
             Area(ac): 42.100                     Time Shift(hrs): 0.00
         Curve Number: 79.00                Max Allowable Q(cfs): 999999.000
              DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: Area 2                  Node: Area 2                Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh256                    Peaking Factor: 256.0
         Rainfall File:                       Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000                   Time of Conc(min): 20.00
             Area(ac): 41.300                     Time Shift(hrs): 0.00
         Curve Number: 79.00                Max Allowable Q(cfs): 999999.000
              DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: offsite                 Node: offsite               Status: Offsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh256                    Peaking Factor: 256.0
         Rainfall File:                       Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000                   Time of Conc(min): 30.00
             Area(ac): 35.000                     Time Shift(hrs): 0.00
         Curve Number: 73.00                Max Allowable Q(cfs): 999999.000
              DCIA(%): 0.00



================================================================================
==== Nodes =====================================================================
================================================================================

      Name: Area 1             Base Flow(cfs): 0.000         Init Stage(ft): 14.690
     Group: BASE                                            Warn Stage(ft): 19.000
      Type: Stage/Area


      Stage(ft)        Area(ac)
--------------- ---------------
         14.690         17.2000
         17.000         42.1000

--------------------------------------------------------------------------------------------
      Name: Area 2             Base Flow(cfs): 0.000         Init Stage(ft): 14.690
     Group: BASE                                            Warn Stage(ft): 19.000
      Type: Stage/Area


      Stage(ft)        Area(ac)
```

14.690	13.0000
17.000	41.3000

Name: offsite Base Flow(cfs): 0.000 Init Stage(ft): 14.690
Group: BASE Warn Stage(ft): 16.000
Type: Stage/Area

Stage(ft)	Area(ac)
14.690	4.0000
17.000	35.0000

Name: outfall Base Flow(cfs): 0.000 Init Stage(ft): 14.690
Group: BASE Warn Stage(ft): 20.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	14.690
1000.00	14.690

==========
==== Channels ====
==========

Name: CONNECTION From Node: offsite Length(ft): 50.00
Group: BASE To Node: Area 1 Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Average Conveyance
Invert(ft):	14.000	14.000	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.040000	0.040000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	200.000	200.000		
LtSdSlp(h/v):	25.00	25.00		
RtSdSlp(h/v):	25.00	25.00		

==========
==== Weirs ====
==========

Name: land weir From Node: Area 2
Group: BASE To Node: outfall
Flow: Both Count: 1
Type: Vertical: Fread Geometry: Rectangular

Span(in): 6000.00
Rise(in): 999.00

```
                Invert(ft): 15.400
      Control Elevation(ft): 15.400
                                        TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------
        Name: Land Weir 3         From Node: Area 1
       Group: BASE                  To Node: Area 2
        Flow: Both                    Count: 1
        Type: Vertical: Fread      Geometry: Rectangular

                  Span(in): 1200.00
                  Rise(in): 999.00
                Invert(ft): 15.500
      Control Elevation(ft): 15.500
                                        TABLE
           Bottom Clip(in): 0.000
              Top Clip(in): 0.000
        Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600


===============================================================================================
==== Hydrology Simulations ====================================================================
===============================================================================================

         Name: 100yr3day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\100yr3day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 15.00

Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          5.00

-------------------------------------------------------------------------------------------------
         Name: 10yr1day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\10yr1day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 7.00

Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          5.00

-------------------------------------------------------------------------------------------------
         Name: 25yr3day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\25yr3day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 12.00
```

```
Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          5.00

-------------------------------------------------------------------------------------------------
         Name: 3yr1day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\3yr1day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 5.25

Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          5.00

-------------------------------------------------------------------------------------------------
         Name: 500yr3day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\500yr3day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 18.00

Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          5.00

=================================================================================
==== Routing Simulations ========================================================
=================================================================================

         Name: 100yr3day           Hydrology Sim: 100yr3day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\100yr3day.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 100.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
       Boundary Stages:                       Boundary Flows:



Time(hrs)       Print Inc(min)
--------------- ---------------
58.000          15.000
64.000          5.000
100.000         30.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 10yr1day            Hydrology Sim: 10yr1day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\10yr1day.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No
```

```
       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
   Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                    End Time(hrs): 100.00
    Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
       Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
8.000           15.000
12.000          5.000
60.000          30.000
100.000         50.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
        Name: 25yr3day            Hydrology Sim: 25yr3day
    Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\25yr3day.I32

     Execute: Yes         Restart: No            Patch: No
 Alternative: No

       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
   Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                    End Time(hrs): 100.00
    Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
       Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
58.000          15.000
64.000          5.000
100.000         30.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
        Name: 3yr1day             Hydrology Sim: 3yr1day
    Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\3yr1day.I32

     Execute: Yes         Restart: No            Patch: No
 Alternative: No

       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
   Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                    End Time(hrs): 100.00
    Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
       Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
8.000           15.000
12.000          5.000
60.000          30.000
```

100.000 50.000

Group	Run
BASE	Yes

Name: 500yr3day Hydrology Sim: 500yr3day
Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\500yr3day.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 100.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
58.000	15.000
64.000	5.000
100.000	30.000

Group	Run
BASE	Yes

ICPR – Post-development Input

```
================================================================================
==== Basins ====================================================================
================================================================================

        Name: basin 1                 Node: Basin 1               Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh256                    Peaking Factor: 256.0
         Rainfall File:                       Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000                   Time of Conc(min): 30.00
            Area(ac): 28.820                     Time Shift(hrs): 0.00
        Curve Number: 78.00                  Max Allowable Q(cfs): 999999.000
             DCIA(%): 37.00



--------------------------------------------------------------------------------------------------
        Name: Basin 2                 Node: Basin 2               Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh256                    Peaking Factor: 256.0
         Rainfall File:                       Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000                   Time of Conc(min): 15.00
            Area(ac): 9.380                      Time Shift(hrs): 0.00
        Curve Number: 78.00                  Max Allowable Q(cfs): 999999.000
             DCIA(%): 37.00



--------------------------------------------------------------------------------------------------
        Name: offsite                 Node: offsite               Status: Offsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh256                    Peaking Factor: 256.0
         Rainfall File:                       Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000                   Time of Conc(min): 30.00
            Area(ac): 35.000                     Time Shift(hrs): 0.00
        Curve Number: 73.00                  Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: Wetland 1               Node: Wetland 1             Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh256                    Peaking Factor: 256.0
         Rainfall File:                       Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000                   Time of Conc(min): 20.00
            Area(ac): 24.800                     Time Shift(hrs): 0.00
        Curve Number: 79.00                  Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00



--------------------------------------------------------------------------------------------------
        Name: Wetland 2               Node: Wetland 2             Status: Onsite
       Group: BASE                    Type: SCS Unit Hydrograph CN

       Unit Hydrograph: Uh256                    Peaking Factor: 256.0
         Rainfall File:                       Storm Duration(hrs): 0.00
   Rainfall Amount(in): 0.000                   Time of Conc(min): 15.00
            Area(ac): 19.400                     Time Shift(hrs): 0.00
        Curve Number: 79.00                  Max Allowable Q(cfs): 999999.000
             DCIA(%): 0.00
```

==========
==== Nodes ==========
==========

Name: Basin 1 Base Flow(cfs): 0.000 Init Stage(ft): 15.690
Group: BASE Warn Stage(ft): 0.000
Type: Stage/Volume

Stage(ft)	Volume(af)
15.690	0.0000
16.000	1.4100
17.000	7.4800
18.000	17.8700
19.000	34.5600
20.000	52.8600

Name: Basin 2 Base Flow(cfs): 0.000 Init Stage(ft): 15.690
Group: BASE Warn Stage(ft): 19.000
Type: Stage/Volume

Stage(ft)	Volume(af)
15.690	0.0000
16.000	0.2800
17.000	1.3900
18.000	3.4600
19.000	7.7900
20.000	12.7700

Name: offsite Base Flow(cfs): 0.000 Init Stage(ft): 14.690
Group: BASE Warn Stage(ft): 16.000
Type: Stage/Area

Stage(ft)	Area(ac)
14.690	4.0000
17.000	35.0000

Name: outfall Base Flow(cfs): 0.000 Init Stage(ft): 14.690
Group: BASE Warn Stage(ft): 20.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	14.690
1000.00	14.690

Name: Wetland 1 Base Flow(cfs): 0.000 Init Stage(ft): 14.690
Group: BASE Warn Stage(ft): 19.000
Type: Stage/Area

Stage(ft)	Area(ac)
14.690	17.2000
17.000	24.8000

Name: Wetland 2 Base Flow(cfs): 0.000 Init Stage(ft): 14.690
Group: BASE Warn Stage(ft): 19.000
Type: Stage/Area

Stage(ft)	Area(ac)
14.690	13.0000
17.000	19.4000

==========
==== Pipes ====
==========

Name: Pipe1 From Node: Wetland 1 Length(ft): 30.00
Group: BASE To Node: Wetland 2 Count: 7
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Horz Ellipse	Horz Ellipse	Solution Algorithm:	Most Restrictive
Span(in):	45.00	45.00	Flow:	Both
Rise(in):	29.00	29.00	Entrance Loss Coef:	0.00
Invert(ft):	13.100	13.100	Exit Loss Coef:	1.00
Manning's N:	0.012000	0.012000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

==========
==== Channels ====
==========

Name: CONNECTION From Node: offsite Length(ft): 50.00
Group: BASE To Node: Wetland 1 Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	14.000	14.000	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.040000	0.040000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				

```
     Depth(ft):
 Bot Width(ft): 200.000        200.000
  LtSdSlp(h/v): 25.00          25.00
  RtSdSlp(h/v): 25.00          25.00


----------------------------------------------------------------------------------------------------
         Name: Culvert             From Node: Wetland 1         Length(ft): 37.00
        Group: BASE                  To Node: Wetland 2              Count: 2

               UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
      Geometry: Trapezoidal    Trapezoidal              Solution Algorithm: Automatic
    Invert(ft): 15.400         15.400                                 Flow: Both
 TClpInitZ(ft): 9999.000       9999.000                   Contraction Coef: 0.100
   Manning's N: 0.040000       0.040000                     Expansion Coef: 0.300
  Top Clip(ft): 0.000          0.000                    Entrance Loss Coef: 0.000
  Bot Clip(ft): 0.000          0.000                        Exit Loss Coef: 0.000
     Main XSec:                                           Outlet Ctrl Spec: Use dc or tw
  AuxElev1(ft):                                            Inlet Ctrl Spec: Use dc
     Aux XSec1:                                          Stabilizer Option: None
  AuxElev2(ft):
     Aux XSec2:
 Top Width(ft):
     Depth(ft):
 Bot Width(ft): 4.000          4.000
  LtSdSlp(h/v): 0.00           0.00
  RtSdSlp(h/v): 0.00           0.00


==========================================================================================
==== Drop Structures =====================================================================
==========================================================================================

        Name: CS#1               From Node: Basin 1           Length(ft): 80.00
       Group: BASE                 To Node: Wetland 2              Count: 1

              UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
     Geometry: Circular       Circular                 Solution Algorithm: Most Restrictive
     Span(in): 30.00          30.00                                  Flow: Both
     Rise(in): 30.00          30.00                    Entrance Loss Coef: 0.000
   Invert(ft): 12.900         11.000                       Exit Loss Coef: 1.000
  Manning's N: 0.012000       0.012000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                        Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


*** Weir 1 of 1 for Drop Structure CS#1 ***
                                                                                  TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Vertical: Mavis           Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 18.00                        Invert(ft): 16.470
               Rise(in): 999.00                 Control Elev(ft): 16.470
```

```
---------------------------------------------------------------------------------------------------
         Name: CS#2               From Node: Basin 2           Length(ft): 70.00
        Group: BASE                 To Node: Wetland 2             Count: 1

               UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
     Geometry: Circular       Circular                  Solution Algorithm: Most Restrictive
     Span(in): 24.00          24.00                                Flow: Both
     Rise(in): 24.00          24.00                    Entrance Loss Coef: 0.000
   Invert(ft): 12.440         11.000                       Exit Loss Coef: 1.000
  Manning's N: 0.012000       0.012000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                         Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


*** Weir 1 of 1 for Drop Structure CS#2 ***
                                                                                TABLE
                  Count: 1                       Bottom Clip(in): 0.000
                   Type: Vertical: Mavis            Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 18.00                        Invert(ft): 17.160
               Rise(in): 999.00                  Control Elev(ft): 17.160


===============================================================================================
==== Weirs ====================================================================================
===============================================================================================

         Name: land weir           From Node: Wetland 2
        Group: BASE                  To Node: outfall
         Flow: Both                     Count: 1
         Type: Vertical: Fread       Geometry: Rectangular

                    Span(in): 6000.00
                    Rise(in): 999.00
                  Invert(ft): 15.400
       Control Elevation(ft): 15.400
                                      TABLE
              Bottom Clip(in): 0.000
                 Top Clip(in): 0.000
           Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



===============================================================================================
==== Hydrology Simulations ====================================================================
===============================================================================================

         Name: 100yr3day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\100yr3day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 15.00

Time(hrs)       Print Inc(min)
```

```
-------------- ---------------
80.000          5.00

-------------------------------------------------------------------------------------------------------
         Name: 10yr1day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\10yr1day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 7.00

Time(hrs)       Print Inc(min)
-------------- ---------------
80.000          5.00

-------------------------------------------------------------------------------------------------------
         Name: 25yr3day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\25yr3day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 12.00

Time(hrs)       Print Inc(min)
-------------- ---------------
80.000          5.00

-------------------------------------------------------------------------------------------------------
         Name: 3yr1day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\3yr1day.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 5.25

Time(hrs)       Print Inc(min)
-------------- ---------------
80.000          5.00

-------------------------------------------------------------------------------------------------------
         Name: 500 year
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\500 year.R32

      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 18.00

Time(hrs)       Print Inc(min)
-------------- ---------------
80.000          5.00

===============================================================================================
==== Routing Simulations ======================================================================
===============================================================================================

         Name: 100yr3day           Hydrology Sim: 100yr3day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\100yr3day.I32

      Execute: Yes         Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
```

```
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                   End Time(hrs): 100.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
58.000          15.000
64.000          5.000
100.000         30.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 10yr1day           Hydrology Sim: 10yr1day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\10yr1day.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                   End Time(hrs): 144.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
8.000           15.000
12.000          5.000
60.000          30.000
144.000         50.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 25yr3day           Hydrology Sim: 25yr3day
     Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\25yr3day.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                   End Time(hrs): 288.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
58.000          15.000
64.000          5.000
100.000         30.000
288.000         30.000
```

Group	Run
BASE	Yes

Name: 3yr1day Hydrology Sim: 3yr1day
Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\3yr1day.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 100.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
8.000	15.000
12.000	5.000
60.000	30.000
100.000	50.000

Group	Run
BASE	Yes

Name: 500yr3day Hydrology Sim: 500 year
Filename: O:\2016\16042.02 Tuttle - Cove Road Engineering\Calculations\ICPR\500yr3day.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 100.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
58.000	15.000
64.000	5.000
100.000	30.000

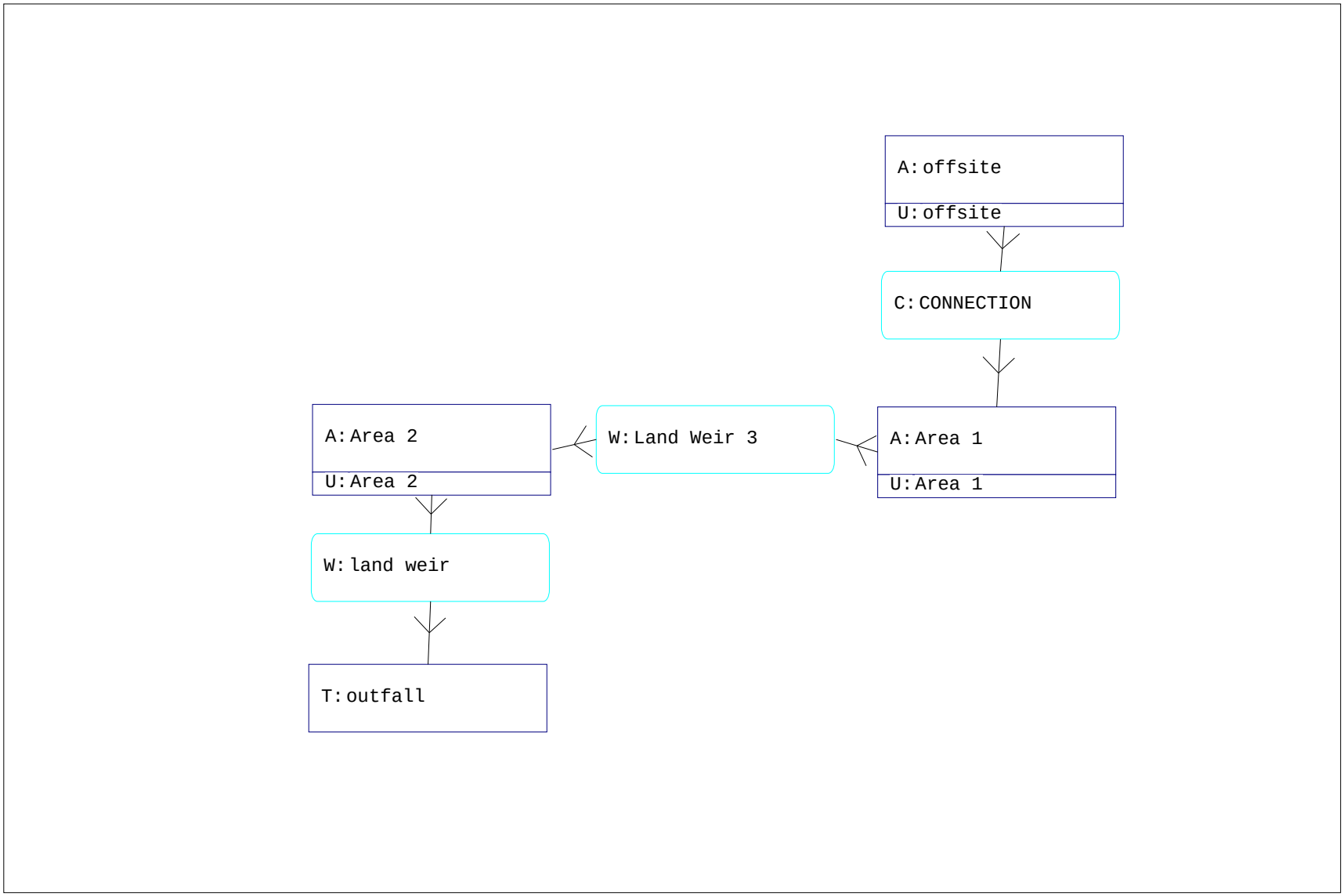
Group	Run
BASE	Yes

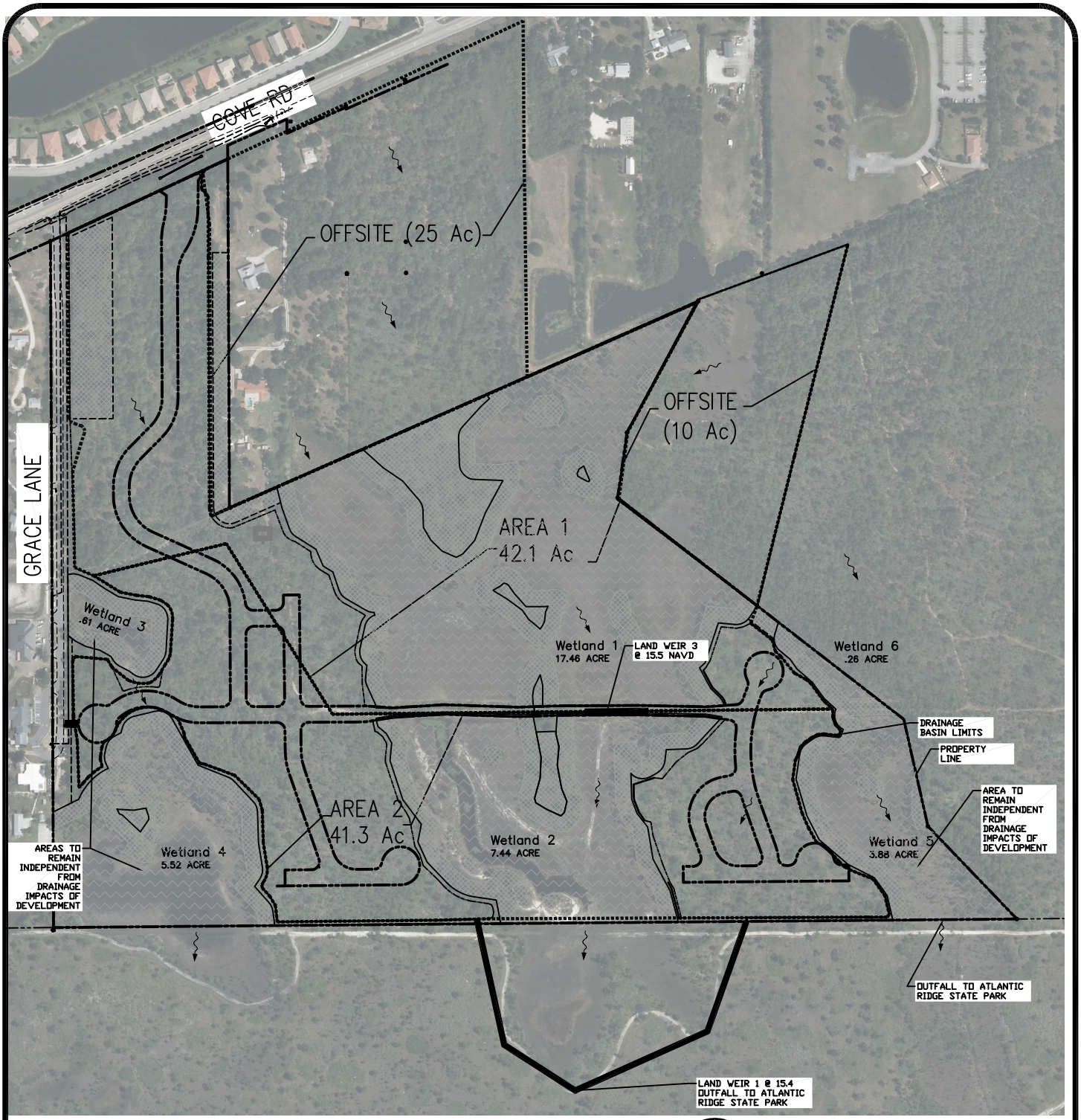
ICPR – Pre-development Diagram

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench





N

SCALE: 1"=450'

EXISTING NODE AREAS

DATE:	5/25/18
PROJECT ENGINEER:	ACS
CHECKED BY:	
CHECKED BY:	

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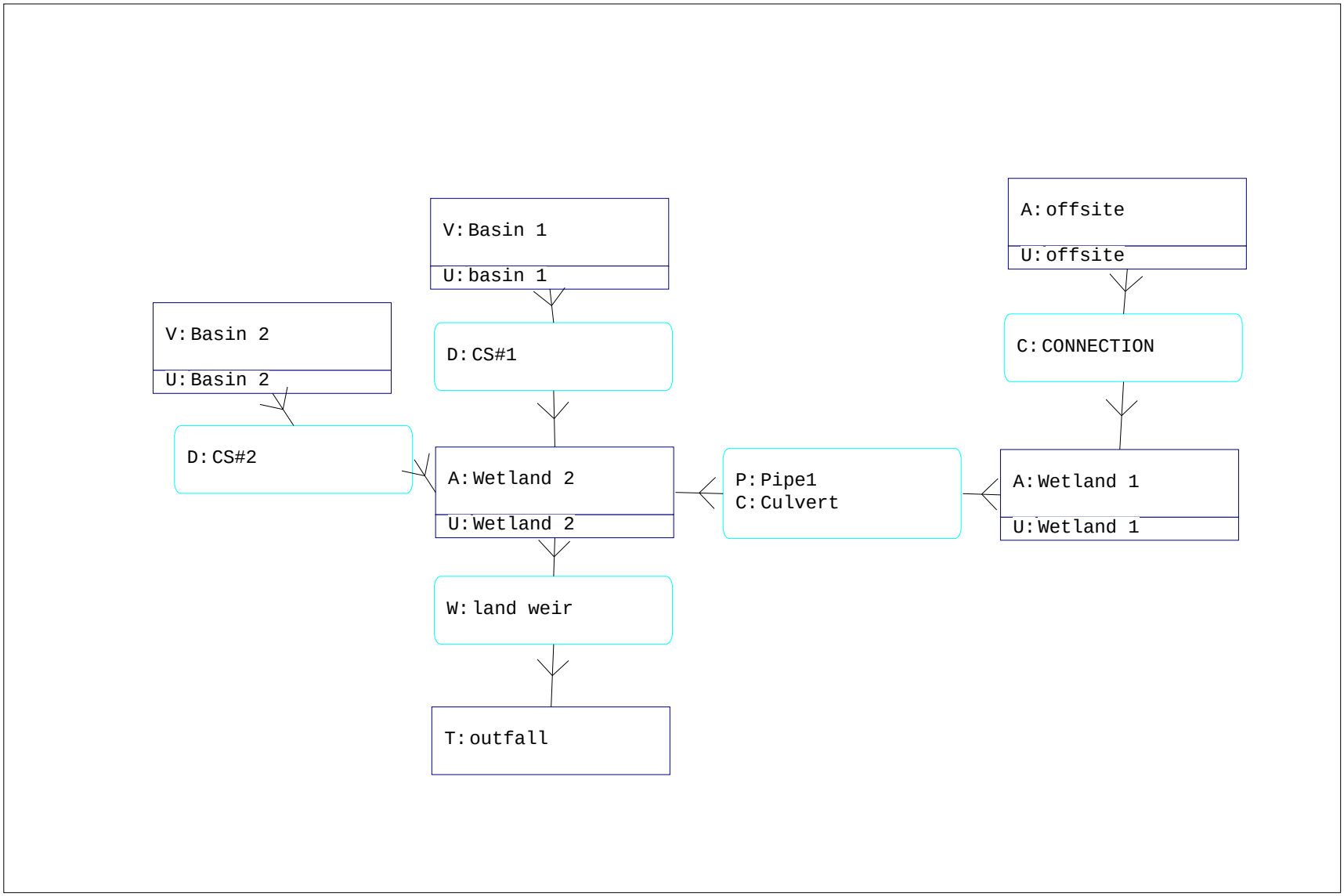
SCALE: SCALE: 1"=450'	SHEET: 1 / 1
DRAWN BY: KMR	
	JOB No. 16042.02

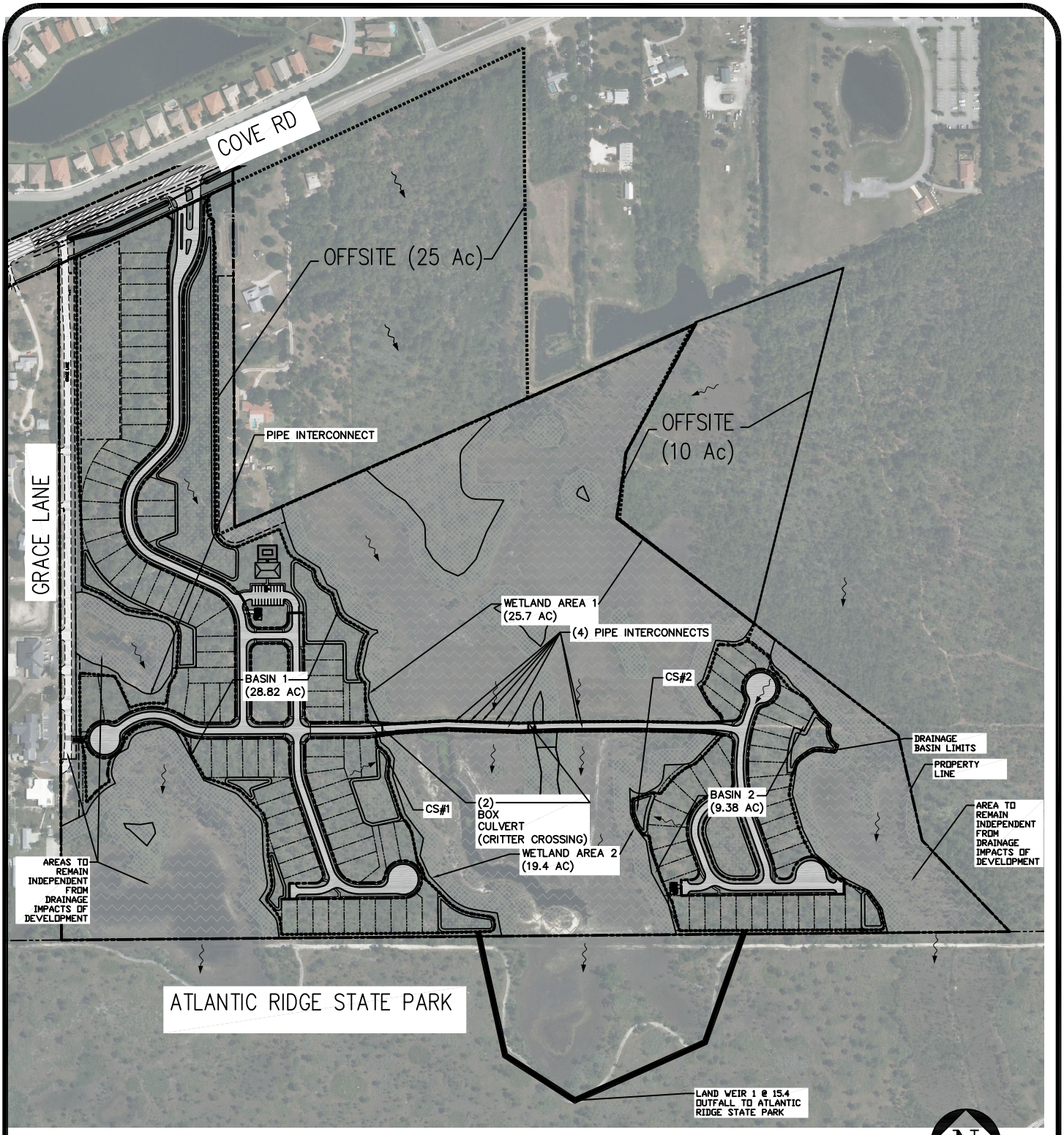
ICPR – Post-development Diagram

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench





SCALE: 1"=450'

PROPOSED NODE AREAS

DATE:	5/25/18
PROJECT ENGINEER:	ACS
CHECKED BY:	
CHECKED BY:	

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SCALE: SCALE: 1"=450'	SHEET: 1 / 1
DRAWN BY: KMR	JOB No. 16042.02

ICPR – Pre-development nodal minimum and maximums

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Area 1	BASE	100yr3day	61.58	15.96	19.00	0.0050	1352728	60.71	395.01	61.58	99.65
Area 2	BASE	100yr3day	60.47	15.64	19.00	0.0035	1073610	60.09	225.91	60.47	188.90
offsite	BASE	100yr3day	61.58	15.96	16.00	0.0050	922458	60.16	131.09	61.11	307.24
outfall	BASE	100yr3day	0.00	14.69	20.00	0.0000	0	60.47	188.90	0.00	0.00
Area 1	BASE	10yr1day	24.62	15.54	19.00	0.0037	1155823	12.25	99.74	24.62	2.67
Area 2	BASE	10yr1day	17.68	15.42	19.00	0.0050	957521	12.16	97.25	17.68	5.63
offsite	BASE	10yr1day	24.64	15.54	16.00	0.0040	676841	12.33	56.96	11.87	54.63
outfall	BASE	10yr1day	0.00	14.69	20.00	0.0000	0	17.68	5.63	0.00	0.00
Area 1	BASE	25yr3day	61.93	15.81	19.00	0.0049	1280615	60.78	293.91	61.93	54.23
Area 2	BASE	25yr3day	60.54	15.57	19.00	0.0050	1035600	60.08	154.49	60.54	111.60
offsite	BASE	25yr3day	62.03	15.81	16.00	0.0049	836405	60.16	100.60	61.84	246.29
outfall	BASE	25yr3day	0.00	14.69	20.00	0.0000	0	60.54	111.60	0.00	0.00
Area 1	BASE	3yr1day	27.02	15.30	19.00	0.0038	1044576	12.94	108.76	0.00	0.00
Area 2	BASE	3yr1day	26.01	15.31	19.00	0.0049	896468	12.16	63.87	0.00	0.00
offsite	BASE	3yr1day	27.01	15.31	16.00	0.0038	542321	12.33	35.38	26.56	102.28
outfall	BASE	3yr1day	0.00	14.69	20.00	0.0000	0	0.00	0.00	0.00	0.00

ICPR – Post-development nodal minimum and maximums

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Basin 1	BASE	10yr1day	20.17	17.23	0.00	0.0029	411771	12.25	61.11	20.17	3.18
Basin 2	BASE	10yr1day	15.69	17.68	19.00	0.0050	116873	12.08	28.09	15.69	1.79
Basin 1	BASE	25yr3day	63.38	17.94	0.00	0.0031	576367	60.17	90.10	63.38	8.57
Basin 2	BASE	25yr3day	61.28	18.39	19.00	0.0050	164166	60.08	40.70	61.28	6.55
offsite	BASE	25yr3day	61.22	15.60	16.00	-0.0022	712522	60.17	100.70	61.22	220.26
outfall	BASE	25yr3day	0.00	14.69	20.00	0.0000	0	61.13	101.11	0.00	0.00
Wetland 1	BASE	25yr3day	61.23	15.59	19.00	0.0024	885709	61.22	246.06	61.23	70.31
Wetland 2	BASE	25yr3day	61.13	15.56	19.00	0.0022	671282	60.77	103.54	61.13	101.11
Basin 1	BASE	3yr1day	24.02	16.95	0.00	0.0028	351631	12.25	42.42	24.02	1.58
Basin 2	BASE	3yr1day	20.27	17.43	19.00	0.0050	99686	12.08	19.53	20.27	0.69
offsite	BASE	3yr1day	99.98	15.28	16.00	0.0022	525699	12.33	35.39	99.98	110.67
outfall	BASE	3yr1day	0.00	14.69	20.00	0.0000	0	0.00	0.00	0.00	0.00
Wetland 1	BASE	3yr1day	99.99	15.28	19.00	0.0015	840109	99.98	110.67	10.43	9.29
Wetland 2	BASE	3yr1day	99.98	15.28	19.00	0.0011	637476	12.17	37.64	0.00	0.00

Zero Discharge

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Basin 1	BASE	100yr3day	63.17	18.26	0.00	0.0034	634358	60.17	114.61	63.17	11.48
Basin 2	BASE	100yr3day	61.23	18.66	19.00	0.0050	181190	60.08	51.69	61.23	8.81
offsite	BASE	100yr3day	99.97	16.71	16.00	0.0027	1361194	60.17	131.18	99.97	419.79
outfall	BASE	100yr3day	0.00	14.69	20.00	0.0000	0	0.00	0.00	0.00	0.00
Wetland 1	BASE	100yr3day	100.00	16.70	19.00	0.0025	1046214	99.97	419.79	8.46	1.10
Wetland 2	BASE	100yr3day	100.00	16.71	19.00	0.0024	809640	60.08	104.90	0.00	0.00

ICPR – 10 year 1 day storm time series
(for retention recovery analysis)

Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 1	BASE	0.00	15.69	0.00	164987	0.00	0.00	0.0	0.0
10yr1day	Basin 1	BASE	0.26	15.69	0.00	164987	0.00	0.00	0.0	0.0
10yr1day	Basin 1	BASE	0.50	15.69	0.00	164987	0.00	0.00	0.0	0.0
10yr1day	Basin 1	BASE	0.77	15.69	0.00	164987	0.00	0.00	0.0	0.0
10yr1day	Basin 1	BASE	1.02	15.69	0.00	164987	0.00	0.00	0.0	0.0
10yr1day	Basin 1	BASE	1.27	15.69	0.00	164993	0.02	0.00	0.0	0.0
10yr1day	Basin 1	BASE	1.52	15.69	0.00	165125	0.24	0.00	0.0	0.0
10yr1day	Basin 1	BASE	1.77	15.69	0.00	165554	0.48	0.00	0.0	0.0
10yr1day	Basin 1	BASE	2.02	15.70	0.00	166205	0.63	0.00	0.0	0.0
10yr1day	Basin 1	BASE	2.27	15.70	0.00	167005	0.75	0.00	0.0	0.0
10yr1day	Basin 1	BASE	2.52	15.70	0.00	167917	0.84	0.00	0.1	0.0
10yr1day	Basin 1	BASE	2.77	15.71	0.00	168912	0.90	0.00	0.1	0.0
10yr1day	Basin 1	BASE	3.02	15.71	0.00	169966	0.95	0.00	0.1	0.0
10yr1day	Basin 1	BASE	3.27	15.72	0.00	171070	1.00	0.00	0.1	0.0
10yr1day	Basin 1	BASE	3.52	15.72	0.00	172225	1.05	0.00	0.1	0.0
10yr1day	Basin 1	BASE	3.77	15.73	0.00	173419	1.09	0.00	0.2	0.0
10yr1day	Basin 1	BASE	4.02	15.74	0.00	174633	1.11	0.00	0.2	0.0
10yr1day	Basin 1	BASE	4.27	15.74	0.00	175864	1.14	0.00	0.2	0.0
10yr1day	Basin 1	BASE	4.52	15.75	0.00	177133	1.18	0.00	0.2	0.0
10yr1day	Basin 1	BASE	4.77	15.75	0.00	178434	1.22	0.00	0.2	0.0
10yr1day	Basin 1	BASE	5.02	15.76	0.00	179751	1.24	0.00	0.3	0.0
10yr1day	Basin 1	BASE	5.27	15.77	0.00	181082	1.26	0.00	0.3	0.0
10yr1day	Basin 1	BASE	5.52	15.77	0.00	182434	1.29	0.00	0.3	0.0
10yr1day	Basin 1	BASE	5.75	15.78	0.00	183716	1.31	0.00	0.4	0.0
10yr1day	Basin 1	BASE	6.00	15.78	0.00	185099	1.34	0.00	0.4	0.0
10yr1day	Basin 1	BASE	6.25	15.79	0.00	186517	1.41	0.00	0.4	0.0
10yr1day	Basin 1	BASE	6.50	15.80	0.00	188019	1.52	0.00	0.4	0.0
10yr1day	Basin 1	BASE	6.75	15.81	0.00	189614	1.61	0.00	0.5	0.0
10yr1day	Basin 1	BASE	7.00	15.81	0.00	191294	1.69	0.00	0.5	0.0
10yr1day	Basin 1	BASE	7.25	15.82	0.00	193043	1.81	0.00	0.5	0.0
10yr1day	Basin 1	BASE	7.50	15.83	0.00	194928	1.96	0.00	0.6	0.0
10yr1day	Basin 1	BASE	7.75	15.84	0.00	196894	2.08	0.00	0.6	0.0
10yr1day	Basin 1	BASE	8.01	15.85	0.00	199008	2.19	0.00	0.7	0.0
10yr1day	Basin 1	BASE	8.25	15.86	0.00	201138	2.34	0.00	0.7	0.0
10yr1day	Basin 1	BASE	8.34	15.86	0.00	201987	2.42	0.00	0.7	0.0
10yr1day	Basin 1	BASE	8.43	15.87	0.00	202766	2.49	0.00	0.7	0.0
10yr1day	Basin 1	BASE	8.51	15.87	0.00	203530	2.55	0.00	0.8	0.0
10yr1day	Basin 1	BASE	8.59	15.87	0.00	204343	2.62	0.00	0.8	0.0
10yr1day	Basin 1	BASE	8.67	15.88	0.00	205142	2.69	0.00	0.8	0.0
10yr1day	Basin 1	BASE	8.75	15.88	0.00	205995	2.78	0.00	0.8	0.0
10yr1day	Basin 1	BASE	8.83	15.89	0.00	206837	2.87	0.00	0.8	0.0
10yr1day	Basin 1	BASE	8.92	15.89	0.00	207738	2.95	0.00	0.9	0.0
10yr1day	Basin 1	BASE	9.01	15.89	0.00	208772	3.05	0.00	0.9	0.0
10yr1day	Basin 1	BASE	9.09	15.90	0.00	209718	3.12	0.00	0.9	0.0
10yr1day	Basin 1	BASE	9.17	15.90	0.00	210645	3.20	0.00	0.9	0.0
10yr1day	Basin 1	BASE	9.26	15.91	0.00	211630	3.28	0.00	0.9	0.0
10yr1day	Basin 1	BASE	9.34	15.91	0.00	212595	3.36	0.00	1.0	0.0
10yr1day	Basin 1	BASE	9.42	15.92	0.00	213619	3.44	0.00	1.0	0.0
10yr1day	Basin 1	BASE	9.50	15.92	0.00	214619	3.51	0.00	1.0	0.0
10yr1day	Basin 1	BASE	9.58	15.93	0.00	215679	3.60	0.00	1.0	0.0
10yr1day	Basin 1	BASE	9.68	15.93	0.00	216892	3.71	0.00	1.1	0.0
10yr1day	Basin 1	BASE	9.76	15.94	0.00	218002	3.83	0.00	1.1	0.0
10yr1day	Basin 1	BASE	9.84	15.94	0.00	219098	3.95	0.00	1.1	0.0
10yr1day	Basin 1	BASE	9.92	15.95	0.00	220269	4.07	0.00	1.1	0.0
10yr1day	Basin 1	BASE	10.00	15.95	0.00	221421	4.19	0.00	1.2	0.0
10yr1day	Basin 1	BASE	10.09	15.96	0.00	222650	4.32	0.00	1.2	0.0
10yr1day	Basin 1	BASE	10.17	15.97	0.00	223861	4.46	0.00	1.2	0.0
10yr1day	Basin 1	BASE	10.25	15.97	0.00	225164	4.66	0.00	1.3	0.0
10yr1day	Basin 1	BASE	10.34	15.98	0.00	226682	4.89	0.00	1.3	0.0
10yr1day	Basin 1	BASE	10.43	15.99	0.00	228091	5.09	0.00	1.3	0.0
10yr1day	Basin 1	BASE	10.51	15.99	0.00	229487	5.28	0.00	1.4	0.0
10yr1day	Basin 1	BASE	10.59	16.00	0.00	230987	5.48	0.00	1.4	0.0
10yr1day	Basin 1	BASE	10.67	16.01	0.00	231987	5.71	0.00	1.4	0.0

Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 1	BASE	10.75	16.01	0.00	232948	6.00	0.00	1.5	0.0
10yr1day	Basin 1	BASE	10.83	16.02	0.00	233914	6.30	0.00	1.5	0.0
10yr1day	Basin 1	BASE	10.92	16.03	0.00	234965	6.61	0.00	1.6	0.0
10yr1day	Basin 1	BASE	11.01	16.04	0.00	236237	6.93	0.00	1.6	0.0
10yr1day	Basin 1	BASE	11.09	16.05	0.00	237329	7.18	0.00	1.7	0.0
10yr1day	Basin 1	BASE	11.17	16.06	0.00	238454	7.42	0.00	1.7	0.0
10yr1day	Basin 1	BASE	11.25	16.07	0.00	239612	7.69	0.00	1.8	0.0
10yr1day	Basin 1	BASE	11.33	16.08	0.00	240814	8.07	0.00	1.8	0.0
10yr1day	Basin 1	BASE	11.43	16.09	0.00	242308	8.86	0.00	1.9	0.0
10yr1day	Basin 1	BASE	11.51	16.10	0.00	243726	10.00	0.00	1.9	0.0
10yr1day	Basin 1	BASE	11.59	16.11	0.00	245307	11.84	0.00	2.0	0.0
10yr1day	Basin 1	BASE	11.67	16.13	0.00	247383	15.03	0.00	2.1	0.0
10yr1day	Basin 1	BASE	11.75	16.15	0.00	250083	20.20	0.00	2.2	0.0
10yr1day	Basin 1	BASE	11.84	16.18	0.00	253751	27.19	0.00	2.4	0.0
10yr1day	Basin 1	BASE	11.92	16.21	0.00	258220	34.94	0.00	2.6	0.0
10yr1day	Basin 1	BASE	12.00	16.26	0.00	264117	44.54	0.00	2.9	0.0
10yr1day	Basin 1	BASE	12.50	16.61	0.00	309454	54.55	0.26	4.9	0.0
10yr1day	Basin 1	BASE	13.00	16.85	0.00	339985	34.09	1.14	6.8	0.0
10yr1day	Basin 1	BASE	13.51	16.99	0.00	357506	23.47	1.81	8.0	0.1
10yr1day	Basin 1	BASE	14.01	17.08	0.00	376993	16.36	2.29	8.8	0.2
10yr1day	Basin 1	BASE	14.50	17.13	0.00	388871	11.03	2.58	9.3	0.3
10yr1day	Basin 1	BASE	15.01	17.16	0.00	395827	7.66	2.76	9.7	0.4
10yr1day	Basin 1	BASE	15.50	17.18	0.00	400125	6.47	2.87	10.0	0.5
10yr1day	Basin 1	BASE	16.01	17.19	0.00	403431	5.67	2.96	10.3	0.6
10yr1day	Basin 1	BASE	16.50	17.20	0.00	405834	5.08	3.02	10.5	0.8
10yr1day	Basin 1	BASE	17.01	17.21	0.00	407693	4.61	3.07	10.7	0.9
10yr1day	Basin 1	BASE	17.50	17.22	0.00	409081	4.36	3.11	10.9	1.0
10yr1day	Basin 1	BASE	18.01	17.22	0.00	410154	3.93	3.14	11.1	1.1
10yr1day	Basin 1	BASE	18.50	17.23	0.00	410840	3.81	3.16	11.2	1.3
10yr1day	Basin 1	BASE	19.01	17.23	0.00	411362	3.48	3.17	11.4	1.4
10yr1day	Basin 1	BASE	19.50	17.23	0.00	411595	3.40	3.18	11.5	1.5
10yr1day	Basin 1	BASE	20.00	17.23	0.00	411759	3.25	3.18	11.6	1.7
10yr1day	Basin 1	BASE	20.50	17.23	0.00	411698	2.98	3.18	11.8	1.8
10yr1day	Basin 1	BASE	21.01	17.23	0.00	411401	2.81	3.17	11.9	1.9
10yr1day	Basin 1	BASE	21.50	17.23	0.00	411001	2.74	3.16	12.0	2.1
10yr1day	Basin 1	BASE	22.01	17.23	0.00	410553	2.70	3.15	12.1	2.2
10yr1day	Basin 1	BASE	22.51	17.22	0.00	410087	2.68	3.14	12.2	2.3
10yr1day	Basin 1	BASE	23.01	17.22	0.00	409557	2.52	3.12	12.3	2.4
10yr1day	Basin 1	BASE	23.51	17.22	0.00	408880	2.40	3.10	12.4	2.6
10yr1day	Basin 1	BASE	24.00	17.21	0.00	408092	2.19	3.08	12.5	2.7
10yr1day	Basin 1	BASE	24.51	17.21	0.00	406748	1.23	3.05	12.6	2.8
10yr1day	Basin 1	BASE	25.00	17.20	0.00	404581	0.59	2.99	12.6	2.9
10yr1day	Basin 1	BASE	25.50	17.19	0.00	401959	0.28	2.92	12.7	3.1
10yr1day	Basin 1	BASE	26.00	17.18	0.00	399148	0.11	2.85	12.7	3.2
10yr1day	Basin 1	BASE	26.50	17.16	0.00	396260	0.02	2.77	12.7	3.3
10yr1day	Basin 1	BASE	27.01	17.15	0.00	393378	0.00	2.70	12.7	3.4
10yr1day	Basin 1	BASE	27.50	17.14	0.00	390560	0.00	2.62	12.7	3.5
10yr1day	Basin 1	BASE	28.01	17.13	0.00	387782	0.00	2.55	12.7	3.6
10yr1day	Basin 1	BASE	28.51	17.11	0.00	385060	0.00	2.49	12.7	3.7
10yr1day	Basin 1	BASE	29.01	17.10	0.00	382392	0.00	2.42	12.7	3.8
10yr1day	Basin 1	BASE	29.51	17.09	0.00	379777	0.00	2.35	12.7	3.9
10yr1day	Basin 1	BASE	30.01	17.08	0.00	377215	0.00	2.29	12.7	4.0
10yr1day	Basin 1	BASE	30.51	17.07	0.00	374717	0.00	2.23	12.7	4.1
10yr1day	Basin 1	BASE	31.00	17.06	0.00	372307	0.00	2.17	12.7	4.2
10yr1day	Basin 1	BASE	31.50	17.05	0.00	369894	0.00	2.12	12.7	4.3
10yr1day	Basin 1	BASE	32.00	17.04	0.00	367530	0.00	2.06	12.7	4.4
10yr1day	Basin 1	BASE	32.50	17.03	0.00	365213	0.00	2.01	12.7	4.5
10yr1day	Basin 1	BASE	33.00	17.02	0.00	362954	0.00	1.95	12.7	4.6
10yr1day	Basin 1	BASE	33.50	17.01	0.00	360730	0.00	1.90	12.7	4.6
10yr1day	Basin 1	BASE	34.01	17.00	0.00	358550	0.00	1.85	12.7	4.7
10yr1day	Basin 1	BASE	34.51	16.99	0.00	357353	0.00	1.81	12.7	4.8
10yr1day	Basin 1	BASE	35.01	16.98	0.00	356206	0.00	1.76	12.7	4.9
10yr1day	Basin 1	BASE	35.51	16.97	0.00	355086	0.00	1.71	12.7	4.9

Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 1	BASE	36.01	16.96	0.00	353996	0.00	1.67	12.7	5.0
10yr1day	Basin 1	BASE	36.51	16.96	0.00	352925	0.00	1.63	12.7	5.1
10yr1day	Basin 1	BASE	37.00	16.95	0.00	351900	0.00	1.59	12.7	5.1
10yr1day	Basin 1	BASE	37.50	16.94	0.00	350876	0.00	1.55	12.7	5.2
10yr1day	Basin 1	BASE	38.00	16.93	0.00	349875	0.00	1.51	12.7	5.3
10yr1day	Basin 1	BASE	38.50	16.92	0.00	348896	0.00	1.47	12.7	5.3
10yr1day	Basin 1	BASE	39.00	16.92	0.00	347943	0.00	1.43	12.7	5.4
10yr1day	Basin 1	BASE	39.50	16.91	0.00	347007	0.00	1.40	12.7	5.5
10yr1day	Basin 1	BASE	40.01	16.90	0.00	346091	0.00	1.37	12.7	5.5
10yr1day	Basin 1	BASE	40.51	16.90	0.00	345195	0.00	1.33	12.7	5.6
10yr1day	Basin 1	BASE	41.01	16.89	0.00	344318	0.00	1.30	12.7	5.6
10yr1day	Basin 1	BASE	41.51	16.88	0.00	343461	0.00	1.27	12.7	5.7
10yr1day	Basin 1	BASE	42.01	16.88	0.00	342626	0.00	1.24	12.7	5.7
10yr1day	Basin 1	BASE	42.51	16.87	0.00	341805	0.00	1.21	12.7	5.8
10yr1day	Basin 1	BASE	43.00	16.86	0.00	341019	0.00	1.18	12.7	5.8
10yr1day	Basin 1	BASE	43.50	16.86	0.00	340232	0.00	1.15	12.7	5.9
10yr1day	Basin 1	BASE	44.00	16.85	0.00	339462	0.00	1.13	12.7	5.9
10yr1day	Basin 1	BASE	44.50	16.84	0.00	338712	0.00	1.10	12.7	6.0
10yr1day	Basin 1	BASE	45.00	16.84	0.00	337974	0.00	1.07	12.7	6.0
10yr1day	Basin 1	BASE	45.50	16.83	0.00	337252	0.00	1.05	12.7	6.1
10yr1day	Basin 1	BASE	46.01	16.83	0.00	336544	0.00	1.03	12.7	6.1
10yr1day	Basin 1	BASE	46.51	16.82	0.00	335852	0.00	1.00	12.7	6.1
10yr1day	Basin 1	BASE	47.01	16.82	0.00	335173	0.00	0.98	12.7	6.2
10yr1day	Basin 1	BASE	47.51	16.81	0.00	334512	0.00	0.96	12.7	6.2
10yr1day	Basin 1	BASE	48.01	16.81	0.00	333862	0.00	0.94	12.7	6.3
10yr1day	Basin 1	BASE	48.51	16.80	0.00	333224	0.00	0.92	12.7	6.3
10yr1day	Basin 1	BASE	49.00	16.80	0.00	332613	0.00	0.90	12.7	6.3
10yr1day	Basin 1	BASE	49.50	16.79	0.00	332001	0.00	0.88	12.7	6.4
10yr1day	Basin 1	BASE	50.00	16.79	0.00	331401	0.00	0.86	12.7	6.4
10yr1day	Basin 1	BASE	50.50	16.78	0.00	330816	0.00	0.84	12.7	6.4
10yr1day	Basin 1	BASE	51.00	16.78	0.00	330240	0.00	0.82	12.7	6.5
10yr1day	Basin 1	BASE	51.50	16.77	0.00	329676	0.00	0.80	12.7	6.5
10yr1day	Basin 1	BASE	52.01	16.77	0.00	329122	0.00	0.79	12.7	6.5
10yr1day	Basin 1	BASE	52.51	16.76	0.00	328580	0.00	0.77	12.7	6.6
10yr1day	Basin 1	BASE	53.01	16.76	0.00	328048	0.00	0.75	12.7	6.6
10yr1day	Basin 1	BASE	53.51	16.76	0.00	327529	0.00	0.74	12.7	6.6
10yr1day	Basin 1	BASE	54.01	16.75	0.00	327018	0.00	0.72	12.7	6.7
10yr1day	Basin 1	BASE	54.51	16.75	0.00	326517	0.00	0.71	12.7	6.7
10yr1day	Basin 1	BASE	55.00	16.74	0.00	326035	0.00	0.69	12.7	6.7
10yr1day	Basin 1	BASE	55.50	16.74	0.00	325553	0.00	0.68	12.7	6.8
10yr1day	Basin 1	BASE	56.00	16.74	0.00	325082	0.00	0.66	12.7	6.8
10yr1day	Basin 1	BASE	56.50	16.73	0.00	324618	0.00	0.65	12.7	6.8
10yr1day	Basin 1	BASE	57.00	16.73	0.00	324162	0.00	0.64	12.7	6.8
10yr1day	Basin 1	BASE	57.50	16.73	0.00	323715	0.00	0.62	12.7	6.9
10yr1day	Basin 1	BASE	58.01	16.72	0.00	323277	0.00	0.61	12.7	6.9
10yr1day	Basin 1	BASE	58.51	16.72	0.00	322847	0.00	0.60	12.7	6.9
10yr1day	Basin 1	BASE	59.01	16.72	0.00	322427	0.00	0.59	12.7	6.9
10yr1day	Basin 1	BASE	59.51	16.71	0.00	322012	0.00	0.58	12.7	7.0
10yr1day	Basin 1	BASE	60.01	16.71	0.00	321605	0.00	0.56	12.7	7.0
10yr1day	Basin 1	BASE	60.83	16.70	0.00	320951	0.00	0.55	12.7	7.0
10yr1day	Basin 1	BASE	61.67	16.70	0.00	320306	0.00	0.53	12.7	7.1
10yr1day	Basin 1	BASE	62.50	16.69	0.00	319690	0.00	0.51	12.7	7.1
10yr1day	Basin 1	BASE	63.34	16.69	0.00	319082	0.00	0.50	12.7	7.1
10yr1day	Basin 1	BASE	64.17	16.69	0.00	318503	0.00	0.48	12.7	7.2
10yr1day	Basin 1	BASE	65.01	16.68	0.00	317932	0.00	0.47	12.7	7.2
10yr1day	Basin 1	BASE	65.83	16.68	0.00	317384	0.00	0.45	12.7	7.2
10yr1day	Basin 1	BASE	66.67	16.67	0.00	316846	0.00	0.44	12.7	7.3
10yr1day	Basin 1	BASE	67.51	16.67	0.00	316322	0.00	0.42	12.7	7.3
10yr1day	Basin 1	BASE	68.34	16.66	0.00	315821	0.00	0.41	12.7	7.3
10yr1day	Basin 1	BASE	69.18	16.66	0.00	315328	0.00	0.40	12.7	7.3
10yr1day	Basin 1	BASE	70.01	16.66	0.00	314853	0.00	0.39	12.7	7.4
10yr1day	Basin 1	BASE	70.84	16.65	0.00	314387	0.00	0.38	12.7	7.4
10yr1day	Basin 1	BASE	71.67	16.65	0.00	313939	0.00	0.37	12.7	7.4

Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 1	BASE	72.51	16.65	0.00	313497	0.00	0.36	12.7	7.4
10yr1day	Basin 1	BASE	73.34	16.64	0.00	313074	0.00	0.35	12.7	7.5
10yr1day	Basin 1	BASE	74.18	16.64	0.00	312655	0.00	0.34	12.7	7.5
10yr1day	Basin 1	BASE	75.00	16.64	0.00	312254	0.00	0.33	12.7	7.5
10yr1day	Basin 1	BASE	75.84	16.63	0.00	311859	0.00	0.32	12.7	7.5
10yr1day	Basin 1	BASE	76.67	16.63	0.00	311478	0.00	0.31	12.7	7.6
10yr1day	Basin 1	BASE	77.51	16.63	0.00	311103	0.00	0.30	12.7	7.6
10yr1day	Basin 1	BASE	78.33	16.62	0.00	310743	0.00	0.29	12.7	7.6
10yr1day	Basin 1	BASE	79.17	16.62	0.00	310386	0.00	0.28	12.7	7.6
10yr1day	Basin 1	BASE	80.00	16.62	0.00	310044	0.00	0.28	12.7	7.6
10yr1day	Basin 1	BASE	80.84	16.62	0.00	309705	0.00	0.27	12.7	7.7
10yr1day	Basin 1	BASE	81.67	16.61	0.00	309380	0.00	0.26	12.7	7.7
10yr1day	Basin 1	BASE	82.50	16.61	0.00	309059	0.00	0.26	12.7	7.7
10yr1day	Basin 1	BASE	83.33	16.61	0.00	308749	0.00	0.25	12.7	7.7
10yr1day	Basin 1	BASE	84.17	16.61	0.00	308444	0.00	0.24	12.7	7.7
10yr1day	Basin 1	BASE	85.01	16.60	0.00	308147	0.00	0.24	12.7	7.7
10yr1day	Basin 1	BASE	85.84	16.60	0.00	307859	0.00	0.23	12.7	7.8
10yr1day	Basin 1	BASE	86.67	16.60	0.00	307576	0.00	0.22	12.7	7.8
10yr1day	Basin 1	BASE	87.50	16.60	0.00	307302	0.00	0.22	12.7	7.8
10yr1day	Basin 1	BASE	88.34	16.60	0.00	307032	0.00	0.21	12.7	7.8
10yr1day	Basin 1	BASE	89.17	16.59	0.00	306772	0.00	0.21	12.7	7.8
10yr1day	Basin 1	BASE	90.01	16.59	0.00	306514	0.00	0.20	12.7	7.8
10yr1day	Basin 1	BASE	90.83	16.59	0.00	306266	0.00	0.20	12.7	7.9
10yr1day	Basin 1	BASE	91.67	16.59	0.00	306021	0.00	0.19	12.7	7.9
10yr1day	Basin 1	BASE	92.50	16.59	0.00	305784	0.00	0.19	12.7	7.9
10yr1day	Basin 1	BASE	93.34	16.58	0.00	305550	0.00	0.18	12.7	7.9
10yr1day	Basin 1	BASE	94.17	16.58	0.00	305323	0.00	0.18	12.7	7.9
10yr1day	Basin 1	BASE	95.01	16.58	0.00	305099	0.00	0.18	12.7	7.9
10yr1day	Basin 1	BASE	95.84	16.58	0.00	304881	0.00	0.17	12.7	7.9
10yr1day	Basin 1	BASE	96.67	16.58	0.00	304669	0.00	0.17	12.7	7.9
10yr1day	Basin 1	BASE	97.51	16.58	0.00	304460	0.00	0.16	12.7	8.0
10yr1day	Basin 1	BASE	98.34	16.57	0.00	304259	0.00	0.16	12.7	8.0
10yr1day	Basin 1	BASE	99.18	16.57	0.00	304058	0.00	0.16	12.7	8.0
10yr1day	Basin 1	BASE	100.00	16.57	0.00	303865	0.00	0.15	12.7	8.0
10yr1day	Basin 1	BASE	100.84	16.57	0.00	303674	0.00	0.15	12.7	8.0
10yr1day	Basin 1	BASE	101.67	16.57	0.00	303489	0.00	0.15	12.7	8.0
10yr1day	Basin 1	BASE	102.51	16.57	0.00	303306	0.00	0.14	12.7	8.0
10yr1day	Basin 1	BASE	103.34	16.56	0.00	303128	0.00	0.14	12.7	8.0
10yr1day	Basin 1	BASE	104.17	16.56	0.00	302953	0.00	0.14	12.7	8.0
10yr1day	Basin 1	BASE	105.00	16.56	0.00	302783	0.00	0.13	12.7	8.0
10yr1day	Basin 1	BASE	105.84	16.56	0.00	302615	0.00	0.13	12.7	8.1
10yr1day	Basin 1	BASE	106.67	16.56	0.00	302452	0.00	0.13	12.7	8.1
10yr1day	Basin 1	BASE	107.51	16.56	0.00	302290	0.00	0.13	12.7	8.1
10yr1day	Basin 1	BASE	108.33	16.56	0.00	302135	0.00	0.12	12.7	8.1
10yr1day	Basin 1	BASE	109.17	16.56	0.00	301980	0.00	0.12	12.7	8.1
10yr1day	Basin 1	BASE	110.00	16.55	0.00	301830	0.00	0.12	12.7	8.1
10yr1day	Basin 1	BASE	110.84	16.55	0.00	301681	0.00	0.12	12.7	8.1
10yr1day	Basin 1	BASE	111.68	16.55	0.00	301535	0.00	0.11	12.7	8.1
10yr1day	Basin 1	BASE	112.50	16.55	0.00	301394	0.00	0.11	12.7	8.1
10yr1day	Basin 1	BASE	113.34	16.55	0.00	301254	0.00	0.11	12.7	8.1
10yr1day	Basin 1	BASE	114.17	16.55	0.00	301119	0.00	0.11	12.7	8.1
10yr1day	Basin 1	BASE	115.01	16.55	0.00	300984	0.00	0.10	12.7	8.1
10yr1day	Basin 1	BASE	115.83	16.55	0.00	300854	0.00	0.10	12.7	8.1
10yr1day	Basin 1	BASE	116.67	16.55	0.00	300724	0.00	0.10	12.7	8.2
10yr1day	Basin 1	BASE	117.50	16.54	0.00	300599	0.00	0.10	12.7	8.2
10yr1day	Basin 1	BASE	118.34	16.54	0.00	300474	0.00	0.10	12.7	8.2
10yr1day	Basin 1	BASE	119.17	16.54	0.00	300354	0.00	0.09	12.7	8.2
10yr1day	Basin 1	BASE	120.01	16.54	0.00	300234	0.00	0.09	12.7	8.2
10yr1day	Basin 1	BASE	120.83	16.54	0.00	300118	0.00	0.09	12.7	8.2
10yr1day	Basin 1	BASE	121.67	16.54	0.00	300002	0.00	0.09	12.7	8.2
10yr1day	Basin 1	BASE	122.51	16.54	0.00	299889	0.00	0.09	12.7	8.2
10yr1day	Basin 1	BASE	123.34	16.54	0.00	299779	0.00	0.09	12.7	8.2
10yr1day	Basin 1	BASE	124.18	16.54	0.00	299670	0.00	0.08	12.7	8.2

Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 1	BASE	125.01	16.54	0.00	299564	0.00	0.08	12.7	8.2
10yr1day	Basin 1	BASE	125.84	16.54	0.00	299459	0.00	0.08	12.7	8.2
10yr1day	Basin 1	BASE	126.67	16.54	0.00	299357	0.00	0.08	12.7	8.2
10yr1day	Basin 1	BASE	127.51	16.53	0.00	299255	0.00	0.08	12.7	8.2
10yr1day	Basin 1	BASE	128.34	16.53	0.00	299157	0.00	0.08	12.7	8.2
10yr1day	Basin 1	BASE	129.17	16.53	0.00	299059	0.00	0.08	12.7	8.2
10yr1day	Basin 1	BASE	130.00	16.53	0.00	298964	0.00	0.07	12.7	8.3
10yr1day	Basin 1	BASE	130.84	16.53	0.00	298870	0.00	0.07	12.7	8.3
10yr1day	Basin 1	BASE	131.67	16.53	0.00	298778	0.00	0.07	12.7	8.3
10yr1day	Basin 1	BASE	132.51	16.53	0.00	298687	0.00	0.07	12.7	8.3
10yr1day	Basin 1	BASE	133.33	16.53	0.00	298598	0.00	0.07	12.7	8.3
10yr1day	Basin 1	BASE	134.17	16.53	0.00	298510	0.00	0.07	12.7	8.3
10yr1day	Basin 1	BASE	135.00	16.53	0.00	298425	0.00	0.07	12.7	8.3
10yr1day	Basin 1	BASE	135.84	16.53	0.00	298340	0.00	0.07	12.7	8.3
10yr1day	Basin 1	BASE	136.67	16.53	0.00	298257	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	137.50	16.53	0.00	298175	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	138.33	16.53	0.00	298094	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	139.17	16.52	0.00	298015	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	140.01	16.52	0.00	297937	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	140.84	16.52	0.00	297861	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	141.67	16.52	0.00	297785	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	142.50	16.52	0.00	297711	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	143.34	16.52	0.00	297638	0.00	0.06	12.7	8.3
10yr1day	Basin 1	BASE	144.00	16.52	0.00	297582	0.00	0.06	12.7	8.3
10yr1day	Basin 2	BASE	0.00	15.69	19.00	34841	0.00	0.00	0.0	0.0
10yr1day	Basin 2	BASE	0.26	15.69	19.00	34841	0.00	0.00	0.0	0.0
10yr1day	Basin 2	BASE	0.50	15.69	19.00	34841	0.00	0.00	0.0	0.0
10yr1day	Basin 2	BASE	0.77	15.69	19.00	34841	0.00	0.00	0.0	0.0
10yr1day	Basin 2	BASE	1.02	15.69	19.00	34841	0.00	0.00	0.0	0.0
10yr1day	Basin 2	BASE	1.27	15.69	19.00	34844	0.03	0.00	0.0	0.0
10yr1day	Basin 2	BASE	1.52	15.69	19.00	34924	0.18	0.00	0.0	0.0
10yr1day	Basin 2	BASE	1.77	15.70	19.00	35086	0.25	0.00	0.0	0.0
10yr1day	Basin 2	BASE	2.02	15.71	19.00	35285	0.29	0.00	0.0	0.0
10yr1day	Basin 2	BASE	2.27	15.71	19.00	35509	0.32	0.00	0.0	0.0
10yr1day	Basin 2	BASE	2.52	15.72	19.00	35748	0.33	0.00	0.0	0.0
10yr1day	Basin 2	BASE	2.77	15.73	19.00	35993	0.34	0.00	0.0	0.0
10yr1day	Basin 2	BASE	3.02	15.74	19.00	36238	0.34	0.00	0.0	0.0
10yr1day	Basin 2	BASE	3.27	15.75	19.00	36486	0.35	0.00	0.0	0.0
10yr1day	Basin 2	BASE	3.52	15.76	19.00	36741	0.36	0.00	0.1	0.0
10yr1day	Basin 2	BASE	3.77	15.76	19.00	37000	0.37	0.00	0.1	0.0
10yr1day	Basin 2	BASE	4.02	15.77	19.00	37259	0.37	0.00	0.1	0.0
10yr1day	Basin 2	BASE	4.27	15.78	19.00	37523	0.39	0.00	0.1	0.0
10yr1day	Basin 2	BASE	4.52	15.79	19.00	37800	0.40	0.00	0.1	0.0
10yr1day	Basin 2	BASE	4.77	15.80	19.00	38081	0.41	0.00	0.1	0.0
10yr1day	Basin 2	BASE	5.02	15.81	19.00	38363	0.41	0.00	0.1	0.0
10yr1day	Basin 2	BASE	5.27	15.82	19.00	38648	0.43	0.00	0.1	0.0
10yr1day	Basin 2	BASE	5.52	15.83	19.00	38939	0.43	0.00	0.1	0.0
10yr1day	Basin 2	BASE	5.75	15.84	19.00	39212	0.44	0.00	0.1	0.0
10yr1day	Basin 2	BASE	6.00	15.85	19.00	39508	0.45	0.00	0.1	0.0
10yr1day	Basin 2	BASE	6.25	15.86	19.00	39818	0.50	0.00	0.1	0.0
10yr1day	Basin 2	BASE	6.50	15.87	19.00	40157	0.54	0.00	0.2	0.0
10yr1day	Basin 2	BASE	6.75	15.89	19.00	40516	0.57	0.00	0.2	0.0
10yr1day	Basin 2	BASE	7.00	15.90	19.00	40892	0.59	0.00	0.2	0.0
10yr1day	Basin 2	BASE	7.25	15.91	19.00	41289	0.66	0.00	0.2	0.0
10yr1day	Basin 2	BASE	7.50	15.93	19.00	41723	0.71	0.00	0.2	0.0
10yr1day	Basin 2	BASE	7.75	15.94	19.00	42170	0.74	0.00	0.2	0.0
10yr1day	Basin 2	BASE	8.01	15.96	19.00	42644	0.77	0.00	0.2	0.0
10yr1day	Basin 2	BASE	8.25	15.98	19.00	43127	0.85	0.00	0.3	0.0
10yr1day	Basin 2	BASE	8.34	15.98	19.00	43322	0.88	0.00	0.3	0.0
10yr1day	Basin 2	BASE	8.43	15.99	19.00	43502	0.90	0.00	0.3	0.0
10yr1day	Basin 2	BASE	8.51	15.99	19.00	43677	0.92	0.00	0.3	0.0
10yr1day	Basin 2	BASE	8.59	16.00	19.00	43861	0.95	0.00	0.3	0.0

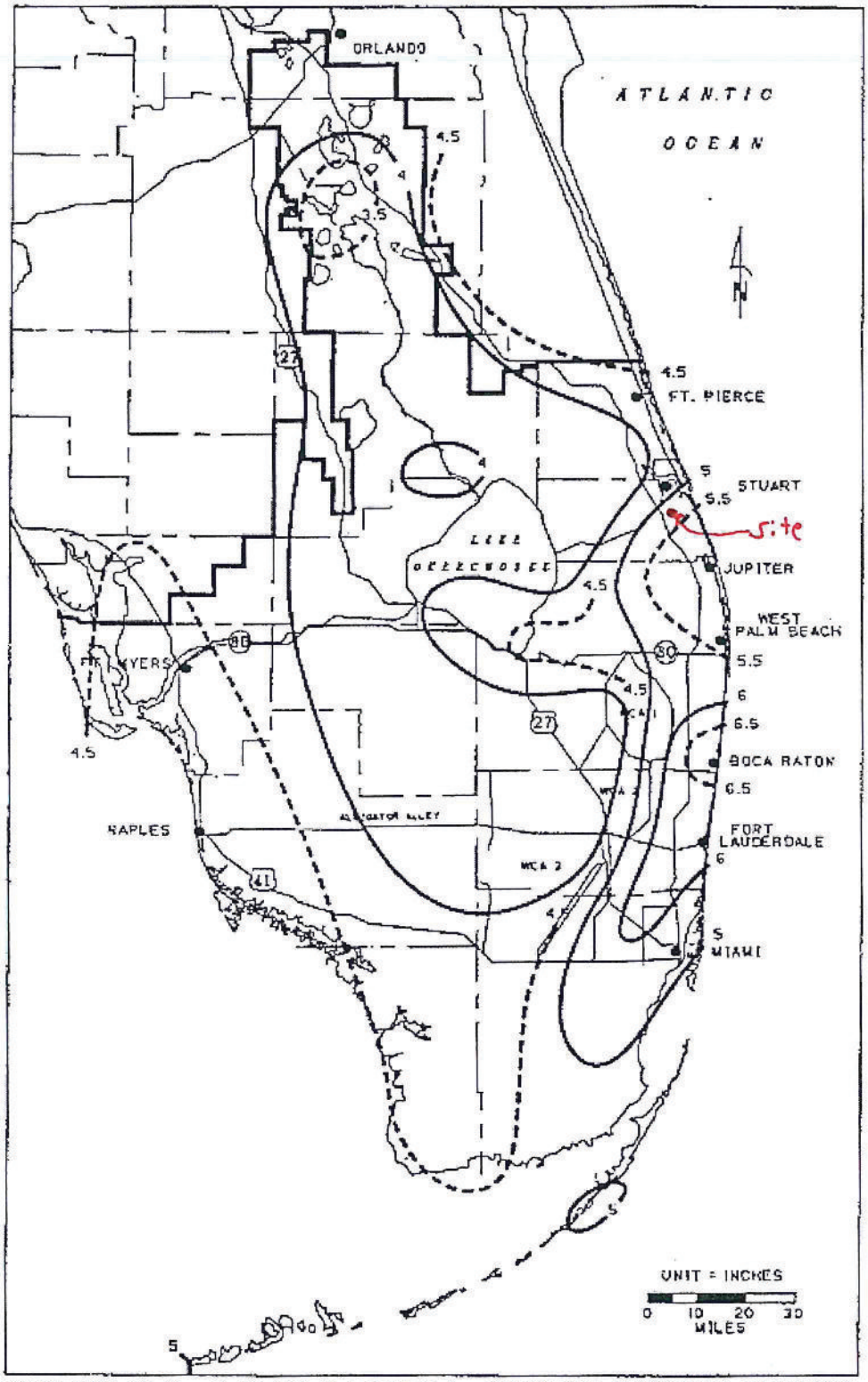
Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 2	BASE	8.67	16.01	19.00	44022	0.99	0.00	0.3	0.0
10yr1day	Basin 2	BASE	8.75	16.01	19.00	44196	1.03	0.00	0.3	0.0
10yr1day	Basin 2	BASE	8.83	16.02	19.00	44368	1.06	0.00	0.3	0.0
10yr1day	Basin 2	BASE	8.92	16.03	19.00	44551	1.08	0.00	0.3	0.0
10yr1day	Basin 2	BASE	9.01	16.04	19.00	44761	1.11	0.00	0.3	0.0
10yr1day	Basin 2	BASE	9.09	16.04	19.00	44952	1.14	0.00	0.3	0.0
10yr1day	Basin 2	BASE	9.17	16.05	19.00	45139	1.17	0.00	0.3	0.0
10yr1day	Basin 2	BASE	9.26	16.06	19.00	45339	1.20	0.00	0.3	0.0
10yr1day	Basin 2	BASE	9.34	16.07	19.00	45534	1.22	0.00	0.3	0.0
10yr1day	Basin 2	BASE	9.42	16.07	19.00	45740	1.24	0.00	0.4	0.0
10yr1day	Basin 2	BASE	9.50	16.08	19.00	45940	1.26	0.00	0.4	0.0
10yr1day	Basin 2	BASE	9.58	16.09	19.00	46152	1.30	0.00	0.4	0.0
10yr1day	Basin 2	BASE	9.68	16.10	19.00	46397	1.36	0.00	0.4	0.0
10yr1day	Basin 2	BASE	9.76	16.11	19.00	46625	1.42	0.00	0.4	0.0
10yr1day	Basin 2	BASE	9.84	16.12	19.00	46851	1.46	0.00	0.4	0.0
10yr1day	Basin 2	BASE	9.92	16.13	19.00	47091	1.50	0.00	0.4	0.0
10yr1day	Basin 2	BASE	10.00	16.14	19.00	47326	1.53	0.00	0.4	0.0
10yr1day	Basin 2	BASE	10.09	16.15	19.00	47576	1.59	0.00	0.4	0.0
10yr1day	Basin 2	BASE	10.17	16.16	19.00	47827	1.68	0.00	0.4	0.0
10yr1day	Basin 2	BASE	10.25	16.17	19.00	48102	1.78	0.00	0.5	0.0
10yr1day	Basin 2	BASE	10.34	16.18	19.00	48425	1.87	0.00	0.5	0.0
10yr1day	Basin 2	BASE	10.43	16.19	19.00	48723	1.93	0.00	0.5	0.0
10yr1day	Basin 2	BASE	10.51	16.20	19.00	49016	1.98	0.00	0.5	0.0
10yr1day	Basin 2	BASE	10.59	16.22	19.00	49330	2.07	0.00	0.5	0.0
10yr1day	Basin 2	BASE	10.67	16.23	19.00	49647	2.21	0.00	0.5	0.0
10yr1day	Basin 2	BASE	10.75	16.24	19.00	49997	2.36	0.00	0.5	0.0
10yr1day	Basin 2	BASE	10.83	16.26	19.00	50349	2.47	0.00	0.6	0.0
10yr1day	Basin 2	BASE	10.92	16.27	19.00	50729	2.57	0.00	0.6	0.0
10yr1day	Basin 2	BASE	11.01	16.29	19.00	51183	2.66	0.00	0.6	0.0
10yr1day	Basin 2	BASE	11.09	16.30	19.00	51567	2.73	0.00	0.6	0.0
10yr1day	Basin 2	BASE	11.17	16.32	19.00	51960	2.82	0.00	0.6	0.0
10yr1day	Basin 2	BASE	11.25	16.34	19.00	52362	2.92	0.00	0.7	0.0
10yr1day	Basin 2	BASE	11.33	16.35	19.00	52785	3.16	0.00	0.7	0.0
10yr1day	Basin 2	BASE	11.43	16.37	19.00	53349	3.84	0.00	0.7	0.0
10yr1day	Basin 2	BASE	11.51	16.40	19.00	53914	4.50	0.00	0.7	0.0
10yr1day	Basin 2	BASE	11.59	16.42	19.00	54588	5.87	0.00	0.8	0.0
10yr1day	Basin 2	BASE	11.67	16.46	19.00	55622	9.09	0.00	0.8	0.0
10yr1day	Basin 2	BASE	11.75	16.52	19.00	57077	12.42	0.00	0.9	0.0
10yr1day	Basin 2	BASE	11.84	16.60	19.00	58992	16.14	0.00	1.0	0.0
10yr1day	Basin 2	BASE	11.92	16.69	19.00	61264	20.99	0.00	1.1	0.0
10yr1day	Basin 2	BASE	12.00	16.80	19.00	64158	25.85	0.00	1.3	0.0
10yr1day	Basin 2	BASE	12.50	17.36	19.00	94317	17.28	0.42	2.2	0.0
10yr1day	Basin 2	BASE	13.00	17.56	19.00	108433	7.94	1.21	2.7	0.0
10yr1day	Basin 2	BASE	13.51	17.63	19.00	113173	4.00	1.53	2.9	0.1
10yr1day	Basin 2	BASE	14.01	17.65	19.00	115107	2.92	1.67	3.1	0.2
10yr1day	Basin 2	BASE	14.50	17.67	19.00	116128	2.45	1.74	3.2	0.2
10yr1day	Basin 2	BASE	15.01	17.68	19.00	116656	2.07	1.78	3.3	0.3
10yr1day	Basin 2	BASE	15.50	17.68	19.00	116851	1.89	1.79	3.4	0.4
10yr1day	Basin 2	BASE	16.01	17.68	19.00	116823	1.67	1.79	3.4	0.5
10yr1day	Basin 2	BASE	16.50	17.68	19.00	116612	1.52	1.77	3.5	0.5
10yr1day	Basin 2	BASE	17.01	17.67	19.00	116269	1.39	1.75	3.6	0.6
10yr1day	Basin 2	BASE	17.50	17.66	19.00	115881	1.36	1.72	3.6	0.7
10yr1day	Basin 2	BASE	18.01	17.66	19.00	115393	1.18	1.69	3.7	0.7
10yr1day	Basin 2	BASE	18.50	17.65	19.00	114882	1.21	1.65	3.7	0.8
10yr1day	Basin 2	BASE	19.01	17.64	19.00	114320	1.05	1.61	3.8	0.9
10yr1day	Basin 2	BASE	19.50	17.63	19.00	113755	1.09	1.57	3.8	0.9
10yr1day	Basin 2	BASE	20.00	17.63	19.00	113202	1.02	1.53	3.9	1.0
10yr1day	Basin 2	BASE	20.50	17.62	19.00	112586	0.91	1.49	3.9	1.1
10yr1day	Basin 2	BASE	21.01	17.61	19.00	111937	0.88	1.44	3.9	1.1
10yr1day	Basin 2	BASE	21.50	17.60	19.00	111317	0.87	1.40	4.0	1.2
10yr1day	Basin 2	BASE	22.01	17.59	19.00	110736	0.87	1.36	4.0	1.2
10yr1day	Basin 2	BASE	22.51	17.58	19.00	110195	0.87	1.32	4.0	1.3
10yr1day	Basin 2	BASE	23.01	17.58	19.00	109639	0.78	1.29	4.1	1.4

Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 2	BASE	23.51	17.57	19.00	109057	0.75	1.25	4.1	1.4
10yr1day	Basin 2	BASE	24.00	17.56	19.00	108455	0.66	1.21	4.1	1.5
10yr1day	Basin 2	BASE	24.51	17.55	19.00	107524	0.18	1.15	4.2	1.5
10yr1day	Basin 2	BASE	25.00	17.53	19.00	106342	0.03	1.07	4.2	1.6
10yr1day	Basin 2	BASE	25.50	17.51	19.00	105113	0.00	1.00	4.2	1.6
10yr1day	Basin 2	BASE	26.00	17.49	19.00	103946	0.00	0.93	4.2	1.6
10yr1day	Basin 2	BASE	26.50	17.48	19.00	102848	0.00	0.86	4.2	1.7
10yr1day	Basin 2	BASE	27.01	17.46	19.00	101816	0.00	0.81	4.2	1.7
10yr1day	Basin 2	BASE	27.50	17.45	19.00	100849	0.00	0.75	4.2	1.7
10yr1day	Basin 2	BASE	28.01	17.44	19.00	99933	0.00	0.70	4.2	1.8
10yr1day	Basin 2	BASE	28.51	17.43	19.00	99071	0.00	0.66	4.2	1.8
10yr1day	Basin 2	BASE	29.01	17.41	19.00	98258	0.00	0.61	4.2	1.8
10yr1day	Basin 2	BASE	29.51	17.40	19.00	97491	0.00	0.57	4.2	1.9
10yr1day	Basin 2	BASE	30.01	17.39	19.00	96768	0.00	0.54	4.2	1.9
10yr1day	Basin 2	BASE	30.51	17.38	19.00	96088	0.00	0.50	4.2	1.9
10yr1day	Basin 2	BASE	31.00	17.37	19.00	95456	0.00	0.47	4.2	1.9
10yr1day	Basin 2	BASE	31.50	17.36	19.00	94845	0.00	0.44	4.2	1.9
10yr1day	Basin 2	BASE	32.00	17.36	19.00	94268	0.00	0.42	4.2	2.0
10yr1day	Basin 2	BASE	32.50	17.35	19.00	93721	0.00	0.39	4.2	2.0
10yr1day	Basin 2	BASE	33.00	17.34	19.00	93206	0.00	0.37	4.2	2.0
10yr1day	Basin 2	BASE	33.50	17.33	19.00	92715	0.00	0.35	4.2	2.0
10yr1day	Basin 2	BASE	34.01	17.33	19.00	92250	0.00	0.33	4.2	2.0
10yr1day	Basin 2	BASE	34.51	17.32	19.00	91809	0.00	0.31	4.2	2.0
10yr1day	Basin 2	BASE	35.01	17.32	19.00	91390	0.00	0.29	4.2	2.0
10yr1day	Basin 2	BASE	35.51	17.31	19.00	90993	0.00	0.28	4.2	2.1
10yr1day	Basin 2	BASE	36.01	17.30	19.00	90617	0.00	0.26	4.2	2.1
10yr1day	Basin 2	BASE	36.51	17.30	19.00	90257	0.00	0.25	4.2	2.1
10yr1day	Basin 2	BASE	37.00	17.29	19.00	89923	0.00	0.24	4.2	2.1
10yr1day	Basin 2	BASE	37.50	17.29	19.00	89597	0.00	0.22	4.2	2.1
10yr1day	Basin 2	BASE	38.00	17.29	19.00	89287	0.00	0.21	4.2	2.1
10yr1day	Basin 2	BASE	38.50	17.28	19.00	88991	0.00	0.20	4.2	2.1
10yr1day	Basin 2	BASE	39.00	17.28	19.00	88711	0.00	0.19	4.2	2.1
10yr1day	Basin 2	BASE	39.50	17.27	19.00	88442	0.00	0.18	4.2	2.1
10yr1day	Basin 2	BASE	40.01	17.27	19.00	88185	0.00	0.17	4.2	2.1
10yr1day	Basin 2	BASE	40.51	17.27	19.00	87940	0.00	0.17	4.2	2.1
10yr1day	Basin 2	BASE	41.01	17.26	19.00	87705	0.00	0.16	4.2	2.1
10yr1day	Basin 2	BASE	41.51	17.26	19.00	87481	0.00	0.15	4.2	2.2
10yr1day	Basin 2	BASE	42.01	17.26	19.00	87268	0.00	0.14	4.2	2.2
10yr1day	Basin 2	BASE	42.51	17.25	19.00	87063	0.00	0.14	4.2	2.2
10yr1day	Basin 2	BASE	43.00	17.25	19.00	86871	0.00	0.13	4.2	2.2
10yr1day	Basin 2	BASE	43.50	17.25	19.00	86682	0.00	0.13	4.2	2.2
10yr1day	Basin 2	BASE	44.00	17.25	19.00	86502	0.00	0.12	4.2	2.2
10yr1day	Basin 2	BASE	44.50	17.24	19.00	86330	0.00	0.12	4.2	2.2
10yr1day	Basin 2	BASE	45.00	17.24	19.00	86164	0.00	0.11	4.2	2.2
10yr1day	Basin 2	BASE	45.50	17.24	19.00	86004	0.00	0.11	4.2	2.2
10yr1day	Basin 2	BASE	46.01	17.24	19.00	85851	0.00	0.10	4.2	2.2
10yr1day	Basin 2	BASE	46.51	17.23	19.00	85704	0.00	0.10	4.2	2.2
10yr1day	Basin 2	BASE	47.01	17.23	19.00	85563	0.00	0.09	4.2	2.2
10yr1day	Basin 2	BASE	47.51	17.23	19.00	85428	0.00	0.09	4.2	2.2
10yr1day	Basin 2	BASE	48.01	17.23	19.00	85297	0.00	0.09	4.2	2.2
10yr1day	Basin 2	BASE	48.51	17.23	19.00	85171	0.00	0.08	4.2	2.2
10yr1day	Basin 2	BASE	49.00	17.23	19.00	85053	0.00	0.08	4.2	2.2
10yr1day	Basin 2	BASE	49.50	17.22	19.00	84936	0.00	0.08	4.2	2.2
10yr1day	Basin 2	BASE	50.00	17.22	19.00	84824	0.00	0.07	4.2	2.2
10yr1day	Basin 2	BASE	50.50	17.22	19.00	84716	0.00	0.07	4.2	2.2
10yr1day	Basin 2	BASE	51.00	17.22	19.00	84611	0.00	0.07	4.2	2.2
10yr1day	Basin 2	BASE	51.50	17.22	19.00	84511	0.00	0.07	4.2	2.2
10yr1day	Basin 2	BASE	52.01	17.22	19.00	84413	0.00	0.06	4.2	2.2
10yr1day	Basin 2	BASE	52.51	17.21	19.00	84319	0.00	0.06	4.2	2.2
10yr1day	Basin 2	BASE	53.01	17.21	19.00	84229	0.00	0.06	4.2	2.2
10yr1day	Basin 2	BASE	53.51	17.21	19.00	84142	0.00	0.06	4.2	2.2
10yr1day	Basin 2	BASE	54.01	17.21	19.00	84057	0.00	0.06	4.2	2.3
10yr1day	Basin 2	BASE	54.51	17.21	19.00	83975	0.00	0.05	4.2	2.3

Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 2	BASE	55.00	17.21	19.00	83898	0.00	0.05	4.2	2.3
10yr1day	Basin 2	BASE	55.50	17.21	19.00	83821	0.00	0.05	4.2	2.3
10yr1day	Basin 2	BASE	56.00	17.21	19.00	83747	0.00	0.05	4.2	2.3
10yr1day	Basin 2	BASE	56.50	17.21	19.00	83676	0.00	0.05	4.2	2.3
10yr1day	Basin 2	BASE	57.00	17.20	19.00	83606	0.00	0.05	4.2	2.3
10yr1day	Basin 2	BASE	57.50	17.20	19.00	83539	0.00	0.04	4.2	2.3
10yr1day	Basin 2	BASE	58.01	17.20	19.00	83474	0.00	0.04	4.2	2.3
10yr1day	Basin 2	BASE	58.51	17.20	19.00	83411	0.00	0.04	4.2	2.3
10yr1day	Basin 2	BASE	59.01	17.20	19.00	83350	0.00	0.04	4.2	2.3
10yr1day	Basin 2	BASE	59.51	17.20	19.00	83290	0.00	0.04	4.2	2.3
10yr1day	Basin 2	BASE	60.01	17.20	19.00	83233	0.00	0.04	4.2	2.3
10yr1day	Basin 2	BASE	60.83	17.20	19.00	83141	0.00	0.04	4.2	2.3
10yr1day	Basin 2	BASE	61.67	17.20	19.00	83053	0.00	0.03	4.2	2.3
10yr1day	Basin 2	BASE	62.50	17.20	19.00	82970	0.00	0.03	4.2	2.3
10yr1day	Basin 2	BASE	63.34	17.19	19.00	82890	0.00	0.03	4.2	2.3
10yr1day	Basin 2	BASE	64.17	17.19	19.00	82815	0.00	0.03	4.2	2.3
10yr1day	Basin 2	BASE	65.01	17.19	19.00	82743	0.00	0.03	4.2	2.3
10yr1day	Basin 2	BASE	65.83	17.19	19.00	82674	0.00	0.03	4.2	2.3
10yr1day	Basin 2	BASE	66.67	17.19	19.00	82607	0.00	0.03	4.2	2.3
10yr1day	Basin 2	BASE	67.51	17.19	19.00	82544	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	68.34	17.19	19.00	82484	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	69.18	17.19	19.00	82426	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	70.01	17.19	19.00	82371	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	70.84	17.19	19.00	82317	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	71.67	17.19	19.00	82267	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	72.51	17.18	19.00	82218	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	73.34	17.18	19.00	82171	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	74.18	17.18	19.00	82126	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	75.00	17.18	19.00	82083	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	75.84	17.18	19.00	82041	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	76.67	17.18	19.00	82001	0.00	0.02	4.2	2.3
10yr1day	Basin 2	BASE	77.51	17.18	19.00	81962	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	78.33	17.18	19.00	81926	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	79.17	17.18	19.00	81889	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	80.00	17.18	19.00	81855	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	80.84	17.18	19.00	81822	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	81.67	17.18	19.00	81790	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	82.50	17.18	19.00	81759	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	83.33	17.18	19.00	81729	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	84.17	17.18	19.00	81700	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	85.01	17.18	19.00	81672	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	85.84	17.18	19.00	81646	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	86.67	17.18	19.00	81619	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	87.50	17.18	19.00	81594	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	88.34	17.18	19.00	81570	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	89.17	17.18	19.00	81547	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	90.01	17.17	19.00	81524	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	90.83	17.17	19.00	81502	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	91.67	17.17	19.00	81480	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	92.50	17.17	19.00	81460	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	93.34	17.17	19.00	81439	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	94.17	17.17	19.00	81420	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	95.01	17.17	19.00	81401	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	95.84	17.17	19.00	81382	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	96.67	17.17	19.00	81365	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	97.51	17.17	19.00	81347	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	98.34	17.17	19.00	81331	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	99.18	17.17	19.00	81314	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	100.00	17.17	19.00	81299	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	100.84	17.17	19.00	81283	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	101.67	17.17	19.00	81268	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	102.51	17.17	19.00	81254	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	103.34	17.17	19.00	81239	0.00	0.01	4.2	2.3

Simulation	Node	Group	Time	Stage	Warning Stage	Surface Area	Total Inflow	Total Outflow	Total Vol In	Total Vol Out
			hrs	ft	ft	ft2	cfs	cfs	af	af
10yr1day	Basin 2	BASE	104.17	17.17	19.00	81226	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	105.00	17.17	19.00	81212	0.00	0.01	4.2	2.3
10yr1day	Basin 2	BASE	105.84	17.17	19.00	81199	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	106.67	17.17	19.00	81187	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	107.51	17.17	19.00	81174	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	108.33	17.17	19.00	81162	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	109.17	17.17	19.00	81150	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	110.00	17.17	19.00	81139	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	110.84	17.17	19.00	81128	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	111.68	17.17	19.00	81117	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	112.50	17.17	19.00	81106	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	113.34	17.17	19.00	81096	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	114.17	17.17	19.00	81086	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	115.01	17.17	19.00	81076	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	115.83	17.17	19.00	81066	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	116.67	17.17	19.00	81057	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	117.50	17.17	19.00	81048	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	118.34	17.17	19.00	81039	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	119.17	17.17	19.00	81030	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	120.01	17.17	19.00	81022	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	120.83	17.17	19.00	81013	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	121.67	17.17	19.00	81005	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	122.51	17.17	19.00	80997	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	123.34	17.17	19.00	80989	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	124.18	17.17	19.00	80982	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	125.01	17.17	19.00	80974	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	125.84	17.17	19.00	80967	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	126.67	17.17	19.00	80960	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	127.51	17.17	19.00	80953	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	128.34	17.17	19.00	80946	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	129.17	17.17	19.00	80940	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	130.00	17.17	19.00	80933	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	130.84	17.17	19.00	80927	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	131.67	17.17	19.00	80920	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	132.51	17.17	19.00	80914	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	133.33	17.17	19.00	80908	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	134.17	17.17	19.00	80902	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	135.00	17.17	19.00	80897	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	135.84	17.17	19.00	80891	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	136.67	17.17	19.00	80886	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	137.50	17.17	19.00	80880	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	138.33	17.17	19.00	80875	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	139.17	17.17	19.00	80870	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	140.01	17.17	19.00	80865	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	140.84	17.17	19.00	80860	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	141.67	17.17	19.00	80855	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	142.50	17.17	19.00	80850	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	143.34	17.17	19.00	80845	0.00	0.00	4.2	2.3
10yr1day	Basin 2	BASE	144.00	17.17	19.00	80842	0.00	0.00	4.2	2.3

Exhibits
(Aerial, Wetland Map, Soil Map, Existing Contour Map)



5.25"

FIGURE C-2. 1-DAY RAINFALL: 3-YEAR RETURN PERIOD

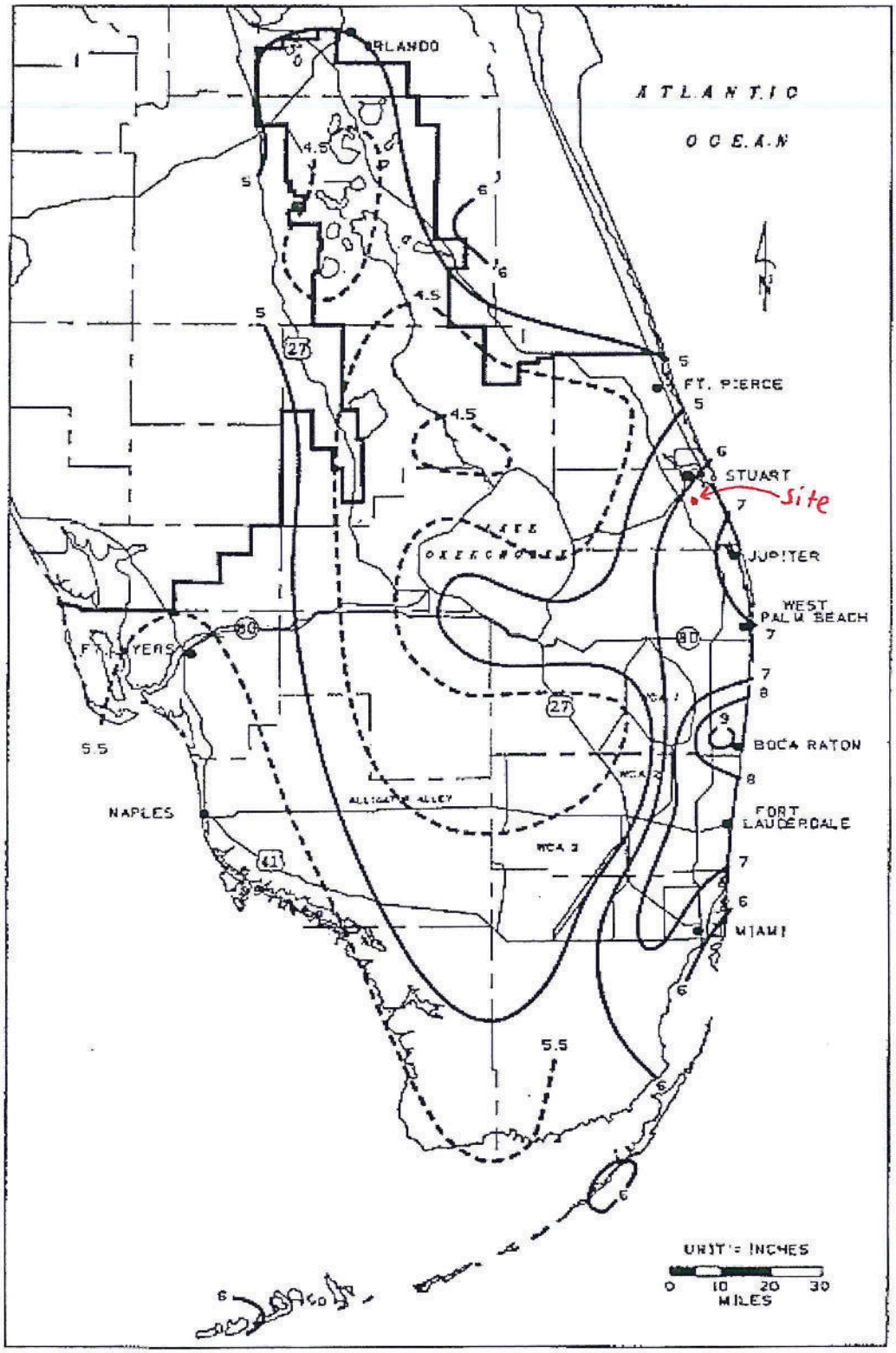


FIGURE C-3. 1-DAY RAINFALL: 5-YEAR RETURN PERIOD

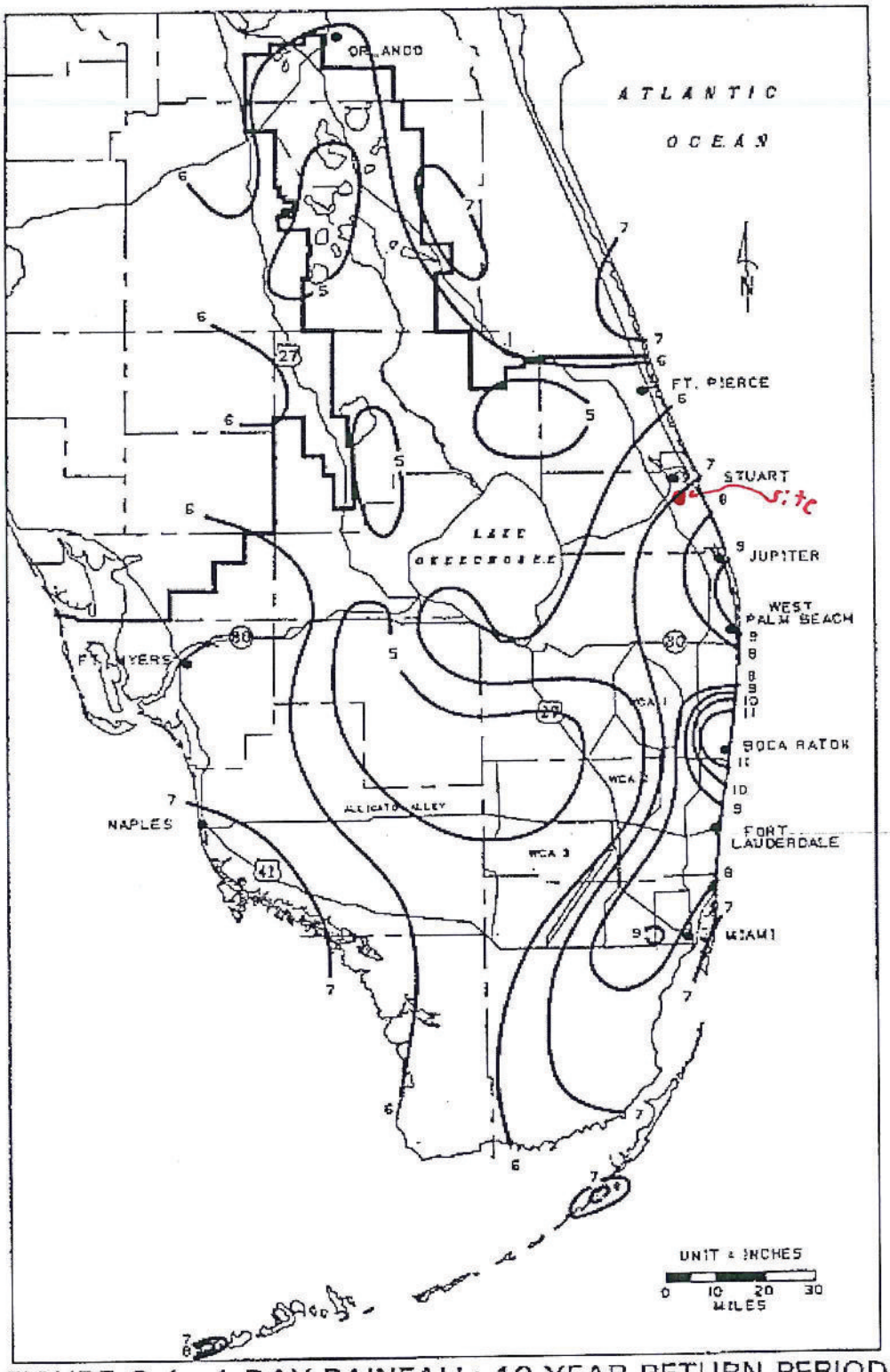


FIGURE C-4. 1-DAY RAINFALL: 10-YEAR RETURN PERIOD

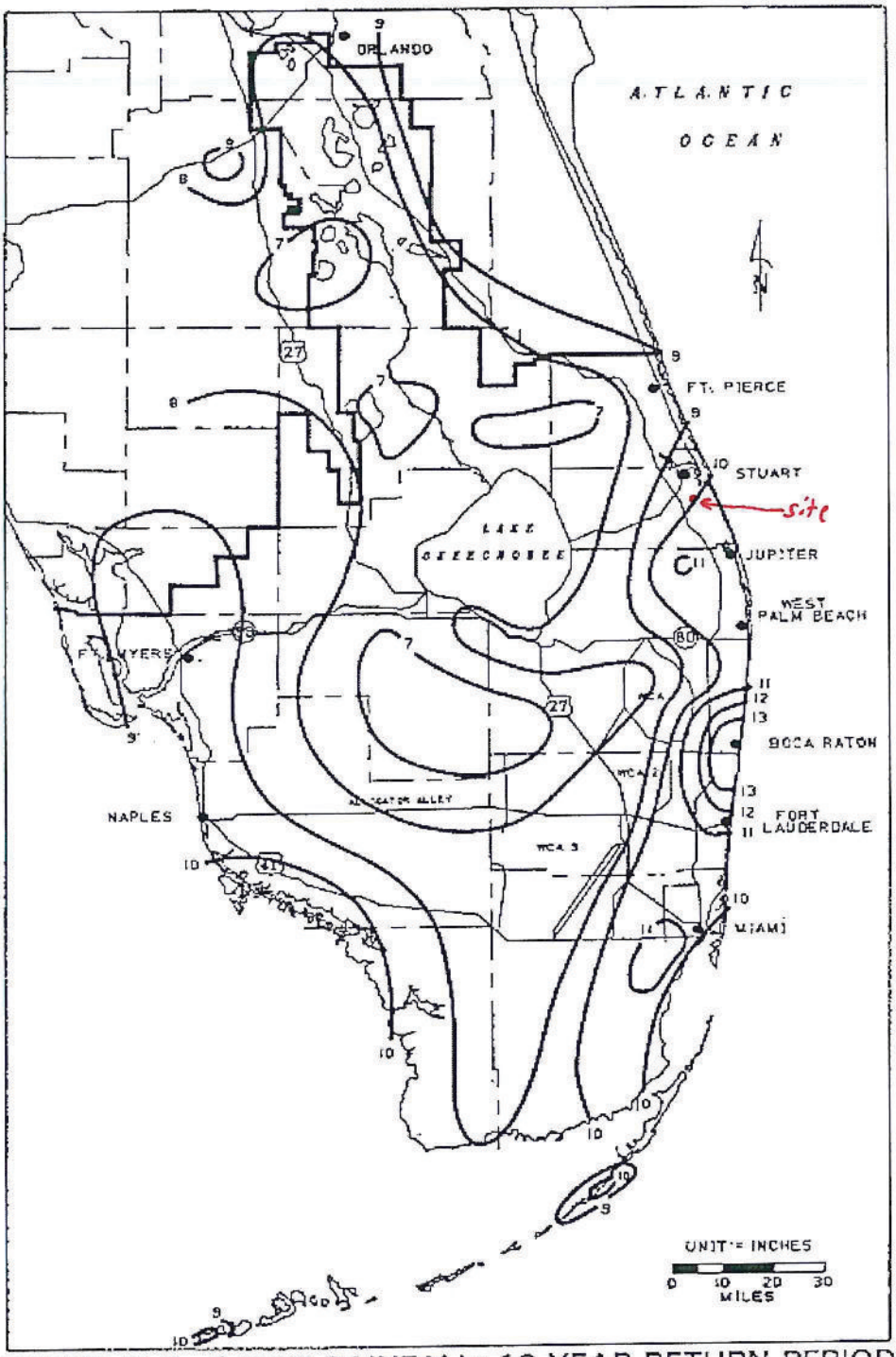


FIGURE C-7. 3-DAY RAINFALL: 10-YEAR RETURN PERIOD

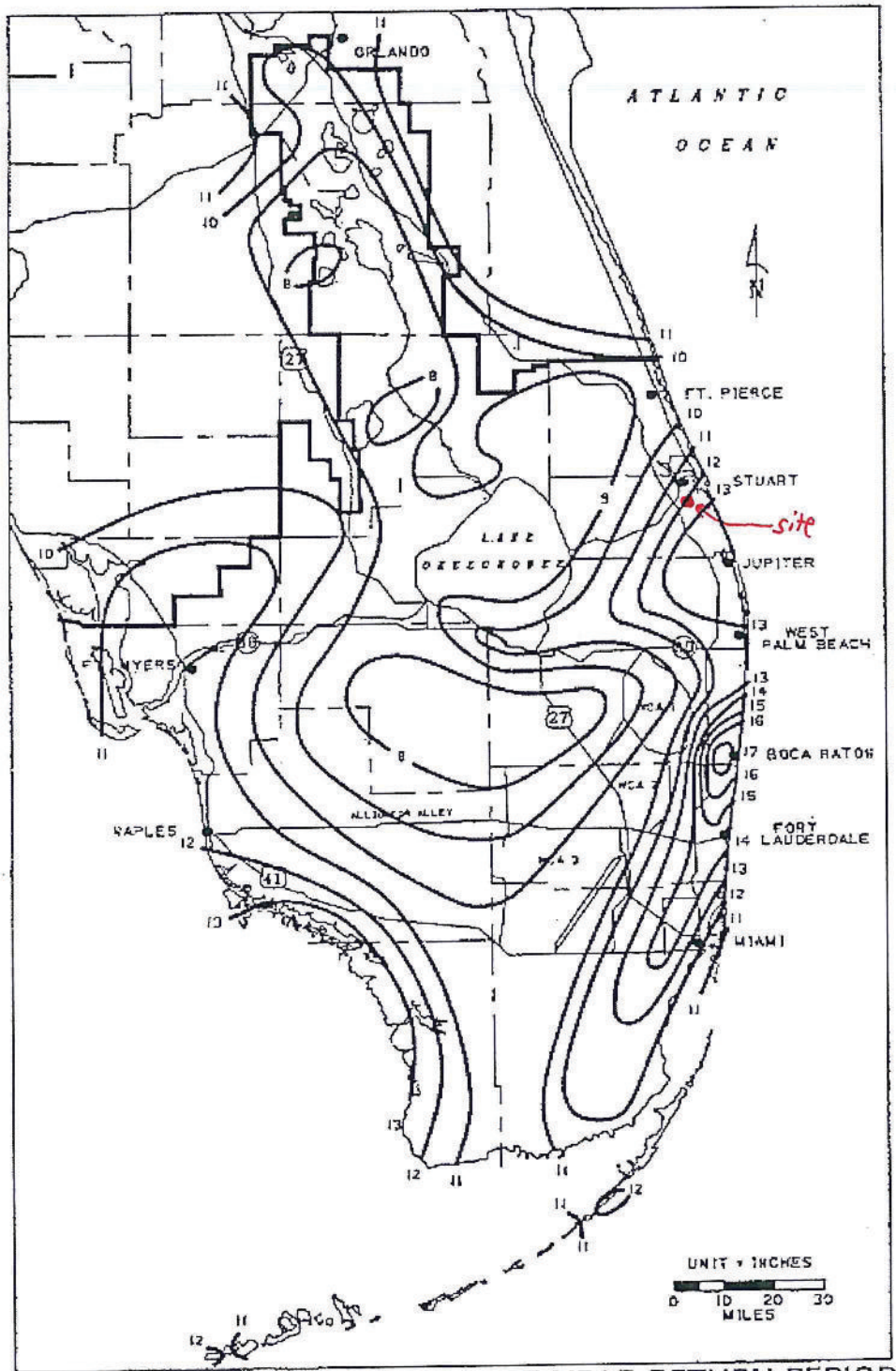


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

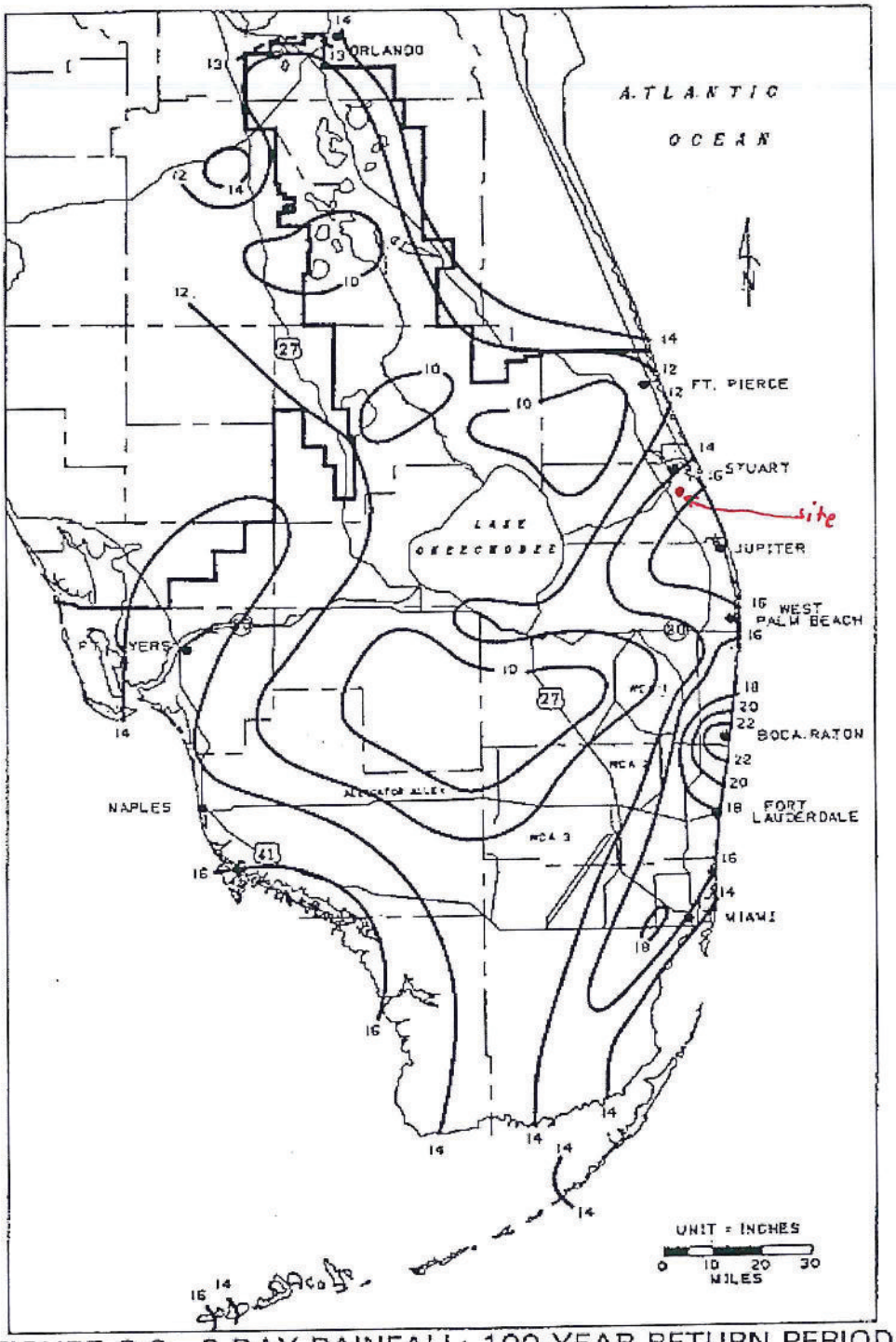


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD

PRE-DEVOLOPMENT

Table 2-2c Runoff curve numbers for other agricultural lands [1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. [2/]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. [3/]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 [4/]	48	65	73
Woods—grass combination (orchard or tree farm). [5/]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. [6/]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 [4/]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

1 Average runoff condition, and $I_a = 0.2S$.

2 *Poor:* <50%) ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: > 75% ground cover and lightly or only occasionally grazed.

3 *Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

4 Actual curve number is less than 30; use CN = 30 for runoff computations.

5 CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

6 *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

POST-DEVELOPMENT

Table 2-2a Runoff curve numbers for urban areas [1/]

Cover description: Cover type and hydrologic condition	Average percent impervious area [2/]	Curve numbers for hydrologic soil group: A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3/]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4/]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5/]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

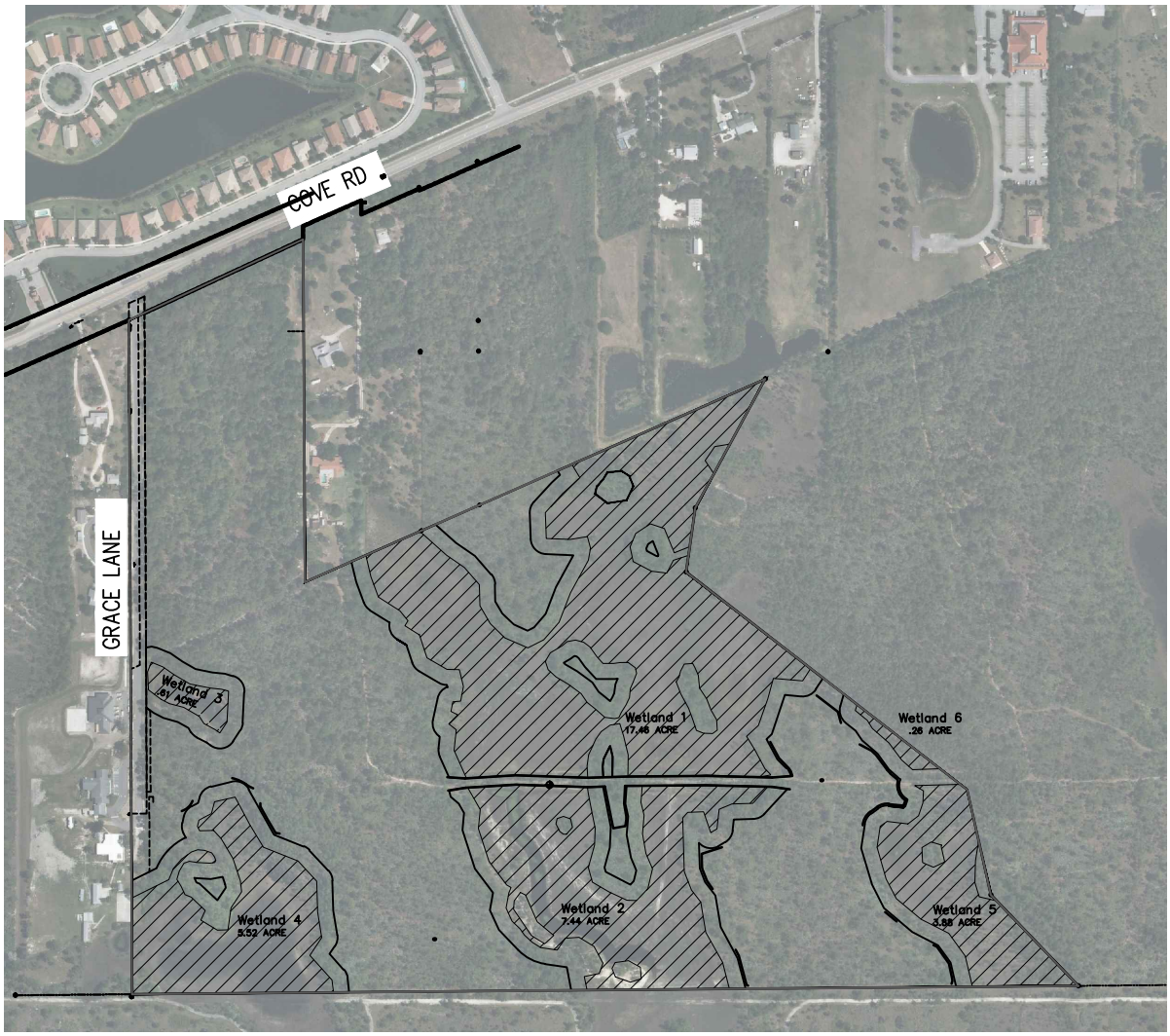
[1] Average runoff condition, and $I_a = 0.2S$.

[2] The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4] Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.



ATLANTIC RIDGE STATE PARK

N

SCALE: 1"=600'

AERIAL IMAGE

DATE:	5/25/18
PROJECT ENGINEER:	ACS
CHECKED BY:	
CHECKED BY:	

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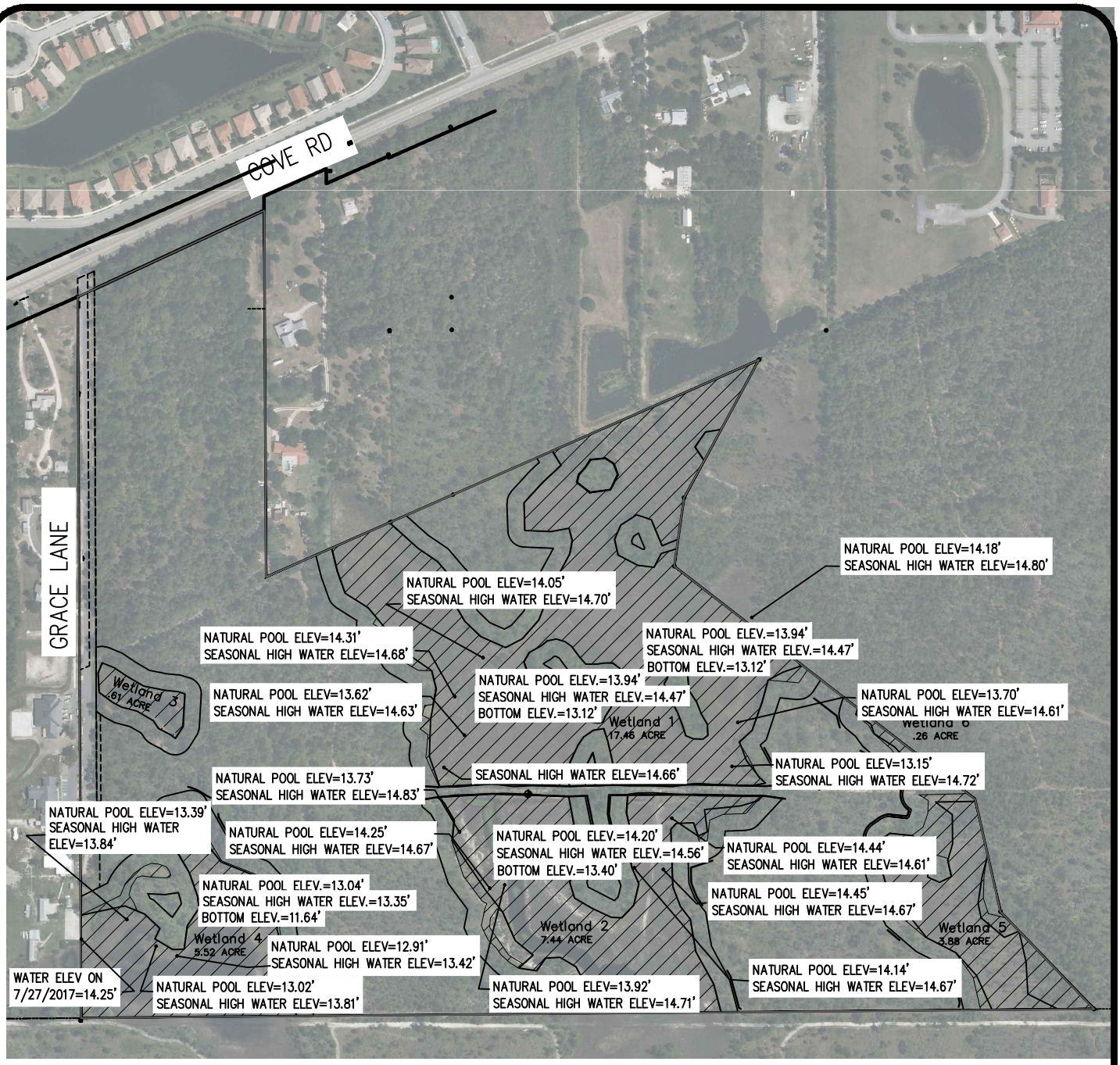
SCALE: SCALE: 1"=600'	SHEET: 1 / 1
DRAWN BY: KMR	
	JOB No. 16042.02



ATLANTIC RIDGE STATE PARK

N

SCALE: 1"=450'

LEGEND:

WETLAND

WETLANDS

DATE:	5/25/18
PROJECT ENGINEER:	ACS
CHECKED BY:	
CHECKED BY:	

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SCALE:	SCALE: 1"=450'
DRAWN BY:	KMR
SHEET:	1 / 1
JOB No.	16042.02

NOTES:

1. ALL ELEVATIONS REFERENCE NAVD 1988.

N

SCALE: 1"=450'

EXISTING CONTOUR MAP

DATE:	8/25/17
PROJECT ENGINEER:	ACS
CHECKED BY:	
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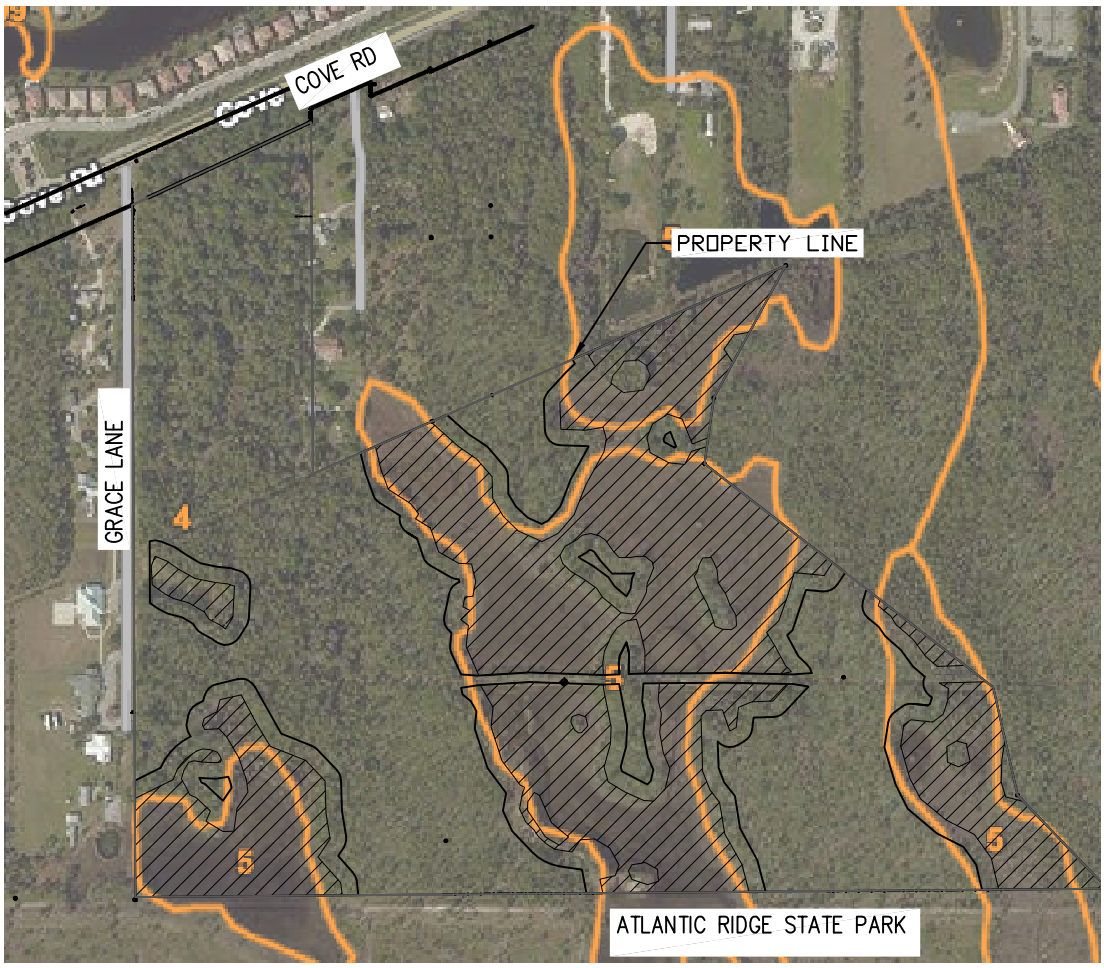
SCALE:	SHEET: 1 / 1
DRAWN BY: KMR	
	JOB No. 16042.02



LEGEND:

2	LAWNWOOD AND MYAKKA FINE SANDS
4	WAVELAND AND IMMOKALEE FINE SANDS
5	WAVELAND AND LAWNWOOD FINE SANDS, DEPRESSIONAL
99	WATER

N

SCALE: 1"=600'

SOIL MAP

DATE:	8/25/17
PROJECT ENGINEER:	ACS
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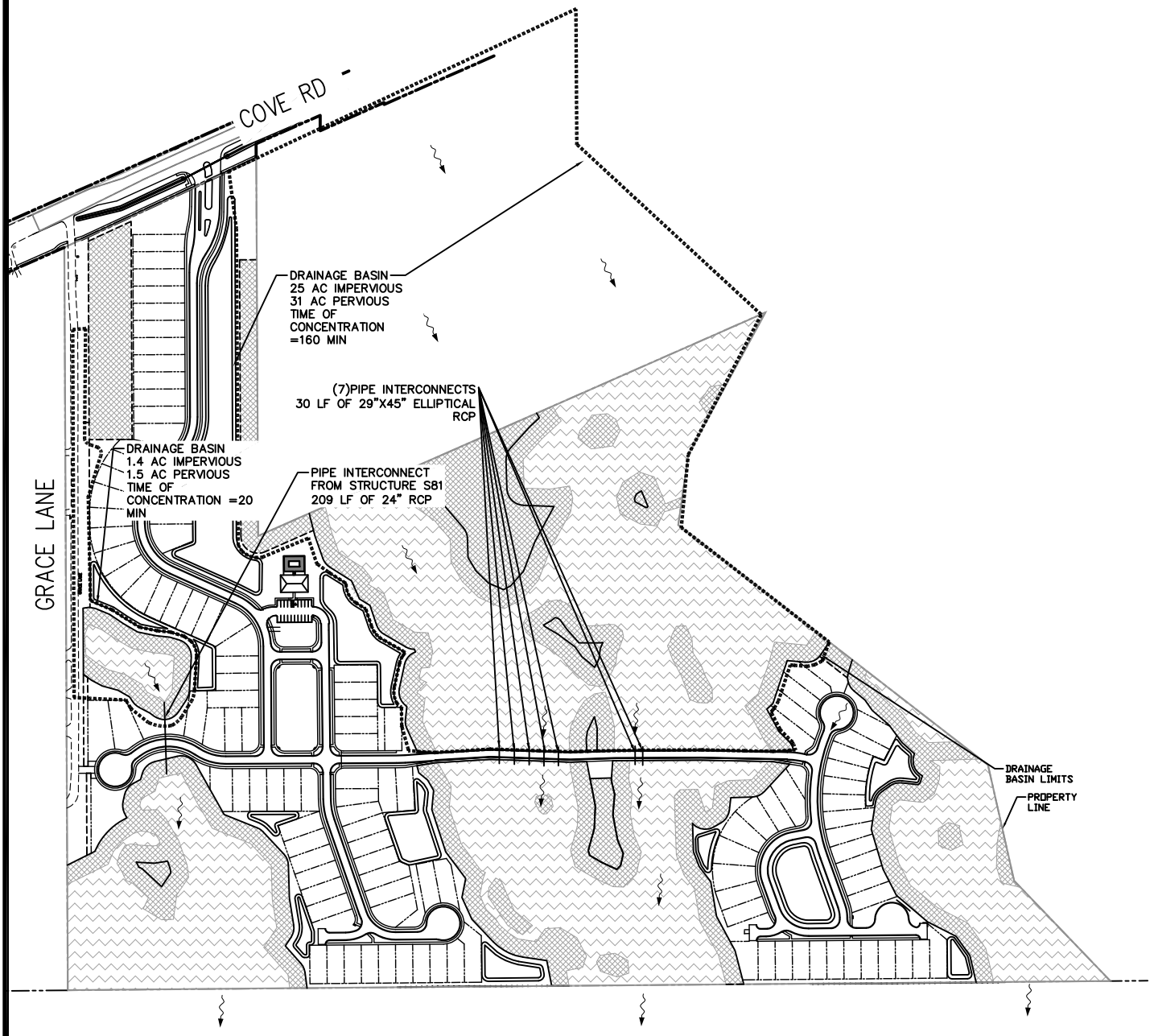
SCALE:	SHEET: 1 / 1
DRAWN BY: KMR	
	JOB No. 16042.02

Pipe Sizing –Wetland Interconnects



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SCALE: 1"=450'

WETLAND INTERCONNECT PIPE SIZING

DATE:	10/25/18
PROJECT ENGINEER:	ACS
CHECKED BY:	
CHECKED BY:	

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SCALE: SCALE: 1"=450'	SHEET: 1 / 1
DRAWN BY: KMR	
	JOB No. 16042.02

State of Florida Department of Transportation

Storm Sewer Tabulation Form

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B.I. No.
Date 6/13/2019 Project No. 16042.02 Road County Martin By ACS Sheet 1 of 2
Last Str # = OUT Tail Water = 14.69 Project No 16042

Notes: Zone 10
Frequency (Yr) = 50
Mannings n= 0.012
Constant n (Y or N) Y

C1= 0.95, C2= 0.00, C3= 0.35

Location of Upper End: Station	Dist	S	Structure No.	Connected to Structure No.	Type of Structure	Type of Line	Length (Ft)	Drainage Area (Acres): Increment	Drainage Area (Acres): Subtotal	Subtotal (CA)	Time of Concentration (min)	Time of flow in section (min)	Intensity	Total (CA)	Total Runoff (CFS)	Inlet Elevation (Feet)	Elev of H.G. / Crown Elev / Flowline Elev: Upper End	Lower End	Fall (In Feet)	Mannings n if not Constant: Diameter	Hydraulic / Physical: Slope (%)	Velocity (FPS)	Capacity (CFS)	Remarks
								1.40	1.40	1.33	20.00						15.37	14.69	0.68	0.000	0.33	4.48	14.06	
								0.00	0.00	0.00														
			S81	out			209	1.50	1.50	0.53	20.00	0.78	7.58	1.86	14.06	0.00				24				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0				
								4.16	4.16	3.95	160.00						14.70	14.69	0.01	0.000	0.03	1.88	13.31	
								0.00	0.00	0.00														
			S83	out			30	5.14	5.14	1.80	160.00	0.20	2.31	5.75	13.31	0.00				36				
								4.16	4.16	3.95	160.00						14.70	14.69	0.01	0.000	0.03	1.88	13.31	
								0.00	0.00	0.00														
			S86	out			30	5.14	5.14	1.80	160.00	0.20	2.31	5.75	13.31	0.00				36				
								4.16	4.16	3.95	160.00						14.70	14.69	0.01	0.000	0.03	1.88	13.31	
								0.00	0.00	0.00														
			S88	out			30	5.14	5.14	1.80	160.00	0.20	2.31	5.75	13.31	0.00				36				
								4.16	4.16	3.95	160.00						14.70	14.69	0.01	0.000	0.03	1.88	13.31	
								0.00	0.00	0.00														
			S97	out			30	5.14	5.14	1.80	160.00	0.20	2.31	5.75	13.31	0.00				36				
								4.16	4.16	3.95	160.00						14.70	14.69	0.01	0.000	0.03	1.88	13.31	
								0.00	0.00	0.00														
			S99	out			30	5.14	5.14	1.80	160.00	0.20	2.31	5.75	13.31	0.00				36				
								4.16	4.16	3.95	160.00						14.70	14.69	0.01	0.000	0.03	1.88	13.31	
								0.00	0.00	0.00														
			S101	out			30	5.14	5.14	1.80	160.00	0.20	2.31	5.75	13.31	0.00				36				
								4.16	4.16	3.95	160.00						14.70	14.69	0.01	0.000	0.03	1.88	13.31	
								0.00	0.00	0.00														
			S101	out			30	5.14	5.14	1.80	160.00	0.20	2.31	5.75	13.31	0.00				36				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0				
								0.00	0.00	0.00	10.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	10.00	0.00	9.36	0.00	0.00	0.00				0				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	10.00	0.00	9.36	0.00	0.00	0.00				0				
								0.00	0.00	0.00	10.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	10.00	0.00	9.36	0.00	0.00	0.00				0				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	10.00	0.00	9.36	0.00	0.00	0.00				0				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	10.00	0.00	9.36	0.00	0.00	0.00				0				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	10.00	0.00	9.36	0.00	0.00	0.00				0				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	10.00	0.00	9.36	0.00	0.00	0.00				0				
								0.00	0.00	0.00	0.00						0.00	0.00	0.00	0.000	0.00	0.00	0.00	
								0.00	0.00	0.00														
								0.00	0.00	0.00	10.00	0.00	9.36	0.00	0.00	0.00				0				

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)		
	INSPECTION SCHEDULE	**CORRECTIVE ACTIONS**
SWALES	Annually and after heavy rains	Remove obstructions, sediments or debris from swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Repair any slumping side slopes
CULVERTS	Annually	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCHBASINS	Annually	Remove sediments and debris from the bottom of the basin and inlets grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually	Sweep pavement to remove sediment
WETPONDS AND DETENTION BASINS	Annually	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Remove exotic vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and repair
		Remove and dispose of sediments and debris within the control structure/ detention areas