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Holland & Knight

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D. Bruce May, Jr.
(850) 425-5607
bruce.may@hklaw.com

September 26, 2018

Via Hand-Delivery

Ms. Carlotta Stauffer
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

COM _____
AFD _____
APA _____
ECO _____
ENG 6 _____
GCL _____
IDM _____
CLK _____

Re: Lighthouse Utilities Company, Inc.'s Petition for Limited Proceeding

Dear Ms. Stauffer:

On behalf of Lighthouse Utilities Company, Inc. ("LUCI"), enclosed for filing are the original and seven (7) copies of LUCI's Petition for Limited Proceeding. Also enclosed is a check in the amount of \$1,000 for the filing fee.

Should you have questions or need additional information concerning this filing, please do not hesitate to contact me. Thank you.

Sincerely,

HOLLAND & KNIGHT LLP

D. Bruce May

D. Bruce May, Jr.

DBM:kjg

Enclosures

cc: Mr. Jay Rish
Office of Public Counsel

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of Lighthouse Utilities
Company, Inc. for a Limited Proceeding to
Increase Water Rates in Gulf County.

Docket No. _____

Filed: September 26, 2018

PETITION FOR LIMITED PROCEEDING

Lighthouse Utilities Company, Inc. (the "Utility"), pursuant to section 367.0822, Florida Statutes and rule 25-30.445, Florida Administrative Code, petitions the Commission for a limited proceeding to increase its water rates to cover the cost of a capital project to bring the Utility's aged water system into compliance with Florida Department of Environmental ("FDEP") water quality standards and requirements, and to harden the Utility's system which is located along coastal areas in Gulf County, Florida and vulnerable to storm damage (the "System Improvement Project"). The Utility has access to favorable financing through Florida's Drinking Water State Revolving Fund low-cost loan program; however, that favorable financing is contingent upon the Utility's rates being set at a level which will enable it to sufficiently service the debt. Therefore, the purpose of this limited proceeding is to recover, through rates, the costs incurred in financing the Utility's investment in the System Improvement Project.

PRELIMINARY MATTERS

1. The following information is provided pursuant to rule 25-30.445, Florida Administrative Code:

- a. The name of the Utility and its principal place of business are:

Lighthouse Utilities Company, Inc.
406 Marina Drive
Port St. Joe, Florida 32456

- b. The name and address of the Utility's representatives to receive notices and pleadings in this docket are:

D. Bruce May, Jr.
bruce.may@hklaw.com
Tiffany A. Roddenberry
tiffany.rodtenberry@hklaw.com
Holland & Knight LLP
315 South Calhoun Street, Suite 600
Tallahassee, Florida 32301

with a copy to:

Mr. William J. Rish, Jr.
President
Lighthouse Utilities Company, Inc.
P.O. Box 428
Port St. Joe, Florida 32457

2. The Utility is a for-profit corporation organized and incorporated under the laws in Florida on July 31, 1984. The names and addresses of all persons who own 5% or more of the Utility's stock are provided in Exhibit "A".

3. The Utility is a Class B water utility and provides water service to approximately 1,361 customers in Gulf County pursuant to Certificate No. 491-W. Rates were last established for the Utility on September 26, 2011. See Order No. PSC-11-00415-CO-WU, issued September 26, 2011.

4. A copy of the Utility's complete Petition for Limited Proceeding is currently available for customer inspection at 406 Marina Drive, Port St. Joe, Florida 32456.

5. An affidavit signed by the Utility's president confirming the Utility will comply with the notice requirements in Rule 25-30.466, Florida Administrative Code, is attached as Exhibit "B".

6. The appropriate filing fee of \$1,000 is filed herewith.

JURISDICTION

7. The Commission has jurisdiction over this matter pursuant to Chapters 120 and 367, Florida Statutes. In particular, section 367.0822(1), Florida Statutes, provides in pertinent part that:

Upon petition or by its own motion, the commission may conduct limited proceedings to consider, and act upon, any matter within its jurisdiction, including any matter the resolution of which requires a utility to adjust its rates.

REASONS WHY THE LIMITED PROCEEDING IS NEEDED

8. The Utility's water system has been found by FDEP to be in violation of certain maximum contaminant levels ("MCLs") established by rule 62-550.310(3), Florida Administrative Code. To resolve the violation, the Utility entered into a consent order with FDEP on July 9, 2018, which requires the Utility to construct modifications to its water system to resolve the violations ("Consent Order"). The Utility also received a formal compliance warning letter from FDEP in September of 2016 recommending remedial action by the Utility to correct seventeen (17) areas of concern ("FDEP Warning Letter")¹. Pursuant to rule 25-30.445(4)(b), Florida Administrative Code, copies of the FDEP Consent Order and the FDEP Warning Letter are attached as Composite Exhibit C.

9. In addition to the construction modifications to the Utility's water system required by FDEP, the Utility's water system is located in coastal areas either immediately adjacent, or in close proximity, to the Gulf of Mexico or St. Joe Bay, and thus is vulnerable to storm surge and other weather related storm damage.

¹ FDEP concerns "number 2" (chlorine residual), "number 8" (improper case vent at well #2), "number 12" (maximum day finish water exceedance), "number 15" (inadequate finished water storage capacity), and "number 17" (inadequate stand-by power for high service pumps/or chlorinators) are to be resolved as part of the System Improvement Project.

10. The Utility has engaged the firm of Dewberry Engineers, Inc. to develop an overall plan for the System Improvement Project that would (i) bring the Utility's water system into compliance with water quality standards as required by the Consent Order and the FDEP Warning Letter, and (ii) mitigate the risks of storm damage, meet demand, and ensure the continued safe and reliable supply a potable water to the customers in south Gulf County. A narrative description of the System Improvement Project is attached as Exhibit " D ".

11. The Utility's engineers have prepared (i) a cost estimate for design and construction of the Project, and (ii) a schedule of anticipated construction expenditures. A copy of this estimate and schedule is attached as Composite Exhibit "E".² The estimated total cost of the Project is \$7,428,314.

12. The Utility intends to finance the Project entirely through debt. The Utility currently obtains financing from private shareholders at the rate of eight percent (8%), which rate has been used for purposes of this filing to represent the expected cost of borrowings available to the Utility from commercial sources. Assuming borrowings from these sources, the Utility's rate consultant has calculated the total additional revenue requirement associated with the Project at \$ 1,774,187. Compared to 2017 metered sales revenues of \$ 748,427, this translates into a required rate increase of \$ 887,094 , which is a 119 % increase over current rates. Exhibits supporting these calculations are attached to this Petition as described in Paragraph 19.

THE STATE REVOLVING FUND LOW-COST LOAN PROGRAM

13. In an effort to substantially reduce the impact of the System Improvement Project on rates, the Utility is in the process of pursuing funding from Florida's Drinking Water State

²The estimate in Exhibit "E" does not include the planning phase costs discussed below.

Revolving Fund ("SRF") low cost loan program. This program is administered by the FDEP and provides low cost loans to community water systems for expansion or upgrades to existing facilities. In order to be eligible for construction funds, SRF requires that an applicant first complete a planning study (which is reviewed and approved by SRF) and provide a completed design with all associated permits. Under the SRF program, loans are provided to qualified applicants for three separate phases of a project: the planning phase, the design & permitting phase, and the construction phase.

14. The Utility has already applied for and received an SRF loan in the amount of \$72,000 for planning of the System Improvement Project.³ The Utility's payments on the planning loan begin in February of 2019. In May of 2018 the Utility received notification from SRF that it has also been approved for a loan in the amount of \$498,786 to cover design and permitting contingent on the Utility having sufficient rates in effect to cover the payback of the loan. The design and permitting loan agreement with SRF is the process of being drafted and executed. The Utility expects to begin payments on the design and permitting loan in or around May of 2019.

15. The Utility plans to apply to SRF for a construction phase loan in February, 2019 to fund of the remaining estimated construction cost of \$6,857,528. The Utility will be required to begin payments on the construction loan within 6 months after construction is completed. The SRF construction loan, like the planning and design & permitting loans, is contingent on the Utility having sufficient rates in effect to cover the payback of the loan.

³ The Utility's Loan Agreement No. DW230300, as amended, (including the Water System Improvements Facilities Plan) is attached as Composite Exhibit "F". The Utility initially received an SRF "planning" loan in the amount of \$240,000 . However the planning was completed for \$72,000, thus loan amount has been adjusted to \$72,000.

16. Loans from the SRF currently bear interest at the rate of 1.664%. Compared to the private shareholder loan rate of 8%, this translates to over \$ 470,658 in first-year interest savings that would flow directly to ratepayers. However, as explained, that favorable financing is contingent upon the Utility's rates being set at a level which will enable it to sufficiently service the debt. The purpose of this limited proceeding is to recover, through rates, the costs incurred in financing the Utility's investment in the System Improvement Plan.

17. At this time the final capital cost of the System Improvement Project are unknown. The Utility nevertheless requires immediate assurance of rate relief, before these uncertainties are completely resolved, in order to obtain the favorable SRF financing required to proceed with design, permitting and construction in a timely manner.

PHASED RATE RELIEF REQUESTED

18. To protect both the Utility and its ratepayers from the effect of these uncertainties, the Utility proposes a two phase implementation of the requested rate increase, with the first phase subject to true-up, as follows:

(a) Phase I rates would become effective May of 2019 , and would be designed to recover the revenue requirement associated with actual planning expenditures of \$72,000, and projected design and permitting expenditures of \$498,786. For Phase I, the total expenditures for planning, design and permitting are estimated by the Utility's engineers to be \$570,786, and the projected cost of debt is 1.664%.

(b) Phase II rates would become effective six months after the completion of construction of the Project in , and would be designed to recover the projected revenue requirement associated with the anticipated construction through the completion. For Phase II, the total construction expenditures and additional operating costs for the System Improvement Project are estimated by the Utility's engineers to be \$6,857,538.

(c) To the extent that the additional revenues produced by the Phase I rates either over- or under- recover the actual additional revenue requirement associated with the Project during those time periods, the Phase II rates would be subject, for the first twelve months they are in effect, to a credit or surcharge in the amount necessary to effect a true-up.

19. The following additional exhibits are submitted in support of the Utility's rate request:

- (a) Composite Exhibit "G" consists of Comparative Rate Schedules showing existing rates, requested Phase I rates, and projected Phase II rates.
- (b) Composite Exhibit "H" consists of a number of schedules:
 - (i) Schedule 1 calculates the Phase I revenue requirement using the proposed methodology, calculates the proposed rate increase factor for Phase I, and shows present and proposed Phase I rates and revenues based on actual 2017 billing factors.
 - (ii) Schedule 2 presents actual billing factors and revenues for 2017.
 - (iii) Schedule 3 consists of supporting documentation for the projected interest rate, depreciations rates, limited proceeding expense, and personal property taxes.
- (c) Exhibit "I" presents selected historical financial information for the Utility for 2017.
- (d) Composite Exhibit "J" is a schedule showing that without the increased rates, the Utility will earn below its authorized rate of return if it proceeds with the System Improvement Project.

- (e) Exhibit "K" is a late filed exhibit which will provide copies of all customer complaints that the Utility has received regarding FDEP secondary water quality standards during the past 5 years.
- (f) Exhibit "L" is a late filed exhibit which will provide copies of the Utility's most recent secondary water quality standards test results.

20. The Utility urges the Commission to enter a final order that grants the requested Phase I rate increase in the annualized amount of \$40,702; that grants final approval to the methodology to be used to calculate the Phase II rates (which are expected to increase in the annualized amount of \$451,344), including the mechanism to true-up over- or under- recovery in Phase I; that specifies the effective dates of the Phase I rate increase; and that delegates to the Commission staff the authority to approve tariff sheets that contain Phase II rates calculated in accordance with the approved methodology. This degree of certainty regarding the amount and timing of future rate increases is essential in order to enable the Utility to obtain the favorable SRF financing required for the System Improvement Project.

WHEREFORE, the Utility respectfully requests that the Commission:

- (1) initiate a limited proceeding to address the recovery of the cost of the System Improvement Project;
- (2) grant a Phase I rate increase effective May of 2019 in the annual amount of \$40,702;
- (3) approve the Utility's proposed methodology for calculating a Phase II rate increase effective six months after construction of the Project is complete (which is expected to result in a rate increase in the annual amount of \$451,344) , including a true-up, if required, during the first 12 months the Phase II rates are in effect; and,

- (4) delegate to the Commission staff the authority to approve tariff sheets for Phase II which contain rates calculated in accordance with the approved methodology.

Respectfully submitted this 26th day of September, 2018.

HOLLAND & KNIGHT LLP



D. BRUCE MAY, JR.

Florida Bar No. 354473

Email: bruce.may@hklaw.com

TIFFANY A. RODDENBERRY

Florida Bar No. 092524

Email: tiffany.roddenberry@hklaw.com

HOLLAND & KNIGHT LLP

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Tallahassee, Florida 32301

Telephone: (850) 224-7000

Facsimile: (850) 224-8832

Secondary Email: jennifer.gillis@hklaw.com

Attorneys for Lighthouse Utilities Company, Inc.

EXHIBIT A

Lighthouse Utilities Company, Inc.

Exhibit A

Owners with 5% or more

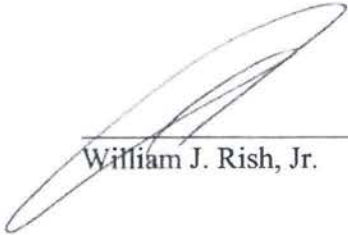
<u>Name</u>	<u>Percentage</u>
Catherine Womac	25.14859
William J Rish Jr and Jessica Rish, tenants by entireties	19.51508
Margaret Ann Flowers	9.47006
Amanda T Flowers	8.76901
Langdon S Flowers III	8.64538
Carol T Rish	5.9927

EXHIBIT B

AFFIDAVIT

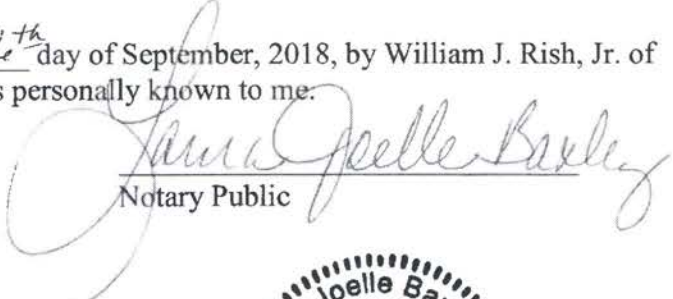
STATE OF FLORIDA)
)ss.
COUNTY OF GULF)

BEFORE ME, the undersigned authority, personally appeared William J. Rish, Jr., who is the President of Lighthouse Utilities Company, Inc., and who states that Lighthouse Utilities Company, Inc. will comply with the noticing requirements of Rule 25-30.446, Florida Administrative Code.



William J. Rish, Jr.

Sworn to and subscribed before me this 26th day of September, 2018, by William J. Rish, Jr. of Lighthouse Utilities Company, Inc., who is personally known to me.



Notary Public



COMPOSITE
EXHIBIT C



Florida Department of Environmental Protection

Northwest District
160 West Government Street, Suite 308
Pensacola, Florida 32502-5740

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

July 9, 2018

BY ELECTRONIC MAIL

Mr. William J. Rish, Jr., President
Lighthouse Utilities Co., Inc.
406 Marina Drive
Port St. Joe, Florida 32456
(jay@floridagulfcoast.com)

Subject: Executed Consent Order; DEP vs. Lighthouse Utilities Co., Inc.
PWS ID No. 1230848
OGC File No. 18-1047; Gulf County

Dear Mr. Rish:

Enclosed is a copy of the executed Consent Order (OGC File No. 18-1047) concerning Lighthouse Utilities Co., Inc.

Please note the requirements in the Consent Order for which you are responsible and fulfill all pertinent actions accordingly. Unless otherwise noted, all deadlines for completing requirements and actions in the Consent Order are to be calculated from its effective date, which is the date the Consent Order was filed with the Department Clerk, as noted on the signature page.

If you have any questions, please contact John Pope at 850/595-0633, or john.pope@dep.state.fl.us.

Sincerely,

A handwritten signature in cursive script that reads "Emile D. Hamilton".

Emile D. Hamilton
Director

EDH/jp
Enclosure

c: Philip Jones, P.E., Dewberry Engineering (pajones@dewberry.com)

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OF FLORIDA DEPARTMENT)	IN THE OFFICE OF THE
OF ENVIRONMENTAL PROTECTION)	NORTHWEST DISTRICT
)	
v.)	OGC FILE NO. 18-1047
)	
LIGHTHOUSE UTILITIES COMPANY.)	
_____)	

CONSENT ORDER

This Consent Order (Order) is entered into between the State of Florida Department of Environmental Protection (Department) and Lighthouse Utilities Company (Respondent) to reach settlement of certain matters at issue between the Department and Respondent.

The Department finds and Respondent admits the following:

1. The Department is the administrative agency of the State of Florida having the power and duty to protect Florida's water resources and to administer and enforce the provisions of the Florida Safe Drinking Water Act, Sections 403.850, et seq., Florida Statutes (Fla. Stat.), and the rules promulgated and authorized in Title 62, Florida Administrative Code (Fla. Admin. Code). The Department has jurisdiction over the matters addressed in this Order.
2. Respondent is a person within the meaning of Section 403.852(5), Fla. Stat.
3. Respondent, Lighthouse Utilities Company, is a Florida profit corporation with its principal place of business located at 406 Marina Drive, Port St. Joe, Florida 32456.
4. Respondent is the owner and operator of a community water system, PWS Number 1230848, located at 406 Marina Drive, Port St. Joe, 32456, in Gulf County, Florida (System).
5. The Department finds that Respondent is in violation of Rule 62-550.310(3), Fla. Admin. Code, which establishes the maximum contaminant level (MCL) for total trihalomethanes (TTHMs) as 0.080 milligrams per liter (mg/L) and the five haloacetic acids (HAA5s) as 0.060 mg/L. The respondent conducted 3 quarterly sampling events for Stage 2 Disinfection Byproducts (DBP's) at Barrier Dunes Unit #2 and 7182 SR- 30E between August 2017 and February 2018. The Locational Running Annual Average (LRAA), which is the average of the previous four quarters of results, for both TTHMs and

HAA5s were analyzed for each monitoring location and resulted in six exceedance violations, as shown in Table 1 below:

Table 1- TTHM and HAA5 Exceedances

>MCL Total # Required	<75% MCL Schedule & Frequency	<50% MCL PWS ID	System Name	Location Site #	Location Site	Contaminant		2017		2018
								3RD	4TH	1ST
1	4 Q	1230848	Lighthouse Utilities Company, Inc.	L1	Barrier Dunes Unit #2	HAA5s	Date Result LRAA	8/30/17 64.5 53.4	11/28/17 46.8 55.9	2/27/18 72.1 62.4
1	4 Q	1230848	Lighthouse Utilities Company, Inc.	L1	Barrier Dunes Unit #2	TTHMs	Date Result LRAA	8/30/17 205 117.3	11/28/17 66.4 113.3	2/27/18 103 114.4
2	4 Q	1230848	Lighthouse Utilities Company, Inc.	L3	7182 SR- 30E	HAA5s	Date Result LRAA	8/30/17 25 29	11/28/17 43.3 31.6	2/27/18 36.1 33.9
2	4 Q	1230848	Lighthouse Utilities Company, Inc.	L3	7182 SR- 30E	TTHMs	Date Result LRAA	8/30/17 112 74	11/28/17 114 85.3	2/27/18 79.5 90

* MCL exceedances resulting in violations of Rule 62-550.310(3), Fla. Admin. Code are outlined in red.

Having reached a resolution of the matter Respondent and the Department mutually agree and it is

ORDERED:

6. Respondent shall comply with the following corrective actions within the stated time periods:

a) Since March 2017, Respondent has vacuumed and cleaned the booster ground storage tank, as well as repaired its defective altitude valve to ensure more frequent water turnover. The ground storage tank and aerator at Well 2 have been cleaned and the system continues to be flushed regularly. Respondent has sought assistance from the Florida Rural Water Association (FRWA) and retained the services of a Florida-licensed professional engineer to evaluate the System.

b) On or before January 31, 2019, Respondent shall submit an application, along with any required application processing fees, to the Department for a permit to construct any modifications needed to address the MCL violation(s).

c) If the Department requires additional information, modifications, or specifications to process the permit application described in subparagraph (6)(b) above, the Department will issue a written request for additional information (RAI) to Respondent. Respondent shall submit the requested information in writing to the Department within 30 days of receipt of the request. Respondent shall provide all information requested in any additional RAIs issued by the Department within 30 days of receipt of each request. Within 90 days of the Department's receipt of the application described in subparagraph (6)(b) above, Respondent shall provide all information necessary to complete the application.

d) No later than July 31, 2021, Respondent shall complete the permitted modifications and submit a Certification of Completion, prepared and sealed by a professional engineer registered in the State of Florida, along with all supporting documentation. Respondent shall not place the System modifications into service until Respondent receives written Department clearance.

e) If the approved modifications are determined by the Department to be inadequate to resolve the MCL violation(s), the Department will notify the Respondent in writing. Within 30 days of receipt of such written notification from the Department, Respondent shall submit an alternate proposal to address the MCL violation(s). Respondent shall provide all information requested in any RAIs issued by the Department within 15 days of receipt of each request. Within 60 days of the date the Department receives the proposal required by this subparagraph, Respondent shall provide all information necessary to complete the application for modification.

f) Respondent shall continue to sample quarterly for TTHMs and HAA5s in accordance with Rule 62-550.514(2), Fla. Admin. Code, until the LRAA at each monitoring location is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5s, respectively, or until the LRAAs for four consecutive quarters remains below 0.080 mg/L and 0.060 mg/L, respectively, for four consecutive quarters, at which time Respondent shall return to its regular required monitoring in accordance with Chapter 62-550, Fla. Admin. Code. Respondent shall submit all sampling results to the Department within 10 days following the month in which the samples were taken or within 10 days following Respondent's receipt of the results, whichever is sooner.

g) Respondent shall continue to issue public notices regarding the MCL violation(s) described above every 90 days, as required by Rule 62-560.410(1), Fla. Admin. Code, until the Department determines that the System is in compliance with all MCLs. Respondent shall submit

certification of delivery of public notices, using DEP Form 62-555.900(22), Fla. Admin. Code to the Department within 10 days of issuing each public notice.

7. Within 30 days of the effective date of this Order, Respondent shall submit a written estimate of the total cost of the corrective actions required by this Order to the Department. The written estimate shall identify the information the Respondent relied upon to provide the estimate.

8. Within 30 days of the effective date of this Order, Respondent shall pay the Department \$500.00 for costs and expenses incurred by the Department during the investigation of this matter and the preparation and tracking of this Consent Order.

9. Respondent shall make all payments required by this Order by cashier's check, money order or on-line payment. Cashier's check or money order shall be made payable to the "Department of Environmental Protection" and shall include both the OGC number assigned to this Order and the notation "Water Quality Assurance Trust Fund." Online payments by e-check can be made by going to the DEP Business Portal at: <http://www.fldepportal.com/go/pay/>. It will take a number of days after this order becomes final and effective filed with the Clerk of the Department before ability to make online payment is available.

10. Except as otherwise provided, all submittals and payments required by this Order shall be sent to: Department of Environmental Protection, Northwest District Office, 160 West Government Street, Suite 308, Pensacola, Florida 32502-5794.

11. Respondent shall allow all authorized representatives of the Department access to the Facility and the Property at reasonable times for the purpose of determining compliance with the terms of this Order and the rules and statutes administered by the Department.

12. In the event of a sale or conveyance of the Facility or of the Property upon which the Facility is located, if all of the requirements of this Order have not been fully satisfied, Respondent shall, at least 30 days prior to the sale or conveyance of the Facility or Property, (a) notify the Department of such sale or conveyance, (b) provide the name and address of the purchaser, operator, or person(s) in control of the Facility, and (c) provide a copy of this Order with all attachments to the purchaser, operator, or person(s) in control of the Facility. The sale or conveyance of the Facility or the Property does not relieve Respondent of the obligations imposed in this Order.

13. If any event, including administrative or judicial challenges by third parties unrelated to Respondent, occurs which causes delay or the reasonable likelihood of delay in complying with the

requirements of this Order, Respondent shall have the burden of proving the delay was or will be caused by circumstances beyond the reasonable control of Respondent and could not have been or cannot be overcome by Respondent's due diligence. Neither economic circumstances nor the failure of a contractor, subcontractor, materialman, or other agent (collectively referred to as "contractor") to whom responsibility for performance is delegated to meet contractually imposed deadlines shall be considered circumstances beyond the control of Respondent (unless the cause of the contractor's late performance was also beyond the contractor's control). Upon occurrence of an event causing delay, or upon becoming aware of a potential for delay, Respondent shall notify the Department by the next working day and shall, within seven calendar days notify the Department in writing of (a) the anticipated length and cause of the delay, (b) the measures taken or to be taken to prevent or minimize the delay, and (c) the timetable by which Respondent intends to implement these measures. If the parties can agree that the delay or anticipated delay has been or will be caused by circumstances beyond the reasonable control of Respondent, the time for performance hereunder shall be extended. The agreement to extend compliance must identify the provision or provisions extended, the new compliance date or dates, and the additional measures Respondent must take to avoid or minimize the delay, if any. Failure of Respondent to comply with the notice requirements of this paragraph in a timely manner constitutes a waiver of Respondent's right to request an extension of time for compliance for those circumstances.

14. The Department, for and in consideration of the complete and timely performance by Respondent of all the obligations agreed to in this Order, hereby conditionally waives its right to seek judicial imposition of damages or civil penalties for the violations described above up to the date of the filing of this Order. This waiver is conditioned upon Respondent's complete compliance with all of the terms of this Order.

15. This Order is a settlement of the Department's civil and administrative authority arising under Florida law to resolve the matters addressed herein. This Order is not a settlement of any criminal liabilities which may arise under Florida law, nor is it a settlement of any violation which may be prosecuted criminally or civilly under federal law. Entry of this Order does not relieve Respondent of the need to comply with applicable federal, state, or local laws, rules, or ordinances.

16. The Department hereby expressly reserves the right to initiate appropriate legal action to address any violations of statutes or rules administered by the Department that are not specifically resolved by this Order.

17. Respondent is fully aware that a violation of the terms of this Order may subject Respondent to judicial imposition of damages, civil penalties up to \$5,000.00 per day per violation, and criminal penalties.

18. Respondent acknowledges and waives its right to an administrative hearing pursuant to sections 120.569 and 120.57, Fla. Stat., on the terms of this Order. Respondent also acknowledges and waives its right to appeal the terms of this Order pursuant to section 120.68, Fla. Stat.

19. Electronic signatures or other versions of the parties' signatures, such as .pdf or facsimile, shall be valid and have the same force and effect as originals. No modifications of the terms of this Order will be effective until reduced to writing, executed by both Respondent and the Department, and filed with the clerk of the Department.

20. The terms and conditions set forth in this Order may be enforced in a court of competent jurisdiction pursuant to sections 120.69 and 403.121, Fla. Stat. Failure to comply with the terms of this Order constitutes a violation of section 403.161(1)(b), Fla. Stat.

21. This Consent Order is a final order of the Department pursuant to section 120.52(7), Fla. Stat., and it is final and effective on the date filed with the Clerk of the Department unless a Petition for Administrative Hearing is filed in accordance with Chapter 120, Fla. Stat. Upon the timely filing of a petition, this Consent Order will not be effective until further order of the Department.

22. Respondent shall publish the following notice in a newspaper of daily circulation in Gulf County, Florida. The notice shall be published one time only within 15 days of the effective date of the Order. Respondent shall provide a certified copy of the published notice to the Department within 10 days of publication.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF CONSENT ORDER

The Department of Environmental Protection ("Department") gives notice of agency action of entering into a Consent Order with Lighthouse Utilities Company, pursuant to section 120.57(4), Florida Statutes. The Consent Order addresses the exceedances of trihalomethanes and the five haloacetic acids at 406 Marina Drive, Port St. Joe, in Gulf County, Florida. The Consent Order is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, Northwest District Office, 160 West

Government Street, Suite 308, Pensacola, Florida 32502-5794, or the Northwest District Panama City Branch Office, 470 Harrison Avenue, Panama City, Florida 32405.

Persons who are not parties to this Consent Order, but whose substantial interests are affected by it, have a right to petition for an administrative hearing under sections 120.569 and 120.57, Florida Statutes. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition concerning this Consent Order means that the Department's final action may be different from the position it has taken in the Consent Order.

The petition for administrative hearing must contain all of the following information:

- a) The OGC Number assigned to this Consent Order;
- b) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding;
- c) An explanation of how the petitioner's substantial interests will be affected by the Consent Order;
- d) A statement of when and how the petitioner received notice of the Consent Order;
- e) Either a statement of all material facts disputed by the petitioner or a statement that the petitioner does not dispute any material facts;
- f) A statement of the specific facts the petitioner contends warrant reversal or modification of the Consent Order;
- g) A statement of the rules or statutes the petitioner contends require reversal or modification of the Consent Order; and
- h) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Consent Order.

The petition must be filed (received) at the Department's Office of General Counsel, 3900 Commonwealth Boulevard, MS# 35, Tallahassee, Florida 32399-3000 within 21 days of receipt of this notice. A copy of the petition must also be mailed at the time of filing to the Florida Department of Environmental Protection, Northwest District Office, 160 West Government Street, Suite 308, Pensacola, Florida, 32502-5794. Failure to file a petition within the 21-day period constitutes a person's waiver of the right to request an administrative hearing and to participate as a party to this proceeding under sections 120.569 and 120.57, Florida Statutes. Before the deadline for filing a petition, a person

whose substantial interests are affected by this Consent Order may choose to pursue mediation as an alternative remedy under section 120.573, Florida Statutes. Choosing mediation will not adversely affect such person's right to request an administrative hearing if mediation does not result in a settlement. Additional information about mediation is provided in section 120.573, Florida Statutes and Rule 62-110.106(12), Florida Administrative Code.

23. Rules referenced in this Order are available at
<https://softlive.dep.state.fl.us/ogc/ogc/content/rules>.

FOR THE RESPONDENT:

LIGHTHOUSE UTILITIES COMPANY




William J. Rish Jr.
President

7-3-18
Date

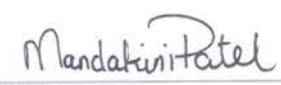
DONE AND ORDERED this 9th day of July, 2018, in Orlando, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Emile D. Hamilton
District Director
Northwest District

Filed, on this date, pursuant to section 120.52, Fla. Stat., with the designated Department Clerk, receipt of which is hereby acknowledged.



Clerk

July 9, 2018
Date

Copies furnished to:
Lea Crandall, Agency Clerk, Mail Station 35



Florida Department of Environmental Protection

Northwest District
160 West Government Street, Suite 308
Pensacola, Florida 32502-5740

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

March 29, 2018

Mr. William Rish, President
Lighthouse Utilities Company, Inc
2010 Highway C30-A
Port St. Joe, Florida 32456 - 9507
jay@floridagulfcoast.com

Re: Public Notice
Lighthouse Utilities Company, Inc
PWS ID# 1230848
Gulf County

Dear Mr. Rish:

This concerns the above referenced potable water system. The total trihalomethanes (TTHMs) locational running annual average for the 1st Quarter (January – March) exceeded the maximum contaminant level (MCL) of 80 ug/L with levels of 114.4 ug/L at the Barrier Dunes Unit 2 location and 90 ug/L at the 7182 SR- 30E location. In addition, the haloacetic acids (HAA5s) locational running annual average at Barrier Dunes Unit 2 exceeded the MCL of 60 ug/L with a level of 62.38 ug/L. Since the MCLs have been exceeded, you must issue a public notice advising your customers.

Notification must be made by mail or hand delivery within 90 days from your issuance of the last notice (completed January 2018). A modified notice and the public notice delivery certification are attached (please complete the information marked in red). Upon delivery of the notice complete and submit the delivery certification with a copy of the notice to us.

A copy of the required notice and the public notice delivery certification are enclosed. Please provide the pertinent information in the sections marked in red. Upon delivery of the notice, complete and submit the delivery certification with a copy of the notice to us.

Please address your response and any questions to me at 850-595-0633 or via email at john.pope@dep.state.fl.us. We look forward to your cooperation with this matter.

Sincerely,

A handwritten signature in cursive script that reads "John Pope".

John H. Pope
Potable Water Section Supervisor

JHP/nh
Enclosure

c: Larry McArdle (certified water treatment plant operator) lmcardle@mchsi.com

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER
Contaminant, i.e., Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) MCL
Violation at
Lighthouse Utilities Company, Inc.

Our water system recently violated a drinking water standard. Although this incident was not an emergency, as our customers, you have a right to know what happened, what you should do, and what Lighthouse Utilities Company, Inc., is doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Testing results from February 2017 – March 2018 show that our system exceeded the standard, or maximum contaminant level (MCL), for TTHM and HAA5. Compliance is determined by the locational running annual average (LRAA) at each monitoring location. If one or more LRAA exceeds the TTHM standard of 80 parts per billion (ppb) and/or HAA5 of 60 ppb, an MCL violation is incurred. The levels of TTHMs averaged at Barrier Dunes Unit 2 and 7182 SR 30E were 114.4 ppb and 90 ppb, respectively. In addition, HAA5s at Barrier Dunes Unit 2 was 62.38 ppb.

What should I do?

- There is nothing you need do. You do not need to boil your water or take other corrective actions. If a situation arises where the water is no longer safe to drink, you will be notified within 24 hours.
- If you have a severely compromised immune system, have an infant, are pregnant, or are elderly, you may be at increased risk and should seek advice from your health care providers about drinking this water.

What does this mean?

This is not an emergency. If it had been an emergency, you would have been notified within 24 hours. TTHMs and HAA5s are organic chemicals which form when disinfectants react with organic matter in the water.

Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. Some people who drink water containing TTHMs in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

What happened? What was done?

Describe what is being accomplished to address the maximum contaminant level violation.

For more information, please contact: _____ at phone #: _____
or mailing address _____

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by Lighthouse Utilities Company, Inc.

Potable Water System ID#: 1230848

Date distributed: _____



PWS CERTIFICATION OF DELIVERY OF PUBLIC NOTICE

INSTRUCTIONS: The supplier of water, within ten days of completion of each public notification requirement pursuant to Part IV of Chapter 62-560, Florida Administrative Code, shall submit to the Department of Environmental Protection District Office, DEP Form 62-555.900(22): PWS Certification of Delivery of Public Notice and a representative copy of each type of notice distributed, published, posted, and made available to the persons served by the system, and the media. All information provided on this form shall be typed or printed in ink

I. General Information

Public Water System (PWS): Lighthouse Utilities Company, Inc.		
PWS ID: 1230848		
PWS Type: Community	Non-Transient Non-Community	Transient Non-Community
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PWS Owner:		
Contact Person:	Contact Person's Title:	
Contact Person's Mailing Address:		
City:	State:	Zip Code:
Contact Person's Telephone Number:	Contact Person's Fax Number:	
Contact Person's E-Mail Address:		

II. Certification

For Violation/Situation: MCL for LRAA TTHM at Barrier Dunes Unit 2 and 7182 SR 30E						
Date of Occurrence: 1st Quarter 2018						
Consultation Date:						
Delivery Methods:	<input type="checkbox"/> Radio/TV	<input type="checkbox"/> Mail	<input type="checkbox"/> Newspaper	<input type="checkbox"/> Hand Delivery	<input type="checkbox"/> Posting	<input type="checkbox"/> Other(describe)
Delivery Date/s:						

I am duly authorized to sign this form on behalf of the public water system identified in Part I of this form. I certify that the information provided on this form is correct to the best of my knowledge and that public notice has been provided to consumers in accordance with the delivery, content, and format requirements and deadlines in Chapter 62-560, Florida Administrative Code.

Signature and Date

Printed or Typed Name

Title



Florida Department of Environmental Protection

Northwest District
160 W. Government Street, Suite 308
Pensacola, Florida 32502-5794

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

September 26, 2016

Mr. William J. Rish, Jr., President
Lighthouse Utilities Company, Inc.
Post Office Box 428
Port St. Joe, Florida 32457
jay@floridagulfcoast.com

Re: Compliance Assistance Offer
Lighthouse Utilities Company, Inc. Water System
PWS ID No. 1230848
Gulf County

Dear Mr. Rish:

A sanitary survey of Lighthouse Utilities Water System was conducted on August 17, 2016. During this inspection, potential non-compliance was noted. The purpose of this letter is to offer compliance assistance as a means of resolving these matters.

Specifically, potential non-compliance with the requirements of Chapter 403, Florida Statutes and Chapter 62-555, Florida Administrative Code, was observed. Please see the attached inspection report for a full account of Department observations and recommendations.

We request you review the items of concern noted and respond in writing within 15 days of receipt of this Compliance Assistance Offer. Your written response should include one of the following:

1. Describe what has been done to resolve the non-compliance issues or provide a schedule describing how/when the issues will be addressed
2. Provide the requested information, or information that mitigates the concerns or demonstrates them to be invalid, or
3. Arrange for the case manager to visit your facility to discuss the items of concern.

It is the Department's desire that you are able to adequately address the aforementioned issues so that this matter can be closed. Your failure to respond promptly may result in the initiation of formal enforcement proceedings.

Mr. William J. Rish
Lighthouse Utilities Company, Inc.
PWS ID No. 1230848
Compliance Assistance Offer
Page 2

Please address your response and any questions to me at 850-595-0633 or via email at john.pope@dep.state.fl.us. We look forward to your cooperation with this matter.

Sincerely,



John Pope
Potable Water Supervisor

Cc: Mr. Larry McArdle, Utilities Manager (lmcardle@mchsi.com)
Ms. Angela Chelette, NFWFMD (Angela.Chelette@nwfwater.com)



STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

SANITARY SURVEY REPORT

GROUND WATER COMMUNITY SYSTEMS

SYSTEM AND OWNER INFORMATION

System Lighthouse Utilities County Gulf PWS ID # 1230848
Address 2010 Highway 30A City Port St. Joe
Phone 850-227-7427 Fax 850-227-2115 E-mail luci@gtcom.net
Owner Lighthouse Utilities; William J. Rish, Jr., President Phone 850-227-7427
Address Post Office Box 428, Port St. Joe, Florida 32456

INSPECTION AND CONTACT INFORMATION

Date of this survey August 17, 2016 Date of last survey September 12, 2013
DEP Representative(s) Elizabeth Willard
Person(s) Contacted Larry McArdle - Operator / Mathew Pope - Trainee
Emergency Number 850-227-5349 Cell 850-227-5349 Other 850-227-3501 (office at Well 2)

CERTIFIED OPERATORS AND CERTIFICATION NUMBER

Larry McArdle "A" 589

DIRECTIONS TO PLANT OR OFFICE (provide general directions to the office and/or plant)

From Port St. Joe take Hwy 98 east, turn right onto Hwy 30, Office is located in Century 21, building (2010 Hwy 30C)

SERVICE AREA

Service Area Characteristics Residential/Commercial
Population Served 4433 Basis 2.5
Service Connections 1773 % Metered 100%
Design Capacity (gallons) 1,224,000
Design Capacity without best well 576,000
Storage Capacity 224,000 Avg. Day 403,017
Max. Day (GPD) 1,059,200 % Design Capacity 87%
25% Max. Day 264,800 % Storage Capacity 118%

PERMANENT SOURCES OF RAW WATER:

☒ Ground How Many Wells 2
☐ Purchased PWS #'s. NA
Purchase Limit (GPD) NA
Avg Purchased (GPD) NA

EMERGENCY MEDIA CONTACT NUMBERS

	NAME	PHONE NUMBER
Television	WMBB Channel 13 WJHG Channel 7	850-763-6000 850-233-1977
Radio FM	Magic Broadcasting	850-230-5855
Radio AM	Magic Broadcasting	850-230-5855
Newspaper	The Star	850-227-1278

EMERGENCY PREPAREDNESS/STANDBY POWER

Emergency Preparedness Plan On file: ☐ Yes ☒ No/See AOC ☐ Not Required

The plan includes the following:

☐ Communication Chart ☐ Written Agreements ☐ Disaster Plan
☐ Standby Power Info ☐ Inventories ☐ Other

Avg. Day Percentage of Auxiliary Supply 62.2%

Standby Equipment Operated At Least Monthly? ☒ Yes Not recorded. See Remarks.

☐ No

Any Interconnects? ☒ Yes ☐ No

If yes, which systems: City of Port St. Joe

Comments: _____

TREATMENT IN USE AT THIS PLANT: (CHECK ALL THAT APPLY)

Number of Plants 2
☒ Aeration ☐ E.D. ☐ Iron Removal ☐ Ph Adjustment ☒ Chlorination
☐ Filtration ☐ Lime Softening ☐ T&O Control ☐ Chlorination-Pre ☐ Filt. Hi-Rate
☐ Recarbonation ☐ Settling ☐ Chlorination-Post ☐ Fluoridation ☐ Reverse Osmosis
☐ Zeolite Softener ☐ Coagulation ☐ Orthophosphate ☐ Aqua Mag ☐ Other-Specify

Any additional treatment is needed? No

For control of what deficiencies? _____

OPERATOR STAFFING REQUIREMENTS

Number of Licensed Operators 1 Plant Cat/Class 5C Staffing compliant? ☒ Yes ☐ No Actual visits / wk: 6 req'd. (See AOC)

SOURCE

Well Name or Source		1	2	*1 (AKA 3)	Comment
W E L L D E P T H T O P S T A T I C S U C T I O N P U M P Y I N F O R M A T I O N	Street name of well	A	LUCI #2 (office)	*LUCI #1 (aka Well 3)	Note: Well Nos. reversed on some prior reports.
	Year Drilled	B	1985	2002	
	Depth Drilled (feet)	A	700	706	
	Drilling Method	N	Rotary	Rotary	
	Length, Outside Casing (feet)	D	286	437	
	Diameter, Outside Casing (inches)	O	16	6	
	Material, Outside Casing	N	Steel	Steel	
	Type of Strainer	E	Galvanized	Unknown	
	Depth to Top of Strainer	D	Unknown	Unknown	
	Type of Grout	I	Cement	Cement	
	Depth to Static Water Level (feet)	N	24.5	14.5	
	Normal Suction Lift (working level-ft)		239 (Historic)	Unknown	
	Pump Type	2	TURBINE	SUBMERSIBLE	
	Horse Power	0	40	40	
	Normal Yield (GPM/GPD if purchased)	0	650	Unknown**	**Lightning strike/ broken. See AOC
P	Capacity(GPM / GPD if purchased)	3	450	400*	(*Note: Last report was marked as 350)
R	Protection From Surface Water		Yes	Yes	
O	Is Inundation of Well Possible?		No	No	
U	Well Ever Been Contaminated?		No	No	
T	Check Valve Present in Line?		Yes	Yes	
I	Proper Venting?		No	Yes	See AOC
N	Meter Accuracy and Year of Test		5.5%/2014	1.8%/2014	
E	Date of Last Servicing?		2009	2016*	*Replaced motor/hit by lightning
A	Auxiliary Capability (if yes, list type)		Right angle	No	
U	Manual or Automatic?		Manual		
X	Capacity (GPM)		450		
	Florida Unique ID# (GPS well tag)		AAA7521	AAG9116	

Comments: Old Well 1 abandoned in 2003. System numbered new well on north Hwy 30A as the new Well 1. The Department labels it as Well 3.

TREATMENT

CHLORINATOR

PLANT NUMBER (OR NAME)→	1	Plant 2 At Office	Plant 1 (AKA Plant 3)	Comment
Type of chlorination (if hypo list strength)	OUT OF SERVICE - REPLACED WITH PLANT 3 (aka Plant 1)	Gas	Gas	
Condition of Chlorination Equipment		Good	Good	
Capacity (PPD, GPD)		22 ppd	25 ppd	
Chlorine Feed Rate (PPD, GPD)		10 ppd	17 ppd	
Adequate Housing and Security?		Yes	Yes	Old housing
Associated Well(s) (if any)		Well 2	Well 1 (AKA Well 3)	
Auxiliary Power Capability?		No	No	
O & M Log/Manual Onsite?		Yes/No	Yes/No	
Operator Staffing Requirements Minimum Class C operator		5 visits/wk & 1 visit ea. weekend = 0.6 hr/wk	5 visits/wk & 1 visit ea. weekend = 0.6 hr/wk	
Chlorine Residual (mg/L) / pH		2.42/7.9	2.0/7.7	
Chlorine Alarms Functional?		Yes	No (per system)	Neither tested
G Auto Switchover		Yes	No	
Dual System		Yes	No	
Evidence of Leaks		No	No	
A Air-Pack Respirator Adequate?		No - uses Fire Department unit which is 2 minutes away. See AOC.		
Ammonia Smells Fresh		Yes	Yes	
Chained Cylinders		Yes	Yes	
S Fitted Wrench		Yes	Yes	
Proper Ventilation		No	No - Fan not working	Pre- 2003 installation
Scale Condition		Fair	Fair	

Spare Parts/Backups Operative? ☒ Yes ☐ No ☐ Spare Parts Not Retained More capacity needed? ☐ Yes ☒ No

Comments: System has no portable generators to run high-service pumps or chlorinators, but local electric company has agreed to provide generators when needed. See AOCs.

AERATORType of Aerator Tray at 12,000 gal and 315,000 gal tanksTray Area or Weir Length unkCondition of Screens Screens cleaned & replaced in 2012; Need attention again, however. See photos and AOC.Bloodworms unk Aerator condition Poor - needs cleaningAdequate for Fe, H₂S control See AOCs**COAGULATION**Chemical used NA

Purpose _____

Blanket visible _____ Flocculation good or poor _____

Settling good? _____ Carryover _____

LIME SOFTENINGQuicklime or hydrated NA

Name of unit _____

Size and type _____

Any auxiliary chemicals used _____

Points of application (in unit) _____

Nature and abundance of flux _____

Appearance of sludge blanket _____

Is settling good? _____ Excessive carryover _____

Any filter cementation _____

Effluent stability _____

Turbidity in clearwell _____ Secondary precipitation _____

Recarbonation type _____

Sludge recirculation Used _____

FLUORIDATIONChemical Used Is Dilution NA

Strength if Acid _____ Used(acid) _____

Corrosion Noted Feeder _____

Gelling or Plugging _____

Make and Model _____

Split Sample Agreement _____

Sufficient Analysis _____

Feeder Condition _____

STABILIZATIONIs pH control Practiced? NAIs an index computed? ☐ Yes ☐ No (if so, check below below)☐ Langeller ☐ Ryznar ☐ Puckorius ☐ Larson☐ Stiff ☐ Oddo ☐ Other _____

Results of index _____

Chemical(s) used _____

FILTERS & FILTRATIONType of filters NA

Size and number _____

Length of filter runs _____

Can you see filter media? _____ Clean after backwash? _____

Are mudballs visible? _____ Binding? _____

What is the normal filter rate _____

What is the usual backwash rate _____

Capacity of filters _____ Filters overloaded? _____

Loss in head gauge present? _____

At what head loss is BW done? _____

Cracks and channeling? _____ Cementation ever occurred? _____

Where in relation to filtration is stabilization done? _____

If high rate, what is turbidity at interface Range of turbidity in effluent _____

Can you observe algae in filters? _____

Distance from top of media to trough overflow _____

REVERSE OSMOSISMake and type of units NA

Pressure required _____

Auxiliary chemicals _____

Proportion of waste used to product streams _____

Quality of effluent _____ Stabilization _____

Type of Pre-treatment _____ Booster pump _____

Type of membranes _____

ZEOLITE SOFTENINGUnit mfg. & model NA

Resin capacity _____ Disinfection of beds _____

Grade of salt for regen. _____

Stability of effluent _____ Resin prevented from escaping? _____

PUMPS AND PUMP CONTROLS

High Service Pumps							
PUMP CATEGORY	Booster 1	Booster 2	LUCI 1 (3)	LUCI 1 (3)	LUCI 2	LUCI 2	
PUMP NUMBER→							
PUMP TYPE	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	
MOTOR HP	40	40	15	15	15	15	
DATE INSTALLED	2001	2001	1985	1985	1985	1985	
CAPACITY (GPM)	500	500	150	150	150	150	
AUXILIARY CAPACITY?	No	No	No	No	No	No	
PROPER SECURITY?	Yes	Yes	Yes	Yes	Yes	Yes	
CONDITION OF PUMP	Good	Good	Good	Good	Fair	Fair	
MAINT. SCHEDULE	Daily	Daily	Daily	Daily	Daily	Daily	
DATE LAST SERVICED	Routine	Routine	Routine	Routine	Routine	Routine	

STORAGE FACILITIES:

TANK NUMBER→	**LUCI 1 (3) Tank #1	**LUCI 1 (3) Tank #2	**LUCI 2 Tank #1	LUCI 2 Tank #2	Booster Tank #1	Booster Tank #2
TYPE (GROUND, ELEVATED, HYPO)	Ground	Ground w/ aerator	Ground w/ aerator	Hydro	Ground	Hydro
YEAR OF CONSTRUCTION	1984	1984	2/27/2006	2001	2002	2002
CAPACITY (GALLONS)	12,000	12,000	316,000	5,000	209,000	10,000
MATERIAL	Aluminum	Aluminum	Steel	Steel	Steel	Steel
GRAVITY DRAIN CAPACITY/DIAMETER	Yes/2"	Yes/2"	Yes/6"		Yes/6"	
OVERFLOW STRUCTURES PROPER?	Yes	Yes	Yes	NA	Yes	NA
BYPASS CAPACITY	Yes	Yes	Yes	Yes	Yes	Yes
COVERED/SCREENED OPENINGS	Yes	Yes	No	No	No	NA
PRESSURE GAUGE	Yes	Yes	No	Yes	Yes	Yes
ON/OFF PRESSURE (PSI)	50/70	50/70	50/70	50/70	50/70	50/70
ALTITUDE VALVE UTILIZED?	No	No	No	No	Yes	No
HGT. TO BOTTOM OF EL. TANK (FT)	NA	NA	NA	NA	NA	NA
HGT. TO MAX. WTR. LEVEL (FT)	NA	NA	22'	NA	36'	NA
DATE OF LAST ANNUAL INSPECTION	Utility personnel conduct visual inspections on an ongoing basis but have not been recording - See ADC's					
YEAR OF LAST 5-YEAR INSPECTION	2014	Not inspected*	2014	2014	2014	2014
YEAR OF LAST WASHOUT	2009	Not inspected*	2009	2014	2009	2014

Does system provide fire protection? ☒ Yes ☐ No Security Adequate? ☒ Yes ☐ No Low Level Alarm? ☒ Yes ☐ No
Does current storage capacity comply with requirements in FAC 62-555? ☒ Yes ☐ No

COMMENTS: * System says tank has no opening and cannot be inspected.
* Not finished-drinking-water storage tanks.

DISTRIBUTION SYSTEM

Material of mains? PVC System looped? No How many hydrants? Unk
 Any fire hydrants < 6" lines? ☐ Yes ☒ No ☐ Unknown Max. pipe diameter 12 Min. pipe diameter 2
 General operation pressure 60 Lowest pressures 35 Location of low pressure Homestead
 Number of dead ends Unk How many without flush hydrants? Unk Flushing program? No
 Number of line valves Unk How often exercised As needed Properly Mapped? No Properly Marked? Some
 System Maps Adequate? No Any uncleared permits? Yes Any uncleared and in use? See Remarks
 Percent water loss 1.9% in 2015 Does the system have reuse? No Comments See AOCs

CROSS CONNECTION CONTROL

Cross Connection Control Program Meet Requirements? ☐ Yes ☒ No Comment: Working on new CCC Plan- See AOC
 Testing Frequency? Not done Tracking: ☒ Hard Copy ☐ CPU # of BFDs: Unk Hydrant Meters ☐ Lift Stations ☐ WWTP ☐
 Date of Last Audit (commercial or residential): 2012-Date from last report Name of Certified BFD Tester: Various

Chlorine & pH	Remote 1	Remote 2	Remote 3	Remote 4	Remote 5
Chlorine Residual	0.16-0.17	0.15	+2.2 (2.9)	0.04	0.98-1.85
pH	7.5	7.5	7.5	Not recorded	7.6-7.7
Location	Booster and Starboard St. on Cape San Blas	Hydrant on north Hwy 30-A after day-long flushing	Indian Pass Raw Bar (head of Indian Pass Rd.)	Hwy 30-A (near county line)	Indian Pass Road (Hwy 30-B) (end and midway, respectively)

COMPLIANCE MONITORING

Compliance Schedule: The following parameters are due during the year shown.

Inorganics	2017	SOCs	2017	Stage 2	3 rd Qtr. 2016	Asbestos	2020
VOCs	2017	Radiologicals	2017-2023	Secondaries	2017	Pb & Cu	2017
Nitrate/Nitrite	2017	UOCs	susp				

System out of compliance with any of the above parameters? No

Testing Equipment & Reagents ☒ Adequate ☐ Inadequate Comment: _____
 Bacteriological Sampling Plan: ☒ Adequate ☐ Inadequate Comment: Updated, Approved by David Hines
 Disinfection Byproducts Plan: ☒ Adequate ☐ Inadequate Comment: _____

MANAGERIAL/FINANCIAL

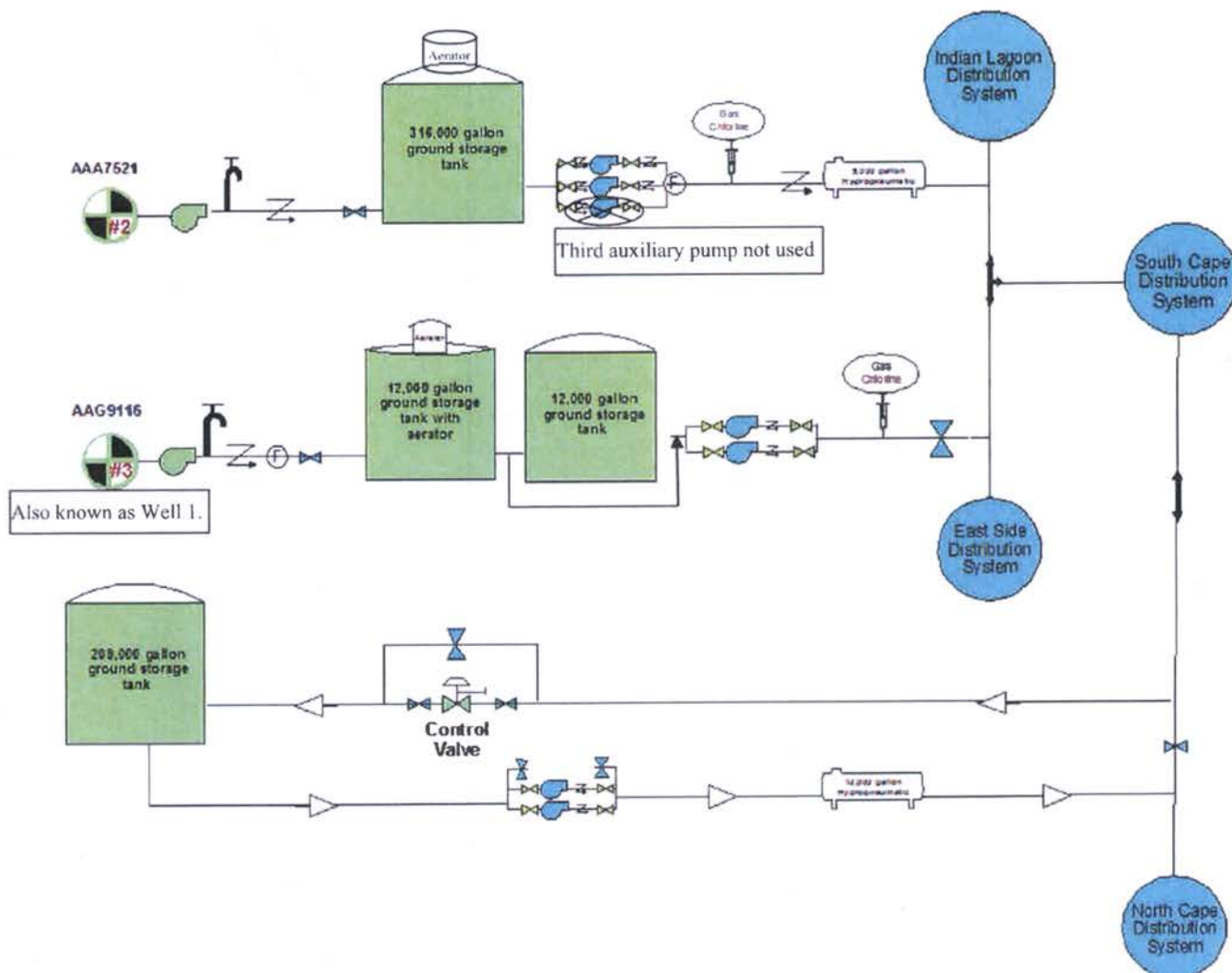
How is the system structured? ☒ Investor ☐ Municipal ☒ Private ☐ Cooperative ☐ Other Does the system follow a budget? ☒ Yes ☐ No
 Preventative Maintenance Program in place? ☐ Yes ☒ No See Remarks Is adequate training provided to water system personnel? ☒ Yes ☐ No
 Comment: _____

AERIAL MAP



Well 2 is at the office on the east/west part of Hwy. 30-A. Well 3 (aka Well 1) is on the north/south part of Hwy 30-A.

SYSTEM FLOW DIAGRAM



DIGITAL IMAGES



Well 2 at office. Improper well casing vent.

DIGITAL IMAGES (cont'd)



Aerator at Tank 2 at Well 1 (aka 3) -
12,000 gal tank



Aerator at Tank 1 Well 2 -
316,000 gal tank.



Well 1 (aka Well 3)



Well 2 at the office

DIGITAL IMAGES (cont'd)

SUMMARY

The **INTERIOR** of the tank appears to be in Good condition overall. Recommendations include:

- Each of the six cathodic anodes appears close to depletion. They should all be replaced to maintain the interior condition of the reservoir.
- Due to the location, the corrosion on the bottom of the overflow penetration should be monitored for pitting and / or leaking.

The tank **EXTERIOR** appears to be in Good condition. Recommendations follow:

- Installation of a Vent Security Shroud is recommended. See "Security" section above for details.
- A proper screen and gasket should be installed on the exterior portion of the overflow to eliminate it as a point of ingress for insects, birds or other contaminants.
- In accordance with AWWA standards, the hatch lip height should be increased to at least 4" and the overlap to a minimum of 2".

At a minimum, the utility should continue to clean and inspect this tank every three years. Preventive maintenance of this nature will ensure that the identified discrepancies in this tank are closely monitored and will provide a record of care in the future.

Summary from 5- year report of Booster station 209,000 tank.

SUMMARY

The **INTERIOR** of the tank appears to be in Good condition overall. Recommendations include:

- The delaminated hardware at the roof to wall seam should be closely reviewed during upcoming inspections. If further delamination occurs, the hardware should be replaced.
- The algae at the aeration unit should be removed, and the accumulated sediment on the floor should be cleared to allow for a full evaluation of the slabs.
- If the utility plans to use the floating water level indicator, the center cable must be reattached.

The tank **EXTERIOR** appears to be in Good condition. Recommendations follow:

- Installation of a Vent Security Shroud is recommended. See "Security" section above for details.
- A proper screen and gasket should be installed on the exterior portion of the overflow to eliminate it as a point of ingress for insects, birds or other contaminants.

At a minimum, the utility should continue to clean and inspect this tank every three years. Preventive maintenance of this nature will ensure that the identified discrepancies in this tank are closely monitored and will provide a record of care in the future.

Summary from 5- year report of 316,000 gallon tank at Well 2.

SUMMARY

The overall **INTERIOR** condition of Aluminum #1 is rated as Fair. In addition to continued monitoring the following recommendations should be considered:

- The accumulated sediment should be removed to allow for a full evaluation of the floor areas.
- The isolated areas of incomplete fusion reported at the roof to wall weld should be frequently monitored for any signs of pitting or leaking.

The overall **EXTERIOR** condition of the Hill Tank also is rated as Good. Recommendations follow:

- To prevent the entry of amphibians, insects and other contaminants from entering the tank, the air gap in the hatch which acts as a vent should be properly screened.
- In accordance with AWWA recommendations, the hatch lip should be increased to a minimum of 4" and the hatch lid overlap should be increased to at least 2".
- The rassing anchor bolts should be replaced.
- In an effort to improve aesthetics and extend the life of the exterior, the tank should be power-washed.

Summary from 5- year report of 12,000-gallon tank without aerator at Well 1 (AKA 3).

AREAS OF CONCERN (AOC)

1. Operation and Maintenance (O & M) log at the treatment plant(s) not in compliance with rules and certified operator not checking plants. Trainees are being allowed to perform plant checks without the certified operator present. *FAC 62-699.311 and 62-699.310(2)*

Recommended Action: Plant checks must be performed by licensed operator on-site at each water treatment plant to fulfill the time and visit requirements. For each of the two plants: 5 visits per week and 1 visit on the weekend for a total of 0.6 hr/wk per plant. Time in and out must be recorded in Plant O & M log and entries must be signed by the certified operator in charge.

Expected Time for Correction: Immediately.

2. Chlorine residual too low within the distribution system. Even with flushing from 7:30 am the morning of the inspection until 5pm, chlorine was too low at north Hwy 30-A hydrant. Chlorine was too low on Cape San Blas at two sites. Chlorine was too low near end of system on Hwy 30-A east toward county line. See page 6 of the report for sites and residuals. A Precautionary Boil Water Notice was issued to customers in the affected areas and was lifted the next day when the required minimum chlorine residuals were reached. The system indicated that the lack of chlorine is a common occurrence, especially in warmer months, and believes high hydrogen sulfide is partially to blame. *FAC 62-555.350 (6)*

Recommended Action: Maintain a minimum free chlorine residual of 0.2 milligram per liter throughout the water distribution system at all times. Provide an engineering analysis to determine the best way forward to control hydrogen sulfide and maintain adequate chlorine residuals throughout the year at all sites within distribution.

Expected Time for Correction: For maintaining adequate chlorine residuals: Immediately. For the requested engineering analysis: have the analysis complete by December 31, 2016.

3. Inadequate chlorine residual distribution sampling. System only sampling distribution once per week. *FAC 62-555.320 (12), 62-555.350(6), and 62-555.518(4)*

Recommended Action: Monitor and record the residual disinfectant concentration in the distribution system, taking at least one grab sample each day water is served to the public or at least five days per week, whichever is less, at a point in the water distribution system reflecting maximum residence time after disinfectant addition. Measure the residual disinfectant concentration and record the values obtained in the logs and reports. Any authorized representative may perform the residual disinfectant measurements (licensed operator not required), but must follow the appropriate procedures listed in the Department of Environmental Protection Standard Operating Procedures for Field Activities, DEP-SOP-001/01, as incorporated into Rule 62-160.800, F.A.C.; other measurements shall be performed using an appropriate method referenced in subsection 62-550.550(1), F.A.C.

Expected Time for Correction: Immediately.

AREAS OF CONCERN (AOC) (cont'd)

4. Dead-end flushing events not recorded / No written flushing plan on file. The system has been flushing the distribution lines on an as-needed basis, but not recording the events. *FAC 62-555.350(2)*

Recommended Action: Dead-end water mains conveying finished drinking water (that are 6-inches or larger in diameter) shall be flushed quarterly or in accordance with a written flushing program established by the supplier of water; additionally, dead-end or other water mains conveying finished water shall be flushed as necessary whenever legitimate water quality complaints are received.

Please write a brief description of the flushing plan and develop a method to record the events. This plan should be followed and modified as needed to maintain water quality.

Expected Time for Correction: Develop a written plan and implement by October 31, 2016. This will be reviewed at your next inspection.

5. Valves not exercised in accordance with written plan. The system has not been exercising valves as required and no plan is written. While system personnel know where many valves are located, it is not documented on a plan as required and no map of the valves is available. *FAC 62-555.350 (2) and (12)(c)*

Recommended Action: The rule states that the valves should be exercised in accordance with manufacturer's recommendations or in accordance with a written plan. A valve maintenance program must be implemented per *AC 62-555.350(2)* so mains can be repaired expediently. An adequate valve maintenance program should include the following:

- valve locating (physically locating the valves);
- valve marking (once the valve is located, providing reliable physical markers for future reference);
- valve exercising (opening and closing the valve to ensure and maintain valve integrity);
- valve plotting (plotting the valves on a map to serve as a geographical record); and
- logging the event (keeping a record of the event so that the valve can be revisited within the appropriate time-frames).

Expected Time for Correction: A system must exercise their valves in accordance with a written plan that is maintainable and reasonable but addresses the objective. With your response to this report, please provide a date by which the valve maintenance program can be thoroughly reviewed, revised and implemented, with a written plan/schedule for completion of the valve location and for exercising the valves in the entire system. The plan/schedule should also take into account the availability of your staff for proper adherence to this program. Additional personnel may be needed to accomplish this task and maintain the commitment.

6. Inadequate Distribution Maps – Current maps only show line sizes and locations. Even the sizes of some sites are in question, as was made evident by the line break that occurred during the Survey. *FAC 62-555.350 (14)*

Recommended Action: Develop an up-to-date map of the distribution system, showing location and size of water mains; location of valves & fire hydrants; and location of any pressure zone boundaries, pumping facilities, storage tanks, and interconnections with other public water systems.

Expected Time for Correction: Complete the updated map no later than December 31, 2017.

AREAS OF CONCERN (AOC) (cont'd)

7. No Cross-Connection Control (CCC) Plan on File and Annual Testing of Devices Not Up-to-date. *FAC 62-555.360 & .330*

Recommended Action: During the inspection, a newly revised CCC plan was on hand but had not been approved or implemented by the system. The new plan must be fully developed and implemented. Please note that Rule 62-555.360 has been updated to include residential properties with auxiliary water systems on site. The new plan must address residential customers with auxiliary water systems on site as well as annual testing of devices/assemblies on commercial accounts.

Expected Time for Correction: Implement and update the plan by December 31, 2016. The testing of the annual devices shall be completed by March 31, 2017. Residential customers will be addressed as approved in plan.

8. Improper casing vent at Well 2 (Office). *FAC 62-555.320 (8)(c)*

Recommended Action: Provide a proper casing vent that is at least 12 inches above well pad in a downturned position above the top of the casing and covered by a 24 mesh, corrosion resistant screen to prevent suction of insects, rodents, or debris.

Expected Time for Correction: Have this completed by October 31, 2016.

9. Flow meter has not been installed at Well 1 (aka Well 3). The well was struck by lightning and the flow meter does not work properly. *FAC 62-555.320 (16)*

Recommended Action: Install a new flow meter at the well.

Expected Time for Correction: Have this completed by October 31, 2016.

10. No Air-Pack Respirator for Chlorine Rooms. *FAC 62-555.350 (13)(a)(10)*

Recommended action: At each treatment plant with gas chlorination facilities, the supplier of water shall provide in a convenient location, but not inside any room where chlorine is stored or handled, a self-contained breathing apparatus (SCBA) meeting the requirements of the National Institute for Occupational Safety and Health. However, for water systems that have multiple interconnected plants withdrawing chlorine from only 150-pound or smaller cylinders, the supplier of water may provide an SCBA in each vehicle used by plant operators instead of providing an SCBA at each plant withdrawing chlorine from only 150-pound or smaller cylinders.

Expected Time for Correction: By October 31, 2016, provide a self-contained breathing apparatus for each plant or one for the vehicle used by plant operators(s) as described by rule.

AREAS OF CONCERN (AOC) (cont'd)

11. No operation and maintenance manual at the water treatment plants. *FAC 62-555.350 (13)*

Recommended Action: Suppliers of water shall provide an operation and maintenance manual for each of their drinking water treatment plants, and shall update the manual thereafter as necessary to reflect plant alterations and additions. The manual shall contain operation and control procedures, and preventive maintenance and repair procedures, for all plant equipment and shall be made available for reference at the plant or at a convenient location near the plant. Bound and indexed equipment manufacturer manuals shall be considered sufficient to meet the requirements of this subsection.

Expected Time for Correction: By no later than December 31, 2016, provide operation and maintenance manuals for each plant. The manuals may be maintained at the office instead of the plants to provide better care of the documents.

12. Total maximum day finished water exceeded 75% of the total permitted capacity in July 2015, August 2015 and July 2016. *FAC 62-555.348*

Recommended Action: Investigate the cause of the exceedance of the plant's permitted design capacity and provide a written response. If the data can not be explained as outlying data, you will need to have a Florida-registered engineer complete a capacity analysis report and follow the requirement of FAC 62-555.348 (See information below).

Per paragraph 62-555.348(3)(a), Florida Administrative Code (F.A.C.), for community water systems with 3,300 or greater population, an initial capacity analysis report must be submitted to the Department (FDEP) within six months after the month in which the total maximum-day quantity of finished water produced by a public water system's (PWS's) treatment plant(s) first exceeds 75 percent of the total permitted maximum-day operating capacity of the plant(s). The report must be prepared by a Professional Engineer (PE) registered in the State of Florida.

Per paragraph 62-555.348(3)(b), F.A.C., updated capacity analysis reports must be submitted as follows: If the Initial or Latest Updated Capacity Analysis Report Indicates...	Due Date for Next Updated Capacity Analysis Report
total maximum-day demand <u>at build-out</u> will be \leq current total permitted maximum-day operating capacity of treatment plant(s) & total finished-water storage need <u>at build-out</u> will be \leq existing total useful finished-water storage capacity	no additional capacity analysis report is required
total maximum-day demand will be \leq current total permitted maximum-day operating capacity of treatment plant(s) for ≥ 10 years & total finished-water storage need will be \leq existing total useful finished-water storage capacity for ≥ 10 years	5 years after submittal of previous capacity analysis report
total maximum-day demand will be $>$ current total permitted maximum-day operating capacity of treatment plant(s) in < 10 years but ≥ 5 years or total finished-water storage need will be $>$ existing total useful finished-water storage capacity in < 10 years but ≥ 5 years	2 years after submittal of previous capacity analysis report
total maximum-day demand will be $>$ current total permitted maximum-day operating capacity of treatment plant(s) in < 5 years or total finished-water storage need will be $>$ existing total useful finished-water storage capacity in < 5 years	1 year after submittal of previous capacity analysis report

Expected Time for Correction: Provide a written explanation of the three high instances mentioned above by October 31, 2016. If the dates were true exceedances, provide a capacity analysis report by a Florida-registered engineer within 6 months of the July 2016 date.

13. Finished Water Storage Tank at Booster Station Due For 5 year washout. 5-year tank inspection report issues not addressed. FAC 62-555.350 (2)

Recommended Action: Note: Tank 1 at Well 2 (316,000 gal), Tank 1 (12,000 gal without aerator) and Tank 2 (12,000 gal with aerator) at Well 1 (aka Well 3) are not finished water storage tanks. Tank 2 at Well 2 (hydro), and both tanks at the Booster Station on the Cape are finished water storage tanks.

Finished-drinking-water storage tanks shall be checked at least annually to ensure that hatches are closed and screens are in place. Tank 2 at Well 2 (hydro), and both tanks at the Booster station must be inspected annually to ensure all screens are intact and hatches locked. The inspections should be documented in writing with the person conducting inspection, date of inspection and pictures of locked hatches and intact screens.

All finished water tanks have received their 5-year inspections as required. However, the inspection report for Booster Station 209,000 gal tank had comments that needed to be addressed. Please address within 30 days.

Expected Time for Correction: By March 31, 2017, provide documentation that ensures the Booster Station 209,000 gal tank has been washed out. By October 31, 2016, address issues remaining on the 5-year inspection reports.

14. Annual washout of accumulated sludge and biogrowth needed at treatment tanks. Tank 1 at Well 2 (316,000 gal), Tank 1 (12,000 gal without aerator) and Tank 2 (12,000 gal with aerator) at Well 1 (aka 3) have not been washed out annually. Further, the system indicated that Tank 2 at Well 1 has never been inspected or cleaned out, due to lack of access to the interior. *FAC 62-555.350 (2)*

Recommended Action: Routinely clean (i.e., at least annually) accumulated sludge and biogrowths from all treatment facilities that are in contact with raw, partially treated, or finished drinking water and that are not specifically designed to collect sludge or support a biogrowth. Additionally, address the accumulation on the aerators (see photos). The Department strongly recommends that the system investigate ways to gain access to Tank 2 at Well 1 for cleaning.

Expected Time for Correction: By March 31, 2017, provide documentation that these tanks have been washed out. If this is not possible, have them done as soon as possible and give the Department the timelines for compliance.

15. Inadequate finished water storage capacity. The total useful finished-water storage capacity (excluding any storage capacity for fire protection) connected to a water system shall at least equal 25 percent of the system's maximum-day water demand, excluding any design fire-flow demand. The maximum day is 1,059,200 gallons; 25% of which is 264,800. The current total useful finished-water storage capacity is approximately 224,000 gallons (i.e. Tank 2 at Well 2 (hydro), and both tanks at the Booster Station). *FAC 62-555.320 (19)* ✓

Recommended Action: A total useful finished-water storage capacity less than that specified above is acceptable if the supplier of water or construction permit applicant makes one of the following demonstrations:

1. A demonstration consistent with Section 10.6.3 in *Water Distribution Systems Handbook* as incorporated into Rule 62-555.330, F.A.C., showing that the water system's total useful finished-water storage capacity (excluding any storage capacity for fire protection) is sufficient for operational equalization.

2. A demonstration showing that, in conjunction with the capacity of the water system's source, treatment, and finished-water pumping facilities, the water system's total useful finished-water storage capacity (excluding any storage capacity for fire protection) is sufficient to meet the water system's peak-hour water demand for at least four consecutive hours. Provide adequate finished water storage capacity or a demonstration as described by rule.

Expected Time for Correction: By December 31, 2016, provide a demonstration or provide plans to meet capacity.

AREAS OF CONCERN (AOC) (cont'd)

16. No written emergency preparedness/response plan. FAC 62-555.350 (15)

Recommended Action: Suppliers of water who own or operate a community water system serving, or designed to serve, 350 or more persons or 150 or more service connections shall develop a written emergency preparedness/response plan in accordance with *Emergency Planning for Water Utilities*, AWWA Manual M19, as adopted in Rule 62-555.335, F.A.C., and shall update and implement the plan as necessary thereafter. Said suppliers of water shall coordinate with their Local Emergency Planning Committee and their Florida Department of Law Enforcement Regional Security Task Force when developing their emergency plan and shall include in their plan all of the information specified in 62-555.350 (15).

Expected Time for Correction: Find the plan if one exists and update it accordingly. If none exists, develop one by November 30, 2016.

17. Inadequate standby power for high service pumps or chlorinators. The system states that the local electric company will provide generators, if needed, but no written agreement exists granting the system first priority. FAC 62-555.320(14)

Recommended Action: Each community water system (CWS) serving 350 or more persons or 150 or more service connections shall provide standby power for operation of that portion of the system's water source, treatment, and pumping facilities necessary to deliver drinking water meeting all applicable primary or secondary standards at a rate at least equal to the average daily water demand for the system. From FAC Rule 62-555.320(14):

A portable auxiliary power source may be provided only if all of the following conditions are met:

1. A system to automatically start up the auxiliary power source and transfer electrical loads is not required under paragraph (e) below.

2. The supplier of water demonstrates that the water system has first priority for use of the portable auxiliary power source.

3. The supplier of water demonstrates that the portable auxiliary power source will at all times be in reasonably close proximity to (i.e., within 25 miles of) the water system components for which standby power is required.

(e) Where standby power is required and the time delay required to manually transfer electrical loads from one power source to another could result in failure to maintain the minimum water distribution system pressure required under subsection 62-555.350(7), the supplier of water shall provide a system to automatically start up the auxiliary power source if an auxiliary power source is provided and to automatically transfer electrical loads.

The system must demonstrate that they have first priority for the generators promised by the local provider.

Expected Time for Correction: Please demonstrate the above in writing by October 31, 2016.

To see any of the above referenced rules, visit <http://www.dep.state.fl.us/legal/Rules/rulelistpro.htm#dw>

REMARKS AND RECOMMENDATIONS

Additional Issues to be Addressed:

1. System says stand-by right angle drive at Well 2 is run monthly, but events are not recorded. Begin documenting events.
2. Fan at gas chlorine room at Well 1 (aka 3) must be repaired or replaced with a working fan.
3. Ground Tank at Booster Station needs locking ladder and screen on overflow pipe.
4. Repair chlorine alarm at Plant 1 (aka 3).

Outstanding Permits as of July 22, 2016 - Response Requested

Our records indicate that the following permits have not been cleared by this office. Please submit a Project Status report for the permits listed with your response to this report. The 'Project Status' would fall into one of the following categories, A, B, C, D, or E:

- | | |
|------------------------------|------------------------------------------|
| A. not started | D. complete, and in use |
| B. started, but not complete | E. project abandoned (will not be built) |
| C. complete, but not in use | |

PERMIT NO.	PROJECT NAME	DATE RECEIVED	DATE ISSUED	STATUS
0080041-017-DS/C	LUCI II Emergency Ground Storage Tank Fill	Jan 16, 2009	February 11, 2009	*
0318119-001-WC/M1	LUCI Chlorine to Hypochlorite	April 15, 2013	June 3, 2013 (?)	
0332604-001-DS/C	FDOT - SR 30E from SR 30A to St. Joe Bay Buffer Preserve	February 16, 2015	February 18, 2015	

*PREVIOUS STATUS= Constructed but not yet cleared - not in use per email 8/1/11. Please update.

Well Head Protection Plan

For most water systems, the original Well Head Protection Plans were developed with the aid of Florida Rural Water Association (FRWA) some years ago. The Plan could not be located at the time of this visit. The Plan must be located and reviewed and updated to reflect any changes in the system. FRWA may be contacted for assistance in updating this plan (www.frwa.net). The Plan will be reviewed at the next inspection.

Preventative Maintenance Program

Improper maintenance can lead to system failures and sanitary deficiencies. A written PM should be established and followed for each piece of equipment in the pumping facility. The programs should be based on manufacturers' recommended maintenance tasks, and records should be kept of maintenance as it is performed. In general, smaller water systems need much less sophisticated PM programs; however, all water systems should have a written program in place, even if it is very basic.

Critical components of a PM program include:

- | | |
|---------------------------------------|-------------------------------|
| • Equipment Inventory | • List of Technical Resources |
| • Manufacturers' Technical Literature | • Tools |
| • Written PM Tasks and Schedule | • Spare Parts Inventory |
| • Records of Maintenance Performed | |

The Department recommends that a PM program be established and implemented to prevent system failures and sanitary deficiencies.

REMARKS AND RECOMMENDATIONS (CONTINUED)

Flow Meters

Paperwork indicated that the last accuracy checks were performed on both plants' flow meters in 2014 by FRWA. The meter at Well 2 read at 5.5% accuracy. If the accuracy is greater than 5%, the meters must be repaired or replaced or verified with another source. Also, flow meter checks should be conducted every three years. Please have the meter at Well 2 repaired or replaced or verified with another source.

Gas Chlorination Rooms

The 2003 rule revisions have not been implemented in the designs for the existing chlorine rooms as they pertain to chlorine safety. Consideration should be given to modernizing these facilities. The following design elements from Recommended Standards For Water Works (RSWW), Part 5, should be included in any future modification of the chlorine rooms to provide the best level of safety and to comply with the updated rule:

Where chlorine gas is used, the room shall be constructed to provide the following:

- a. Each room shall have a ventilating fan with a capacity which provides one complete air change per minute when the room is occupied,
- b. The ventilating fan shall take suction near the floor as far as practical from the door and air inlet, with the point of discharge so located as not to contaminate air inlets to any rooms or structures,
- c. Air inlets should be through louvers near the ceiling,
- d. Louvers for chlorine room air intake and exhaust shall facilitate airtight closure,
- e. Separate switches for the fan and lights shall be located outside of the chlorine room and at the inspection window. Outside switches shall be protected from vandalism. A signal light indicating fan operation shall be provided at each entrance when the fan can be controlled from more than one point,
- f. Vents from feeders and storage shall discharge to the outside atmosphere, above grade,
- g. The room location should be on the prevailing downwind side of the building away from entrances, windows, louvers, walkways, etc.,
- h. Floor drains are discouraged. Where provided, the floor drains shall discharge to the outside of the building and shall not be connected to the other internal or external drainage systems.
- i. Where deemed necessary, provision shall be made to chemically neutralize chlorine gas before discharge from the water treatment plant building into the environment. Such equipment shall be designed as part of the chlorine gas storage and feed areas to automatically engage in the event of any measured chlorine release. The equipment shall be sized to treat the entire contents of the largest storage container on site.
- j. Chlorinator rooms should be heated to 60F, and be protected from excessive heat. Cylinders and gas lines should be protected from temperatures above that of the feed equipment.
- k. Pressurized chlorine feed lines shall not carry chlorine gas beyond the chlorine room.

When upgrades are made to the rooms, they must follow the design indicated above.

Oculus System For Public Access To FDEP Records

The NW District is going paperless with the new OCULUS electronic document management system. OCULUS may be accessed by the public at: <http://wrmedms.dep.state.fl.us/Oculus/>. All documents (including sampling results, permitting, enforcement, etc.) will eventually be accessible through this site. Until document conversion is complete, older documents may still be obtained in hard copy. For questions on OCULUS, please contact Ms. Toni Touart at (850)595-0658 or toni.touart-rohlke@dep.state.fl.us, or Ms. Rebecca Wilson at (850)595-0668 or rebecca.a.wilson@dep.state.fl.us.

REMARKS AND RECOMMENDATIONS (CONTINUED)

StormTracker Website

The Storm Tracker website is operational for online reporting of post-storm drinking water (and wastewater) system status. It is important to visit/update this site whenever the status of your facility has changed, or if you have other information that needs to be updated (before, during, or after a storm). Our state staff and emergency operators will be using this data to better assist you during storms and recovery. To enter the status and other important information regarding your system, or for more information now, please go to the following site:

<http://waterwebprod.dep.state.fl.us/stormtracker/login.asp>

Username: **florida**

Password: **storm**

Should your facility ever require immediate assistance to ensure public health & safety, please contact your County Emergency Operation Center (EOC) (info at http://www.floridadisaster.org/County_EM/county_list.htm) or the State Watch Office (formerly State Warning Point) at (800) 320-0519. StormTracker entry does not replace required Watch Office reporting; any normally-reportable emergencies, storm-related or not, still need to go through the Watch Office.

- End of Report -

INSPECTOR'S SIGNATURE Elizabeth Willard DATE: September 9, 2016

REVIEWED BY Daved Hines DATE: September 23, 2016

EXHIBIT D

Exhibit D

The purpose of this project is to address the existing and future water improvements needed within the Lighthouse Utilities Company Inc. (LUCI) system. Lighthouse Utilities Company, Inc. (LUCI) is a privately owned company which owns and operates the LUCI Water System for unincorporated areas in South Gulf County, Florida. LUCI's service area encompasses approximately 13 square miles covering the St. Joseph Peninsula, Jones Homestead and Indian Pass communities. LUCI's estimated average service population is approximately 4,375 residents. LUCI currently services 1,750 total connections. However, based on seasonal peaks, it is estimated that of the total connections, 1,312 connections are permanent residences and the remaining 438 connection are seasonal transient connections. This project (the Water System Improvements) addresses the water system improvements needed for a 20 year planning period.

The Water System Improvements will consolidate the majority of the system's critical infrastructure to the LUCI II location. LUCI I will become a raw water pumping station. A new 6 inch raw water main (12,000 linear feet) will be installed from LUCI I to LUCI II. The treatment at LUCI II will be upgraded to address water quality issues (specifically disinfection byproducts) in order to bring the system into compliance with both state and federal minimum requirements for water quality and will specifically address issues identified in the Florida Department of Environmental Protection ("FDEP") Consent Order dated July 9th, 2018. Existing water treatment and storage components at LUCI I will be demolished and those components at LUCI II will be upgraded. In addition, resiliency at both LUCI I and LUCI II will be improved to reduce flood risks by raising vulnerable equipment out of the base flood elevation. Both well stations will be improved with backup power supply in case of a natural disaster or other system power outage. Upgrades to the well pumps, service pumps, pipes, tanks, and chlorination will be included. Support facilities with employee amenities (offices and restrooms) will be installed. The proposed project will include installation of a new well/treatment station (LUCI IV) within the Jones Homestead area in order to increase system permitted and production capacity to sufficiently meet all of the future demand and fire flow requirements. Implementation of the proposed improvements will greatly improve the entire system's reliability, capacity to meet future demand, provide fire flow and provide a safer, more reliable water distribution system to residents throughout the service area.

The Water System Improvements project focuses on implementing all of the improvements listed below for upgrades at LUCI I and II, and includes a new well and treatment plant within the Jones Homestead area of the system which would allow the system to fully meet future demand capacity and would also provide sufficient fire flow to all residents within the service area. In order to maintain service during

implementation of the proposed improvements and due to the scope of work required, it is recommended that the construction be broken into two phases. The proposed improvements are listed below.

Proposed Improvements for new well (LUCI IV):

- Permitting, design and construction of new 16" well, pump, and appurtenances (proposed LUCI IV) within Jones Homestead distribution area.
- Construction of new well building for proposed LUCI IV.
- Construction of a new hydrogen sulfide treatment system and disinfection byproduct system.
- New 250,000 gallon ground storage tank at LUCI IV.
- Installation of chlorine treatment system.
- Fiberglass building for chlorine treatment system.
- Electrical and office building with office space, climate control, and restrooms.
- Electrical power upgrades including upgrading to 3-phase power associated with improvements.
- Installation of service pumps, piping, valves, concrete slab, instrumentation, controls, and telemetry.
- Install new master meter assembly.
- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances.
- Installation of safety fence, sidewalks, driveway, and associated stormwater facilities.
- Installation of new disinfection by products treatment system.
- Replace tank aerators at both LUCI I and II with hydrogen sulfide removal system in order to improve chlorine residuals throughout system.
- Cleaning of tank at LUCI III and installation of screens on all tank overflow pipes.
- Washout of accumulated sludge/biogrowth at all treatment tanks.
- Purchase portable generators for back-up power supply for high service pumps and chlorinators at LUCI I, II, and III.
- Replace high service pumps at LUCI I and II in order to comply with Rule 62-555.320(15)(b) F.A.C.

Proposed Improvements at LUCI I:

- Demolition/removal of all facilities at well station LUCI I (including storage tanks and chlorine treatment) except current well and pump.
- Electrical upgrades to elevate pump controls above new FEMA Base Flood Elevation (BFE).
- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances on platform elevated above BFE for back-up power supply.
- Upgrade well pump motor.
- Installation of new enclosed pump house, elevated above BFE.
- Installation of new well building.
- Installation of new piping and flow meter.
- Installation of 8 inch raw water main from LUCI I to LUCI II (approximately 12,000 linear feet).

Proposed Improvements at LUCI II:

- Upgrade existing 16" well to pump up to 700 gpm (including associated electrical upgrades and controls).
- Request permit modification to allow for additional capacity to address projected future demands.
- Construction of new well building.
- Replace tank aerator with hydrogen sulfide treatment system and disinfection byproducts treatment system.
- New liquid chlorine treatment system and piping.
- Fiberglass building for chlorine treatment system, elevated above BFE.
- Electrical building with climate control. Finish floor to be elevated above BFE.
- Install new service pumps including new above grade piping, valves, concrete pad, instrumentation, controls, and telemetry.
- Electrical power upgrades including elevating all controls and equipment above BFE.
- Convert 316,000 gallon raw water tank to finished water storage tank for increased storage capacity.
- Replace all existing piping within facility yard.
- Install new master meter assembly.

- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances on platform elevated above BFE for back-up power supply.
- Installation of sidewalks for access.
- Repair to existing gravel driveway.
- Replace high service pumps at LUCI I and II in order to comply with Rule 62-555.320(15)(b) F.A.C.

Proposed Improvements at LUCI III:

- Installation of new disinfection by products treatment system.

Additional Improvements:

- Installation of 250 LF of 8" directional bore at Indian Pass to replace existing crossing. The existing water line is attached to the roadway bridge and the existing anchoring is failing.
- Installation of 1,100 LF of 16" directional bore at Money Bayou to replace existing crossing. The existing water line is attached to the roadway bridge and the existing anchoring failed in 2017 and currently water line is chained to the bridge.
- Installation of 1,500 LF of 12" directional bore at the Stump Hole to replace existing crossing which has been eroded. The Stump Hole area was damaged by Hurricane Irma and has further eroded to undermine the roadway and existing water line.

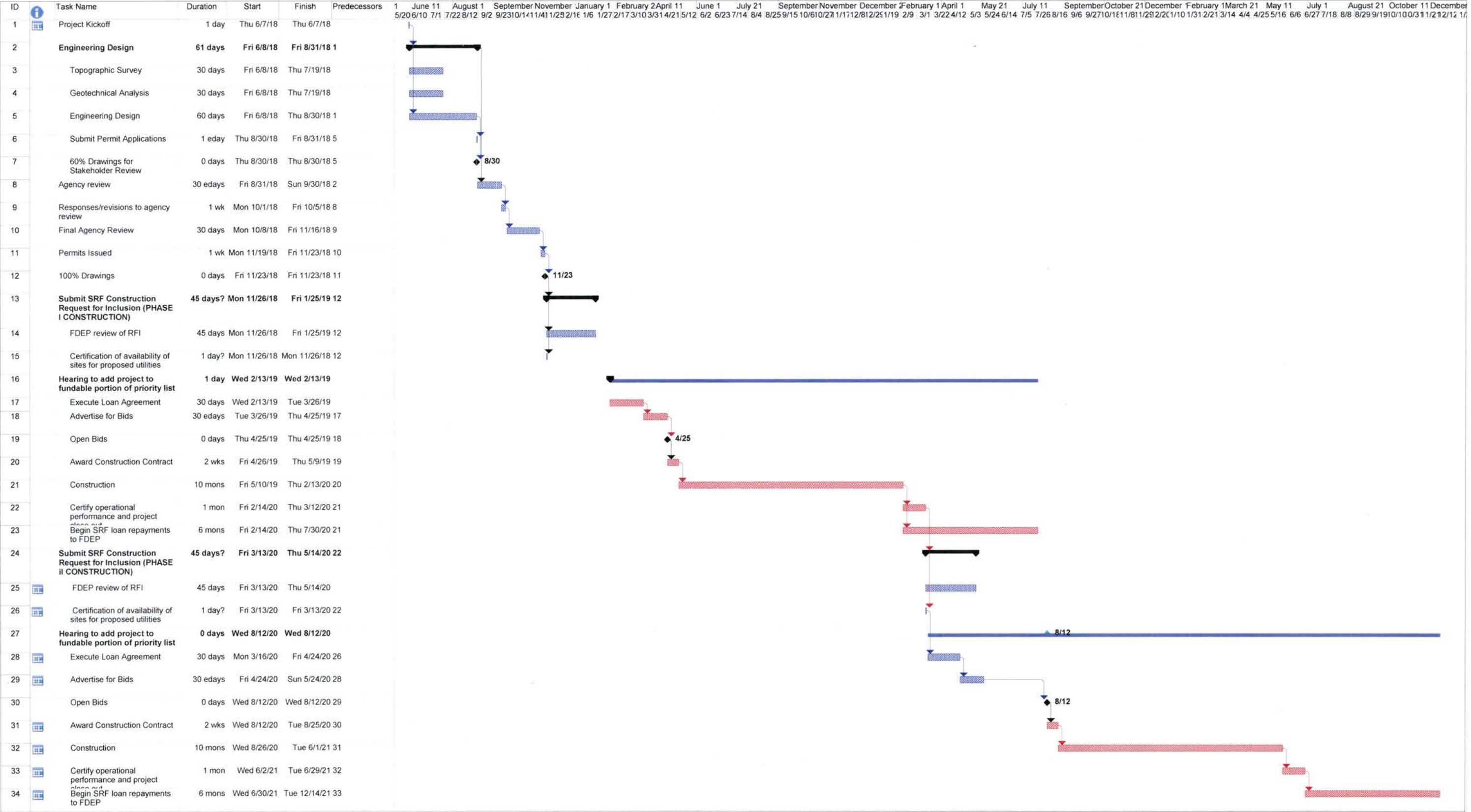
**COMPOSITE
EXHIBIT E**

ENGINEER'S COST OPINION FOR
WATER SYSTEM IMPROVEMENTS
LIGHTHOUSE UTILITIES COMPANY, INC

	Description	Quantity	Unit	Unit Price	Extension
ALL IMPROVEMENTS INCLUDED IN LUCI I AND II					
1	All Improvements Listed in LUCI I AND II	1	LS	\$ 3,110,000.00	\$ 3,110,000.00
GENERAL COSTS					
2	Clearing and Grubbing	1	LS	\$ 5,000.00	\$ 5,000.00
3	Flushing/Testing	1	LS	\$ 10,000.00	\$ 10,000.00
4	Layout/As-Builts	1	LS	\$ 25,000.00	\$ 25,000.00
5	Earthwork Fill and Site Prep	1	LS	\$ 30,000.00	\$ 30,000.00
PRODUCTION WELL					
6	16" Well, Pump, and Appurtenances	1	LS	\$ 600,000.00	\$ 600,000.00
7	Electrical and Controls	1	LS	\$ 40,000.00	\$ 40,000.00
8	Well Building	1	LS	\$ 40,000.00	\$ 40,000.00
GROUND STORAGE TANK					
9	200,000 Gallon Ground Storage Tank (concrete)	1	LS	\$ 280,000.00	\$ 280,000.00
10	Hydrogen Sulfide and Disinfection Byproducts Treatment Systems	1	LS	\$ 300,000.00	\$ 300,000.00
MCC BUILDING, CHLORINE BUILDING					
12	MCC Building with Office Space and Bathroom	1,200	SF	\$ 200.00	\$ 240,000.00
13	Liquid Chlorine Equipment and Piping	1	LS	\$ 50,000.00	\$ 50,000.00
16	HVAC	1	LS	\$ 10,000.00	\$ 10,000.00
SERVICE PUMPS					
17	Service Pumps	4	EA	\$ 30,000.00	\$ 120,000.00
18	Above-Grade Piping, Valves for Pumps	1	EA	\$ 60,000.00	\$ 60,000.00
19	Concrete Foundation & Cover	1	EA	\$ 40,000.00	\$ 40,000.00
20	Instrumentation, Controls, and Telemetry	1	LS	\$ 75,000.00	\$ 75,000.00
21	Electrical Power (Complete)	1	LS	\$ 340,000.00	\$ 340,000.00
22	Generator and all appurtenances (including fuel tank)	1	LS	\$ 100,000.00	\$ 100,000.00
SITE IMPROVEMENTS					
23	Erosion Control	1	LS	\$ 10,000.00	\$ 10,000.00
24	6' Fence with 3 16' Gates	800	LF	\$ 20.00	\$ 16,000.00
25	4" Concrete Sidewalk	100	SY	\$ 35.00	\$ 3,500.00
26	Driveway - Concrete	200	CY	\$ 115.00	\$ 23,000.00
27	Driveway - Limerock	120	CY	\$ 25.00	\$ 3,000.00
28	Drainage and Stormwater Treatment	1	LS	\$ 50,000.00	\$ 50,000.00
29	Electrical Upgrades (to 3-phase power)	1	LS	\$ 20,000.00	\$ 20,000.00
PIPING AND DISTRIBUTION					
30	Yard Piping	1	LS	\$ 60,000.00	\$ 60,000.00
31	12" Master Meter Assembly (above grade)	1	LS	\$ 30,000.00	\$ 30,000.00
SUBTOTAL FOR LUCI IV IMPROVEMENTS					\$ 2,580,500.00
Subtotal Alternate Three					\$ 5,690,500
10% Bonds, Insurance, Mobilization					\$ 569,050
Construction Subtotal					\$ 6,259,550
5% Contingency					\$ 312,978
Engineer's Cost Opinion of Construction Total					\$ 6,572,528
Cost Opinion of Total Engineering Design and Permitting					\$498,786
Asset Management Plan (requirement of funding source)					\$45,000
Construction Services (12 month construction period)					\$ 180,000
Land					\$ 60,000
Cost Opinion of Total Construction Technical Services					\$ 285,000
Total Estimated Cost					\$ 7,356,314

ENGINEER'S COST OPINION FOR
WATER SYSTEM IMPROVEMENTS
LIGHTHOUSE UTILITIES COMPANY, INC

	Description	Quantity	Unit	Unit Price	Extension
GENERAL COSTS					
1	Flushing/Testing	1	LS	\$ 20,000.00	\$ 20,000.00
2	Layout/As-Builts	1	LS	\$ 50,000.00	\$ 50,000.00
3	Demolition	1	LS	\$ 150,000.00	\$ 150,000.00
LUCI 1 WELL IMPROVEMENTS					
4	Upgrade Well Pump Motor	1	LS	\$ 75,000.00	\$ 75,000.00
5	Electrical Modifications	1	LS	\$ 50,000.00	\$ 50,000.00
6	Structural Modifications (Elevated Enclosure)	1	LS	\$ 100,000.00	\$ 100,000.00
7	Piping and Flow Meter	1	LS	\$ 30,000.00	\$ 30,000.00
7	Generator and all appurtenances (including fuel tank and elevated platform)	1	LS	\$ 90,000.00	\$ 90,000.00
LUCI 1 PIPING AND DISTRIBUTION					
8	8" Raw Water Main to LUCI - 2 (includes fittings, valves, etc.)	9,000	LF	\$ 40.00	\$ 360,000.00
9	8" Fusible PVC Directional Bores	3,000	LF	\$ 100.00	\$ 300,000.00
LUCI 2 PRODUCTION WELL					
10	Upgrade Existing 16" Well to 700 gpm	1	LS	\$ 120,000.00	\$ 120,000.00
11	Electrical and Controls	1	LS	\$ 50,000.00	\$ 50,000.00
12	Well Building	1	LS	\$ 60,000.00	\$ 60,000.00
LUCI 2 GROUND STORAGE TANK					
13	Demo Aerator and Install H2S and Disinfection Byproducts Treatment Systems	1	LS	\$ 350,000.00	\$ 350,000.00
LUCI 2 MCC BUILDING, CHLORINE BUILDING					
14	MCC Building	300	SF	\$ 200.00	\$ 60,000.00
15	Fiberglass Chlorine Building (54"x72"x84" high)	1	LS	\$ 40,000.00	\$ 40,000.00
16	Liquid Chlorine Equipment and Piping	1	LS	\$ 30,000.00	\$ 30,000.00
17	HVAC	1	LS	\$ 15,000.00	\$ 15,000.00
LUCI 2 SERVICE PUMPS					
18	Service Pumps	4	EA	\$ 30,000.00	\$ 120,000.00
19	Above-Grade Piping, Valves for Pumps	1	EA	\$ 60,000.00	\$ 60,000.00
20	Concrete Foundation	1	EA	\$ 40,000.00	\$ 40,000.00
21	Instrumentation, Controls, and Telemetry	1	LS	\$ 75,000.00	\$ 75,000.00
22	Electrical Power (Complete)	1	LS	\$ 225,000.00	\$ 225,000.00
23	Generator and all appurtenances (including fuel tank and elevated platform)	1	LS	\$ 100,000.00	\$ 100,000.00
LUCI 2 SITE IMPROVEMENTS					
24	Erosion Control	1	LS	\$ 10,000.00	\$ 10,000.00
25	4" Concrete Sidewalk	40	SY	\$ 35.00	\$ 5,000.00
26	Driveway - Limerock	100	CY	\$ 25.00	\$ 15,000.00
LUCI 2 PIPING AND DISTRIBUTION					
27	Yard Piping	1	LS	\$ 60,000.00	\$ 60,000.00
28	Master Meter Assembly (above grade)	1	LS	\$ 30,000.00	\$ 30,000.00
LUCI 3 SITE IMPROVEMENTS					
29	Install Disinfection Byproducts Treatment Systems	1	LS	\$ 50,000.00	\$ 50,000.00
ADDITIONAL IMPROVEMENTS					
30	8" Fusible PVC Directional Bores (Indian Pass)	250	LF	\$ 100.00	\$ 25,000.00
31	12" Fusible PVC Directional Bores (Stumphole)	1,500	LF	\$ 120.00	\$ 180,000.00
32	16" Fusible PVC Directional Bores (Money Bayou)	1,100	LF	\$ 150.00	\$ 165,000.00
Subtotal					\$ 3,110,000



Project: Luci_Project Schedule.mpp Date: Tue 9/25/18	Task		Rolled Up Task		Split		Inactive Task		Manual Task		Start-only		Progress	
	Critical Task		Rolled Up Critical Task		External Tasks		Inactive Milestone		Duration-only		Finish-only		Deadline	
	Milestone		Rolled Up Milestone		Project Summary		Inactive Milestone		Manual Summary Rollup		External Tasks		External Milestone	
	Summary		Rolled Up Progress		Group By Summary		Inactive Summary		Manual Summary		External Milestone			

COMPOSITE
EXHIBIT F

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

AND

LIGHTHOUSE UTILITIES COMPANY, INC.

**DRINKING WATER STATE REVOLVING FUND
LOAN AGREEMENT
DW230300**

Florida Department of Environmental Protection
State Revolving Fund Program
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard, MS 3505
Tallahassee, Florida 32399-3000

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DRINKING WATER STATE REVOLVING FUND
LOAN AGREEMENT
DW230300

THIS AGREEMENT is executed by the STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (Department) and LIGHTHOUSE UTILITIES COMPANY, INC., (Project Sponsor) existing as a for profit corporation under the laws of the State of Florida.

WITNESSETH:

WHEREAS, pursuant to Section 403.8532, Florida Statutes, the Department is authorized to make loans to finance the planning, design and finance or refinance the construction of public water systems; and

WHEREAS, the Project Sponsor has made application for the financing of Preconstruction Activities, and the Department has determined that all requirements for a Loan have been met.

NOW, THEREFORE, in consideration of the Department loaning money to the Project Sponsor, in the principal amount and pursuant to the covenants hereinafter set forth, it is agreed as follows:

ARTICLE I - DEFINITIONS

1.01. WORDS AND TERMS.

Words and terms used herein shall have the meanings set forth below:

- (1) "Agreement" or "Loan Agreement" shall mean this agreement.
- (2) "Authorized Representative" shall mean the official of the Project Sponsor authorized by ordinance or resolution to sign documents associated with the Loan.
- (3) "Capitalized Interest" shall mean the interest accruing on Loan proceeds from the time of disbursement until six months before the first Semiannual Loan Payment is due. Capitalized Interest is financed as part of the Loan principal.
- (4) "Construction Related Costs" shall mean costs for allowable construction, equipment, materials, demolition, land, contingency, and technical services after construction bid opening, and Capitalized Interest associated with the foregoing costs.
- (5) "Depository" shall mean a bank or trust company, having a combined capital and unimpaired surplus of not less than \$50 million, authorized to transact commercial banking or savings and loan business in the State of Florida and insured by the Federal Deposit Insurance Corporation.

(6) "Gross Revenues" shall mean all income or earnings received by the Project Sponsor from the ownership or operation of its Water System, including investment income, all as calculated in accordance with generally accepted accounting principles. Gross Revenues shall not include proceeds from the sale or other disposition of any part of the Water System, condemnation awards or proceeds of insurance, except use and occupancy or business interruption insurance, received with respect to the Water System.

(7) "Loan" shall mean the amount of money to be loaned pursuant to this Agreement and subsequent amendments.

(8) "Loan Application" shall mean the completed form which provides all information required to support obtaining loan financial assistance from the Department.

(9) "Loan Debt Service Account" shall mean an account, or a separately identified component of a pooled cash or liquid account, with a Depository established by the Project Sponsor for the purpose of accumulating Monthly Loan Deposits and making Semiannual Loan Payments.

(10) "Loan Service Fee" shall mean an origination fee which shall be paid to the Department by the Project Sponsor.

(11) "Monthly Loan Deposit" shall mean the monthly deposit to be made by the Project Sponsor to the Loan Debt Service Account.

(12) "Operation and Maintenance Expense" shall mean the costs of operating and maintaining the Water System determined pursuant to generally accepted accounting principles, exclusive of interest on any debt payable from Gross Revenues, depreciation, and any other items not requiring the expenditure of cash.

(13) "Pledged Revenues" shall mean the specific revenues pledged as security for repayment of the Loan and shall be the Gross Revenues derived yearly from the operation of the Water System after payment of the Operation and Maintenance Expense and the satisfaction of all yearly payment obligations on account of any senior obligations issued pursuant to Section 7.02 of this Agreement.

(14) "Preconstruction Activities" shall mean the planning, administrative, and engineering work necessary for the Project Sponsor to qualify for a Drinking Water State Revolving Fund loan to finance construction of drinking water facilities.

(15) "Project" shall mean the construction of facilities planned and designed through the Preconstruction Activities and financed by an amendment to this Agreement. The Project shall be defined more specifically when the Agreement is amended.

(16) "Semiannual Loan Payment" shall mean the payment due from the Project Sponsor to the Department at six-month intervals.

(17) "Water System" shall mean all facilities owned by the Project Sponsor for supplying and distributing water for residential, commercial, industrial, and governmental use.

1.02. CORRELATIVE WORDS.

Words of the masculine gender shall be understood to include correlative words of the feminine and neuter genders. Unless the context shall otherwise indicate, the singular shall include the plural and the word "person" shall include corporations and associations, including public bodies, as well as natural persons.

ARTICLE II - WARRANTIES, REPRESENTATIONS AND COVENANTS

2.01. WARRANTIES, REPRESENTATIONS AND COVENANTS.

The Project Sponsor warrants, represents and covenants that:

(1) The Project Sponsor has full power and Project Sponsor to enter into this Agreement and to comply with the provisions hereof.

(2) The Project Sponsor currently is not the subject of bankruptcy, insolvency, or reorganization proceedings and is not in default of, or otherwise subject to, any agreement or any law, administrative regulation, judgment, decree, note, resolution, charter or ordinance which would currently restrain or enjoin it from entering into, or complying with, this Agreement.

(3) There is no material action, suit, proceeding, inquiry or investigation, at law or in equity, before any court or public body, pending or, to the best of the Project Sponsor's knowledge, threatened, which seeks to restrain or enjoin the Project Sponsor from entering into or complying with this Agreement.

(4) The Project Sponsor knows of no reason why any future required permits or approvals associated with the Project are not obtainable.

(5) The Project Sponsor shall undertake the Project on its own responsibility, to the extent permitted by law.

(6) To the extent permitted by law, the Project Sponsor shall release and hold harmless the State, its officers, members, and employees from any claim arising in connection with the Project Sponsor's actions or omissions in its planning, engineering, administrative, and construction activities financed by this Loan or its operation of the Project.

(7) All Project Sponsor representations to the Department, pursuant to the Loan Application and Agreement, were true and accurate as of the date such representations were made. The financial information delivered by the Project Sponsor to the Department was current and correct as of the date such information was delivered. The Project Sponsor shall comply with Chapter 62-552, Florida Administrative Code, and all applicable State and Federal laws, rules, and regulations which are identified in the Loan Application or Agreement. To the extent that any assurance, representation, or covenant requires a future action, the Project Sponsor shall take such action as is necessary for compliance.

(8) The Project Sponsor shall maintain records using Generally Accepted Governmental Accounting Standards established by the Governmental Accounting Standards Board. As part of

its bookkeeping system, the Project Sponsor shall keep accounts of the Water System separate from all other accounts and it shall keep accurate records of all revenues, expenses, and expenditures relating to the Water System, and of the Pledged Revenues, Loan disbursement receipts, and Loan Debt Service Account.

(9) Each year, beginning three months before the first Semiannual Loan Payment and ending with the year during which the final Loan repayment is made, the Project Sponsor's Authorized Representative or its chief financial officer shall submit, pursuant to the schedule established in Section 10.07, a certification that: (a) Pledged Revenue collections satisfy the rate coverage requirement; (b) the Loan Debt Service Account contains the funds required; and (c) insurance in effect for the facilities generating the Pledged Revenues adequately covers the customary risks to the extent that such insurance is available.

(10) Pursuant to Section 216.347 of the Florida Statutes, the Project Sponsor shall not use this Loan proceeds for the purpose of lobbying the Florida Legislature, the Judicial Branch, or a State agency.

(11) The Project Sponsor agrees to complete the Preconstruction Activities and, upon inclusion by an amendment to this Agreement, the Project, in accordance with the Preconstruction Activities schedule set forth in Section 10.07 and a Project schedule added by amendment to this Agreement. Delays incident to strikes, riots, acts of God, and other events beyond the reasonable control of the Project Sponsor are excepted. However, there shall be no resulting diminution or delay in the Semiannual Loan Payment or the Monthly Loan Deposit.

(12) The Project Sponsor covenants that this Agreement is entered into for the purpose of completing planning, engineering, and administrative activities in order to construct facilities which will, in all events serve a public purpose. The Project Sponsor covenants that it will, under all conditions, complete and operate the Project to fulfill the public need.

(13) The Project Sponsor shall not during the life of this Agreement, cause or permit voluntary dissolution of its corporation, merge, or consolidate with any other entity, without obtaining the prior written consent of the Department.

2.02. LEGAL AUTHORIZATION.

Upon signing this Agreement, the Project Sponsor's legal counsel hereby expresses the opinion, subject to laws affecting the rights of creditors generally, that:

(1) This Agreement has been duly authorized by the Project Sponsor and shall constitute a valid and legal obligation of the Project Sponsor enforceable in accordance with its terms upon execution by both parties; and

(2) This Agreement specifies the revenues pledged for repayment of the Loan, and the pledge is valid and enforceable.

2.03. AUDIT AND MONITORING REQUIREMENTS.

The Project Sponsor agrees to the following audit and monitoring requirements.

(1) The financial assistance authorized pursuant to this Loan Agreement consists of the following:

State Resources Awarded to the Project Sponsor Pursuant to this Agreement Consist of the Following:					
State Program Number	Funding Source	CSFA Number	CSFA Title or Fund Source Description	Funding Amount	State Appropriation Category
Original Agreement	Drinking Water Revolving Loan TF	37.076	Drinking Water Facility Construction	\$240,000	140129

(2) Audits.

Within 12 months of the amendment establishing final Project costs, the Project Sponsor shall have an audit conducted by an independent certified public accountant of the Project revenues, including receipt of disbursements under financial assistance agreements, and expenditures. The audit shall be conducted in accordance with generally accepted auditing standards. The audit shall address whether the Project Sponsor complied with requirements set forth in the Loan Agreement, including applicable State and Federal laws and regulations referenced in Subsection 2.02(7). The audit findings shall set aside or question any costs that are unallowable under Chapter 62-552, Florida Administrative Code. A final determination of the allowability of such costs shall be made by the Department.

(3) Report Submission.

(a) Copies of financial reporting packages shall be submitted by or on behalf of the Project Sponsor directly to each of the following:

(i) The Department at one of the following addresses:

By Mail:

Audit Director

Florida Department of Environmental Protection
Office of the Inspector General
3900 Commonwealth Boulevard, MS 40
Tallahassee, Florida 32399-3123

Electronically:

FDEPSingleAudit@dep.state.fl.us

(ii) The Auditor General's Office at the following address:

State of Florida Auditor General
Room 401, Claude Pepper Building

111 West Madison Street
Tallahassee, Florida 32399-1450

(iii) Copies of reports or management letters shall be submitted by or on behalf of the Project Sponsor directly to the Department at either of the following addresses:

By Mail:

Audit Director

Florida Department of Environmental Protection
Office of the Inspector General
3900 Commonwealth Boulevard, MS 40
Tallahassee, Florida 32399-3123

Electronically:

FDEPSingleAudit@dep.state.fl.us

(b) Any reports, management letters, or other information required to be submitted to the Department pursuant to this Agreement shall be submitted timely in accordance with Florida Statutes, or Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, as applicable.

(c) Project Sponsors, when submitting financial reporting packages to the Department for audits done in accordance with Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, should indicate the date that the reporting package was delivered to the Project Sponsor on correspondence accompanying the reporting package.

(4) Project-Specific Audit.

Within 12 months after the amendment establishing final Project costs, the Project Sponsor shall submit to the Department a Project-specific audit report for the Loan related revenues and expenditures. The audit shall address Loan disbursements received, Project expenditures, and compliance with Loan Agreement covenants. The Project Sponsor shall cause the auditor to notify the Department immediately if anything comes to the auditor's attention during the examination of records that would constitute a default under the Loan Agreement. The audit findings shall set aside or question any costs that are unallowable under Chapter 62-552, Florida Administrative Code. A final determination of whether such costs are allowed shall be made by the Department.

(5) Record Retention.

The Project Sponsor shall retain sufficient records demonstrating its compliance with the terms of this Agreement for a period of five years from the date the audit report is issued, and shall allow the Department, or its designee, Chief Financial Officer, or Auditor General access to such records upon request. The Project Sponsor shall ensure that audit working papers are made available to the Department, or its designee, Chief Financial Officer, or Auditor General upon request for a period of five years from the date the audit report is issued, unless extended in writing by the Department.

The Project Sponsor is hereby advised that the Florida Single Audit Act Requirements may further apply to lower tier transactions that may be a result of this Agreement.

The Project Sponsor should confer with its chief financial officer, audit director or contact the Department for assistance with questions pertaining to the applicability of these requirements.

(6) Monitoring.

In addition to reviews of audits conducted in accordance with Section 215.97, F.S., as revised monitoring procedures may include, but not be limited to, on-site visits by Department staff and/or other procedures. By entering into this Agreement, the Project Sponsor agrees to comply and cooperate with any monitoring procedures/processes deemed appropriate by the Department. In the event the Department determines that a limited scope audit of the Project Sponsor is appropriate, the Project Sponsor agrees to comply with any additional instructions provided by the Department to the Project Sponsor regarding such audit. The Project Sponsor further agrees to comply and cooperate with any inspections, reviews, investigations, or audits deemed necessary by the Chief Financial Officer or Auditor General.

ARTICLE III - LOAN REPAYMENT ACCOUNT

3.01. LOAN DEBT SERVICE ACCOUNT.

The Project Sponsor shall establish a Loan Debt Service Account with a Depository and begin making Monthly Loan Deposits no later than the date set forth for such action in Section 10.07 of this Agreement.

Beginning six months prior to each Semiannual Loan Payment, the Project Sponsor shall make six Monthly Loan Deposits. The first five deposits each shall be at least equal to one-sixth of the Semiannual Loan Payment. The sixth Monthly Loan Deposit shall be at least equal to the amount required to make the total on deposit in the Loan Debt Service Account equal to the Semiannual Loan Payment amount, taking into consideration investment earnings credited to the account pursuant to Section 3.02.

Any month in which the Project Sponsor fails to make a required Monthly Loan Deposit, the Project Sponsor's chief financial officer shall notify the Department of such failure. In addition, the Project Sponsor agrees to make payment to the Department, if necessary, from other legally available funds all sums becoming due before the same become delinquent. This requirement shall not be construed to give superiority to the Department's claim on any revenues over prior claims of general creditors of the Project Sponsor, nor shall it be construed to give the Department the power to require the Project Sponsor to levy and collect any revenues other than Pledged Revenues.

3.02. INVESTMENT OF LOAN DEBT SERVICE ACCOUNT MONEYS.

Moneys on deposit in the Loan Debt Service Account shall be invested pursuant to the laws of the State of Florida. Such moneys may be pooled for investment purposes. The maturity or redemption date of investments shall be not later than the date upon which such moneys may

be needed to make Semiannual Loan Payments. The investment earnings shall be credited to the Loan Debt Service Account and applied toward the Monthly Loan Deposit requirements.

3.03. LOAN DEBT SERVICE ACCOUNT WITHDRAWALS.

The withdrawal of moneys from the Loan Debt Service Account shall be for the sole purpose of making the Semiannual Loan Payment or for discharging the Project Sponsor's obligations pursuant to Section 8.01.

3.04. ASSETS HELD IN TRUST.

The assets in all accounts created under this Loan Agreement shall be held in trust for the purposes provided herein and used only for the purposes and in the manner prescribed in this Agreement; and, pending such use, said assets shall be subject to a lien and charge in favor of the Department.

ARTICLE IV - PROJECT INFORMATION

4.01. PROJECT CHANGES.

After the Department's environmental review has been completed, the Project Sponsor shall promptly notify the Department, in writing, of any Project change that would require a modification to the environmental information document.

4.02. TITLE TO PROJECT SITE.

No later than the date established by Section 10.07, the Project Sponsor shall have an interest in real property sufficient for the construction and location of any facility planned and designed through Preconstruction Activities free and clear of liens and encumbrances which would impair the usefulness of such sites for the intended use. If a limited site title certification is accepted at that date, the Department shall establish a date for submittal of a clear site title certification by amendment.

4.03. RESERVED.

4.04. RESERVED.

4.05. RESERVED.

4.06. COMPLETION MONEYS.

The Department covenants that loan funds to finance Construction Related Costs will be made available to the Project Sponsor at no greater than the interest rate set forth in Section 10.03 provided the Project Sponsor complies with the schedule in Section 10.07, requests and obtains a ranking of the Construction Related Costs on the fundable portion of the Department's construction loan priority list, and submits a complete Loan Application. If the Project Sponsor does not complete the Preconstruction Activities by the date specified in Section 10.07, the

commitment to finance Construction Related Costs at no greater than the interest rate specified in Section 10.03 shall be terminated.

In addition to the proceeds of this or subsequent Loans, the Project Sponsor covenants that it has obtained, or will obtain, sufficient moneys from other sources to complete the Preconstruction Activities. The Project Sponsor also covenants that if additional Loan financing is provided for Construction Related Costs by amendment of this Agreement, it will obtain, sufficient moneys from other sources as necessary to complete the Project.

4.07. CLOSE-OUT.

The Department shall conduct a final inspection of the Project records, or the Preconstruction Activities records if this Agreement is not amended to fund Construction Related Costs. Following the inspection, deadlines for submitting additional disbursement requests, if any, shall be established, along with deadlines for uncompleted Loan requirements, if any. Deadlines shall be incorporated into the Loan Agreement by amendment. After the Department establishes the final costs to be financed by the Loan, the itemized costs will be adjusted by amendment. The Loan principal shall be reduced by any excess over the amount required to pay all approved costs. As a result of such adjustment, the Semiannual Loan Payment shall be reduced accordingly, as addressed in Section 10.05.

4.08. DISBURSEMENTS.

Disbursements shall be made only by the State Chief Financial Officer and only when the requests for such disbursements are accompanied by a Department certification that such withdrawals are proper expenditures. Disbursements shall be made directly to the Project Sponsor for reimbursement of allowable invoiced costs. Requests by the Project Sponsor for disbursements of the Planning funds shall be made using the Department's disbursement request form.

ARTICLE V - RATES AND USE OF THE WATER SYSTEM

5.01. RATE COVERAGE.

The Project Sponsor shall maintain rates and charges for the services furnished by the Water System which will be sufficient to provide, in each Fiscal Year, Pledged Revenues equal to or exceeding 1.15 times the sum of the Semiannual Loan Payments due in such Fiscal Year. In addition, the Project Sponsor shall satisfy the coverage requirements of all Senior Revenue Obligations and parity debt obligations.

5.02. NO FREE SERVICE.

The Project Sponsor shall not permit connections to, or furnish any services afforded by, the Water System without making a charge therefore based on the Project Sponsor's uniform schedule of rates, fees, and charges.

5.03. RESERVED

5.04. NO COMPETING SERVICE.

The Project Sponsor shall not allow any person to provide any services which would compete with the Water System so as to adversely affect Gross Revenues.

5.05. MAINTENANCE OF THE WATER SYSTEM.

The Project Sponsor shall operate and maintain the Water System in a proper, sound and economical manner and shall make all necessary repairs, renewals and replacements.

5.06. ADDITIONS AND MODIFICATIONS.

The Project Sponsor may make any additions, modifications or improvements to the Water System which it deems desirable and which do not materially reduce the operational integrity of any part of the Water System. All such renewals, replacements, additions, modifications and improvements shall become part of the Water System.

5.07. COLLECTION OF REVENUES.

The Project Sponsor shall use its best efforts to collect all rates, fees and other charges due to it. The Project Sponsor shall establish liens on premises served by the Water System for the amount of all delinquent rates, fees and other charges where such action is permitted by law. The Project Sponsor shall, to the full extent permitted by law, cause to discontinue the services of the Water System and use its best efforts to shut off water service furnished to persons who are delinquent beyond customary grace periods in the payment of Water System rates, fees and other charges.

ARTICLE VI - DEFAULTS AND REMEDIES

6.01. EVENTS OF DEFAULT.

Each of the following events is hereby declared an event of default:

(1) Failure to make any Monthly Loan Deposit or to make any installment of the Semiannual Loan Payment when it is due and such failure shall continue for a period of 30 days.

(2) Except as provided in Subsections 6.01(1) and 6.01(7), failure to comply with the provisions of this Agreement or failure in the performance or observance of any of the covenants or actions required by this Agreement and such failure shall continue for a period of 60 days after written notice thereof to the Project Sponsor by the Department.

(3) Any warranty, representation or other statement by, or on behalf of, the Project Sponsor contained in this Agreement or in any information furnished in compliance with, or in reference to, this Agreement, which is false or misleading.

(4) An order or decree entered, with the acquiescence of the Project Sponsor, appointing a receiver of any part of the Water System or Gross Revenues thereof; or if such order or decree, having been entered without the consent or acquiescence of the Project Sponsor, shall not be vacated or discharged or stayed on appeal within 60 days after the entry thereof.

(5) Any proceeding instituted, with the acquiescence of the Project Sponsor, for the purpose of effecting a composition between the Project Sponsor and its creditors or for the purpose of adjusting the claims of such creditors, pursuant to any federal or state statute now or hereafter enacted, if the claims of such creditors are payable from Gross Revenues of the Water System.

(6) Any bankruptcy, insolvency or other similar proceeding instituted by, or against, the Project Sponsor under federal or state bankruptcy or insolvency law now or hereafter in effect and, if instituted against the Project Sponsor, is not dismissed within 60 days after filing.

(7) Failure of the Project Sponsor to give immediate written notice of default to the Department and such failure shall continue for a period of 30 days.

6.02. REMEDIES.

Upon any event of default and subject to the rights of others having prior liens on the Pledged Revenues, the Department may enforce its rights by any of the following remedies:

(1) By mandamus or other proceeding at law or in equity, cause to establish rates and collect fees and charges for use of the Water System, and to require the Project Sponsor to fulfill this Agreement.

(2) By action or suit in equity, require the Project Sponsor to account for all moneys received from the Department or from the ownership of the Water System and to account for the receipt, use, application, or disposition of the Pledged Revenues.

(3) By action or suit in equity, enjoin any acts or things which may be unlawful or in violation of the rights of the Department.

(4) By applying to a court of competent jurisdiction, cause to appoint a receiver to manage the Water System, establish and collect fees and charges, and apply the revenues to the reduction of the obligations under this Agreement.

(5) By certifying to the Auditor General and the Chief Financial Officer delinquency on loan repayments, the Department may intercept the delinquent amount plus six percent, expressed as an annual interest rate, penalty of the amount due to the Department from any unobligated funds due to the Project Sponsor under any revenue or tax sharing fund established by the State, except as otherwise provided by the State Constitution or State law. Penalty interest shall accrue on any amount due and payable beginning on the 30th day following the date upon which payment is due.

(6) By notifying financial market credit rating agencies and potential creditors.

(7) By suing for payment of amounts due, or becoming due, with interest on overdue payments together with all costs of collection, including attorneys' fees.

(8) By accelerating the repayment schedule or increasing the interest rate on the unpaid principal of the Loan to as much as 1.667 times the Loan interest rate for a default under Subsection 6.01(1).

6.03. DELAY AND WAIVER.

No delay or omission by the Department to exercise any right or power accruing upon an event of default shall impair any such right or power or shall be construed to be a waiver of any such default or acquiescence therein, and every such right and power may be exercised as often as may be deemed expedient. No waiver or any default under this Agreement shall extend to or affect any subsequent event of default, whether of the same or different provision of this Agreement, or shall impair consequent rights or remedies.

ARTICLE VII - THE PLEDGED REVENUES

7.01. SUPERIORITY OF THE PLEDGE TO THE DEPARTMENT.

From and after the effective date of this Agreement, the Department shall have a lien on the Pledged Revenues, which along with any other Department State Revolving Fund liens on the Pledged Revenues, on equal priority, will be prior and superior to any other lien, pledge or assignment with the following exception. All obligations of the Project Sponsor under this Agreement shall be junior, inferior, and subordinate in all respects in right of payment and security to any additional senior obligations issued with the Department's consent pursuant to Section 7.02. Any of the Pledged Revenues may be released from the lien on such Pledged Revenues in favor of the Department if the Department makes a determination, based upon facts deemed sufficient by the Department, that the remaining Pledged Revenues will, in each Fiscal Year, equal or exceed 1.15 times the debt service coming due in each Fiscal Year under the terms of this Agreement.

7.02. ADDITIONAL DEBT OBLIGATIONS.

The Project Sponsor may issue additional debt obligations on a parity with, or senior to, the lien of the Department on the Pledged Revenues provided the Department's written consent is obtained. Such consent may be granted if the Project Sponsor demonstrates at the time of such issuance that the Pledged Revenues, which may take into account reasonable projections of growth of the Water System and revenue increases, plus revenues to be pledged to the additional proposed debt obligations will, during the period of time Semiannual Loan Payments are to be made under this Agreement, equal or exceed 1.15 times the annual combined debt service requirements of this Agreement and the obligations proposed to be issued by the Project Sponsor and will satisfy the coverage requirements of all other debt obligations secured by the Pledged Revenues.

ARTICLE VIII - GENERAL PROVISIONS

8.01. DISCHARGE OF OBLIGATIONS.

All Semiannual Loan payments required to be made under this Agreement shall be cumulative and any deficiencies in any Fiscal Year shall be added to the payments due in the succeeding year and all years thereafter until fully paid. Payments shall continue to be secured by this Agreement until all of the payments required shall be fully paid to the Department. If at any time the Project Sponsor shall have paid, or shall have made provision for the timely payment of, the entire principal amount of the Loan and interest, the pledge of, and lien on, the Pledged Revenues to the Department shall be no longer in effect. Deposit of sufficient cash, securities, or investments, authorized by law from time to time, may be made to effect defeasance of this Loan. However, the deposit shall be made in irrevocable trust with a banking institution or trust company for the sole benefit of the Department. There shall be no penalty imposed by the Department for early retirement of this Loan.

8.02. PROJECT RECORDS AND STATEMENTS.

Books, records, reports, engineering documents, contract documents, and papers shall be available to the authorized representatives of the Department and the U.S. Environmental Protection Agency's Inspector General for inspection at any reasonable time after the Project Sponsor has received a disbursement and until five years after the date that the Project-specific audit report, required under Subsection 2.03(4), is issued.

8.03. ACCESS TO PROJECT SITE.

The Project Sponsor shall provide access to offices and other sites where Preconstruction Activities or Project work is ongoing, or has been performed, to authorized representatives of the Department at any reasonable time. The Project Sponsor shall cause its engineers and contractors to provide copies of relevant records and statements for inspection.

8.04. ASSIGNMENT OF RIGHTS UNDER AGREEMENT.

The Department may assign any part of its rights under this Agreement after notification to the Project Sponsor. The Project Sponsor shall not assign rights created by this Agreement without the written consent of the Department.

8.05. AMENDMENT OF AGREEMENT.

This Agreement may be amended in writing, except that no amendment shall be permitted which is inconsistent with statutes, rules, regulations, executive orders, or written agreements between the Department and the U.S. Environmental Protection Agency (EPA). A final amendment establishing the final Project costs shall be completed after the Department's final inspection of the Project records.

8.06. ANNULMENT OF AGREEMENT.

The Department may unilaterally annul this Agreement if the Project Sponsor has not drawn any of the Loan proceeds within eighteen months after the effective date of this Agreement. If the Department unilaterally annuls this Agreement, the Department will provide written notification to the Project Sponsor.

8.07. SEVERABILITY CLAUSE.

If any provision of this Agreement shall be held invalid or unenforceable, the remaining provisions shall be construed and enforced as if such invalid or unenforceable provision had not been contained herein.

8.08. PUBLIC RECORDS ACCESS.

(1) The Project Sponsor shall comply with Florida Public Records law under Chapter 119, F.S. Records made or received in conjunction with this Agreement are public records under Florida law, as defined in Section 119.011(12), F.S. The Project Sponsor shall keep and maintain public records required by the Department to perform the services under this Agreement.

(2) This Agreement may be unilaterally canceled by the Department for refusal by the Project Sponsor to either provide to the Department upon request, or to allow inspection and copying of all public records made or received by the Project Sponsor in conjunction with this Agreement and subject to disclosure under Chapter 119, F.S., and Section 24(a), Article I, Florida Constitution.

(3) **IF THE PROJECT SPONSOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE LOCAL GOVERNMENT'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE DEPARTMENT'S CUSTODIAN OF PUBLIC RECORDS AT (850) 245-2118, by email at ombudsman@dep.state.fl.us, or at the mailing address below:**

Department of Environmental Protection
ATTN: Office of Ombudsman and Public Services
Public Records Request
3900 Commonwealth Blvd, MS 49
Tallahassee, FL 32399

8.09. TERMINATION FALSE CERTIFICATION, SCRUTINIZED COMPANIES, BOYCOTTING.

The Project Sponsor certifies that it and any of its affiliates are not scrutinized companies as identified in Section 287.135, F.S. In addition, the Project Sponsor agrees to observe the requirements of Section 287.135, F.S., for applicable sub-agreements entered into for the performance of work under this Agreement. Pursuant to Section 287.135, F.S., the Department may immediately terminate this Agreement for cause if the Project Sponsor, its affiliates, or its

subcontractors are found to have submitted a false certification; or if the Project Sponsor, its affiliates, or its subcontractors are placed on any applicable scrutinized companies list or engaged in prohibited contracting activity during the term of the Agreement. As provided in Subsection 287.135(8), F.S., if federal law ceases to authorize these contracting prohibitions then they shall become inoperative.

ARTICLE IX - RESERVED

ARTICLE X - DETAILS OF FINANCING

10.01. PRINCIPAL AMOUNT OF LOAN.

The estimated principal amount of the Loan is \$244,100, which consists of \$240,000 to be disbursed to the Project Sponsor and \$4,100 of Capitalized Interest.

Capitalized Interest is not disbursed to the Project Sponsor, but is amortized via periodic Loan repayments to the Department as if it were actually disbursed. Capitalized Interest is computed at the interest rate, or rates, set for the Loan. It accrues and is compounded annually from the time when disbursements are made until six months before the first Semiannual Loan Payment is due. Capitalized Interest is estimated prior to establishing the schedule of actual disbursements.

10.02. LOAN SERVICE FEE.

The Loan Service Fee is \$4,800 for the Loan amount authorized to date. The fee represents two percent of the Loan amount excluding Capitalized Interest; that is, two percent of \$240,000. An additional Loan Service Fee amount will be assessed for any additional funding provided by amendment to this Agreement. The fee shall be adjusted downward if adjustment of Project costs results in a Loan decrease, provided that the decrease amendment is executed before the first Semiannual Loan Payment due date.

Interest shall accrue on the Loan Service Fee at the rate, or rates, set for the Loan until the fee is paid. Loan Service Fee interest shall be compounded annually from the effective date of the Loan until six months before the first Semiannual Loan Payment is due at which time it is capitalized. The estimated Loan Service Fee Capitalized Interest is \$170.

10.03. INTEREST RATE.

The rate of interest on the unpaid principal of the Loan amount specified in Section 10.01 is 1.96 percent per annum. However, if this Agreement is not executed by the Project Sponsor and returned to the Department before October 1, 2016, the interest rate may be adjusted. A new interest rate shall be established for any additional funds provided by amendment to this Agreement.

10.04. LOAN TERM.

The Loan shall be repaid in 20 Semiannual Loan Payments.

10.05. REPAYMENT SCHEDULE.

The Semiannual Loan Payment shall be computed based upon the principal amount of the Loan plus the Loan Service Fee and Loan Service Fee capitalized interest and the principle of level debt service. The Department will deduct the Loan Service Fee and all associated interest from the first two payments. The Loan principal and Semiannual Loan Payment amounts may be revised by amendment of the Agreement. After the final disbursement of Loan proceeds, the Loan principal will be adjusted to reflect the actual dates and amounts of disbursements. Accordingly, the Semiannual Loan Payment amount shall be adjusted, taking into consideration any previous payments.

Each Semiannual Loan Payment shall be in the amount of \$13,775 until the payment amount is adjusted by amendment. The interest portion of each Semiannual Loan Payment shall be computed on the unpaid balance of the principal amount of the Loan, including Capitalized Interest. Interest also shall be computed on the unpaid balance of the Loan Service Fee and Loan Service Fee capitalized interest. Interest shall be computed as of the due date of each Semiannual Loan Payment.

Unless repayment is deferred by an amendment to this Agreement, Semiannual Loan Payments shall be received by the Department beginning on December 15, 2018 and semiannually thereafter on June 15 and December 15 of each year until all amounts due hereunder have been fully paid. Funds transfer shall be made by electronic means.

The Semiannual Loan Payment amount is based on the total amount owed of \$249,070, which consists of the Loan principal plus the Loan Service Fee with its capitalized interest.

10.06. PROJECT COSTS.

The Project Sponsor and the Department acknowledge that actual Project costs or Preconstruction Activity costs have not been determined as of the effective date of this Agreement. An adjustment to Preconstruction Activity costs may be made due to a reduction in the scope of work proposed for Loan funding as a result of the facilities planning process. Failure to achieve Department acceptance of plans and specifications for all facilities proposed for Loan funding prior to the date specified in Section 10.07 may cause adjustment of the Preconstruction Activity costs. Capitalized Interest will be recalculated based on actual dates and amounts of Loan disbursements. The final Project costs and all preconstruction activity costs shall be established in the final amendment. Changes in Project costs or Preconstruction Activity costs may also occur as a result of the Project Sponsor's audit or the Department's audit.

Preconstruction Activities costs by category are as follows:

CATEGORY	COST (\$)
Planning Activity costs	240,000
Capitalized Interest	4,100
TOTAL (Loan Principal Amount)	244,100

10.07. SCHEDULE.

In order to preserve the Department's commitment to provide financing for Construction Related Costs at no greater than the interest rate specified in Section 10.03, the Preconstruction Activities listed under (1) through (4) below shall be completed no later than December 15, 2017.

(1) Completion of the facilities plan, including any specialized studies and responding to comments, and acceptance by the Department.

(2) Completion of plans and specifications for all Project facilities proposed for Loan funding and acceptance by the Department.

(3) Certification of availability of all sites for the proposed facilities.

(4) Department permit for construction of the proposed facilities or publication of notice of intent to issue construction permit.

(5) Reserved.

(6) Reserved.

(7) Invoices submitted for work performed on or after September 23, 2015 shall be eligible for reimbursement.

(8) Unless deferred by amendment, establish the Loan Debt Service Account and begin Monthly Loan Deposits no later than June 15, 2018.

(9) Unless deferred by amendment, provide certifications under Subsection 2.01(10) beginning September 15, 2018, and annually thereafter no later than September 30 of each year until the final Semiannual Loan Payment is made.

(10) Unless this Agreement is amended to provide construction financing, the first Semiannual Loan Payment in the amount of \$13,775 shall be due December 15, 2018.

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ARTICLE XI - EXECUTION OF AGREEMENT

This Loan Agreement DW230300 may be executed in two or more counterparts, any of which shall be regarded as an original and all of which constitute but one and the same instrument.

IN WITNESS WHEREOF, the Department has caused this Agreement to be executed on its behalf by the Secretary or Designee and the Project Sponsor has caused this Agreement to be executed on its behalf by its Authorized Representative and by its affixed seal. The effective date of this Agreement shall be as set forth below by the Department.

Florida documentary tax required by law in the amount of \$856.80 has been paid or will be paid to the Department of Revenue.

for
LIGHTHOUSE UTILITIES COMPANY

President

Sworn to and subscribed before me this ____ day of _____, 2016, by
William J. Rish, Jr., who ☐ is personally known to me / ☐ provided the following
identification:

Notary Seal

Notary Public

I attest to the opinion expressed in Section 2.02,
entitled Legal Authorization.

Attorney representing the Project Sponsor

for
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Secretary or Designee

Date

**STATE REVOLVING FUND
AMENDMENT 1 TO LOAN AGREEMENT DW230300
LIGHTHOUSE UTILITIES COMPANY, INC.**

This amendment is executed by the STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (Department) and LIGHTHOUSE UTILITIES COMPANY, INC., (Project Sponsor) existing as a for profit corporation under the laws of the State of Florida. Collectively, the Department and the Project Sponsor shall be referred to as "Parties" or individually as a "Party"

The Department and the Project Sponsor entered into a State Revolving Fund Loan Agreement, Number DW230300; and

Loan repayment activities need rescheduling to give the Project Sponsor additional time to complete Preconstruction Activities; and

Certain provisions of the Agreement need revision and several provisions need to be added to the Agreement.

The Parties hereto agree as follows:

1. Section 8.10 is added to the Agreement as follows:

8.10. SUSPENSION.

The Department may suspend any or all of its obligations to Loan or provide financial accommodation to the Project Sponsor under this Agreement in the following events, as determined by the Department:

- (1) The Project Sponsor abandons or discontinues the Project before its completion,
- (2) The commencement, prosecution, or timely completion of the Project by the Project Sponsor is rendered improbable or the Department has reasonable grounds to be insecure in Project Sponsor's ability to perform, or
- (3) The implementation of the Project is determined to be illegal, or one or more officials of the Project Sponsor in responsible charge of, or influence over, the Project is charged with violating any criminal law in the implementation of the Project or the administration of the proceeds from this Loan.

The Department shall notify the Project Sponsor of any suspension by the Department of its obligations under this Agreement, which suspension shall continue until such time as the event or condition causing such suspension has ceased or been corrected, or the Department has re-instated the Agreement.

Project Sponsor shall have no more than 30 days following notice of suspension hereunder to remove or correct the condition causing suspension. Failure to do so shall constitute a default under this Agreement.

Following suspension of disbursements under this Agreement, the Department may require reasonable assurance of future performance from Project Sponsor prior to re-instating the Loan. Such reasonable assurance may include, but not be limited to, a payment mechanism using two party checks, escrow or obtaining a Performance Bond for the work remaining.

Following suspension, upon failure to cure, correct or provide reasonable assurance of future performance by Project Sponsor, the Department may exercise any remedy available to it by this Agreement or otherwise and shall have no obligation to fund any remaining Loan balance under this Agreement.

2. Unless repayment is further deferred by amendment of the Agreement, Semiannual Loan Payments as set forth in Section 10.05 shall be received by the Department beginning on February 15, 2019, and semiannually thereafter on August 15 and February 15 of each year until all amounts due under the Agreement have been fully paid.

3. The items scheduled under Section 10.07 of the Agreement are rescheduled as follows:

Preconstruction Activities listed under (1) through (4) below shall be completed no later than August 15, 2018.

(1) Completion of the facilities plan, including any specialized studies and responding to comments, and acceptance by the Department.

(2) Completion of plans and specifications for all Project facilities proposed for Loan funding and acceptance by the Department.

(3) Certification of availability of all sites for the proposed facilities.

(4) Department permit for construction of the proposed facilities or publication of notice of intent to issue construction permit.

(5) Invoices submitted for work performed on or after September 23, 2015 shall be eligible for reimbursement.

(6) Unless deferred by amendment, establish the Loan Debt Service Account and begin Monthly Loan Deposits no later than August 15, 2018.

(7) Unless deferred by amendment, provide certifications under Subsection 2.01(10) beginning November 15, 2018, and annually thereafter no later than September 30 of each year until the final Semiannual Loan Payment is made.

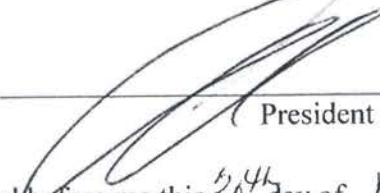
(8) Unless this Agreement is amended to provide construction financing, the first Semiannual Loan Payment in the amount of \$13,569 shall be due February 15, 2019.

4. All other terms and provisions of the Loan Agreement shall remain in effect.

This Amendment 1 to Loan Agreement DW230300 may be executed in two or more counterparts, any of which shall be regarded as an original and all of which constitute but one and the same instrument.

IN WITNESS WHEREOF, the Department has caused this Agreement to be executed on its behalf by the Secretary or Designee and the Project Sponsor has caused this Agreement to be executed on its behalf by its Authorized Representative and by its affixed seal. The effective date of this Agreement shall be as set forth below by the Department.

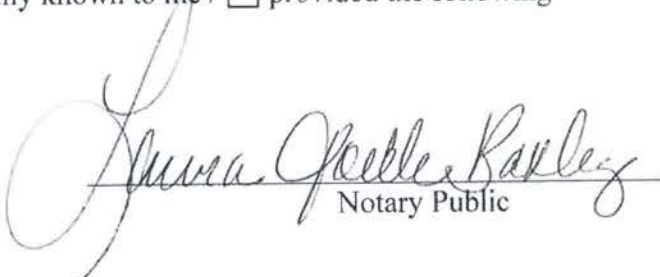
for
LIGHTHOUSE UTILITIES COMPANY



President

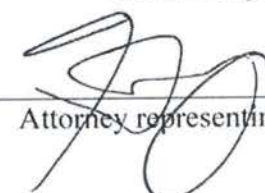
Sworn to and subscribed before me this 30th day of November, 2017, by
William J. Rish, Jr., who ☒ is personally known to me / ☐ provided the following
identification:





Notary Public

I attest to the opinion expressed in Section 2.02,
entitled Legal Authorization.



Attorney representing the Project Sponsor

for
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Secretary or Designee

Date

LIGHTHOUSE UTILITIES COMPANY, INC.

WATER SYSTEM IMPROVEMENTS FACILITIES PLAN

Drinking Water State Revolving Fund Loan Agreement
DW230300

PREPARED FOR:

LIGHTHOUSE UTILITIES COMPANY, INC.

PROJECT NUMBER 50087416

Revised April, 2018

PREPARED BY:

 **Dewberry** | PREBLE-RISH

324 Marina Drive
Port Saint Joe, FL 32456

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Professional Engineer's Certification

I hereby certify that I am a Licensed Professional Engineer in the State of Florida practicing with Dewberry and that I have supervised the preparation of and approve the evaluations, findings, opinions, conclusions, and technical advice hereby reported for:

Project: LIGHTHOUSE UTILITIES COMPANY, INC.
Lighthouse Utilities Water System Improvements Facilities Plan

Location: Unincorporated South Gulf County
Florida

B. Dina Bautista, P.E.
Project Manager
License No. 79785

Date

Section 1 – Summary of Selected Alternative

This Facilities Plan was prepared by Dewberry | Preble-Rish on behalf of the Lighthouse Utilities Company, Inc. to meet the requirements of the State Revolving Fund (SRF) loan funding of the Water System Improvements. The purpose of this Facilities Plan is to determine the existing and future water improvements needed within the LUCI system and the cost of those improvements. Lighthouse Utilities Company, Inc. (LUCI) is a privately owned company which owns and operates the LUCI Water System for unincorporated areas in South Gulf County, Florida. LUCI's service area encompasses approximately 13 square miles covering the St. Joseph Peninsula, Jones Homestead and Indian Pass communities. A water service area map is provided in **Attachment 2**. LUCI's estimated average service population is approximately 4,375 residents. LUCI currently services 1,750 total connections. However, based on seasonal peaks, it is estimated that of the total connections, 1,312 connections are permanent residences and the remaining 438 connection are seasonal transient connections. This Facility Plan addresses the water system improvements needed for a 20 year planning period. The recommendations resulting from this study are consistent with Gulf County's Comprehensive Plan.

The Selected Alternative will consolidate the majority of the system's critical infrastructure to the LUCI II location. LUCI I will become a raw water pumping station. A new 6 inch raw water main (12,000 linear feet) will be installed from LUCI I to LUCI II. Existing water treatment and storage components at LUCI I will be demolished and those components at LUCI II will be upgraded. In addition, both LUCI I and LUCI II will be improved to raise vulnerable equipment out of the base flood elevation. Both well stations will be improved with backup power supply in case of a natural disaster or other system power outage. Upgrades to the well pumps, service pumps, pipes, tanks, and chlorination will be included. Support facilities with employee amenities will be installed. The Selected Plan will include installation of a new well/treatment station (LUCI IV) within the Jones Homestead area in order to increase system permitted and production capacity to sufficiently meet all of the future demand and fire flow requirements. Implementation of Alternative Three will greatly improve the entire system's reliability, capacity to meet future demand, provide fire flow and provide a safer, more reliable water distribution system to residents throughout the service area.

Due to the scope of work and in order to minimize interruptions to service, it is proposed that the Selected Alternative be divided into two construction phases. Phase I will include the new well and facilities at the proposed LUCI IV location and will also include upgrades to the LUCI III booster plant and three

directional bores to replace damaged mains. Phase II will include the improvements proposed for LUCI I and LUCI II.

The total project cost for the Selected Plan water system improvements is estimated at \$7,291,314.00, including construction, planning, administration, permitting, engineering and other technical service costs. The proposed improvements will not affect the water system's operation and maintenance cost (O & M). The anticipated annual debt service for the proposed project capital cost is \$380,199.81, assuming a 100% SRF Loan funding at 1.86% interest rate for a 20 year term. Pledged revenues for debt payments are the LUCI's monthly water income. Utility rate increases will be required to provide additional revenues for the proposed water improvements project.

Section 2 – Executive Summary

2.1 Project Description

Lighthouse Utilities Company, Inc. (LUCI) is a privately owned company which owns and operates the LUCI Water System for unincorporated areas in South Gulf County, Florida. LUCI's service area encompasses approximately 13 square miles covering the St. Joseph Peninsula, Jones Homestead and Indian Pass communities. A water service area map is provided in **Attachment 2**. The existing service area is bounded by the city of Port St. Joe water system to the North, the Gulf County line to the East, and the Gulf of Mexico to the South and West. The land use for the extended service area shown in the service area map is currently timberland. This area has a significant potential for future growth as the city of Port St. Joe expands.

LUCI's estimated average service population is approximately 4,375 residents. LUCI currently services 1,750 total connections. However, based on seasonal peaks, it is estimated that of the total connections, 1,312 connections are permanent residences and the remaining 438 connection are seasonal transient connections. Water usage data indicates the peak month usage increases 60% from May to August when compared to the annual period from September to April. The increased peak month usage during summer months is consistent with the tourism based local economy and indicates a significant transient population.

The existing LUCI system consists of approximately 149,800 linear feet (28.37 miles) of distribution mains of varying sizes, two water treatment plants (LUCI I & LUCI II), and a booster station (LUCI III). LUCI I is supplied by a 6" well and LUCI II is supplied by a 16" well. LUCI I is located on SR 30-A, north of the intersection of SR 30-A and SR 30-E. LUCI II is located three miles to the southeast on CR 30-A. The booster station located at 7182 SR 30-E, LUCI III, is located north of Rish Park on the Cape San Blas Peninsula, and serves the St. Joseph Peninsula from the area known as "Stump Hole" to the end of the Peninsula (State Park). **Attachment 3** provides a schematic of the LUCI I and II treatment plants and **Attachment 4** provides a map of the existing distribution system.

The project proposed in this Facilities Plan would encompass upgrades throughout the LUCI system including increased production capacity, increased permitted capacity, increased storage capacity, modifications to the existing facilities to make the critical infrastructure resilient to

flooding and natural disasters, and increased fire protection for the LUCI service area.

2.2 Justification for Project

The LUCI water system has served unincorporated areas of Gulf County for over 30 years and continues to support a rapidly growing community. However, the system infrastructure is aging. Some facilities have never been replaced and date back to the 1980's when the utility was created. In addition, the service area has experienced significant residential density increases. Due to the poor and aged condition of the system, main breaks and other failures are frequent and the overall system currently operates near both the maximum permitted and production capacity for peak months annually. Projections for growth and demand indicate that additional production capacity will be required over the next 20 years in order to meet demand during peak months. Upgrades and rehabilitation of the system are required to prevent failures due to deterioration, meet capacity requirements and to ensure that a reliable, economical, and safe water system is in place to accommodate the growing unincorporated areas of Gulf County. LUCI has undertaken this planning effort in order to ensure that the water system will be capable of meeting both its immediate customer needs and future demand.

2.3 Scope of Study

The scope of the Facilities Plan is described below:

- Evaluate the existing conditions of the LUCI water system.
- Determine the water system's available capacity and future demand.
- Identify facility components that have inadequate capacity or are in poor condition.
- Identify facility improvements required to meet the system's existing and future needs.
- Develop alternatives for a LUCI system improvements project that will best meet the current and future needs.
- Recommend the most cost-effective, environmentally sound facilities to meet the needs identified in the Facilities plan.
- Present a schedule of implementation for the recommended water facilities improvements.

- Identify any adverse environmental impacts and proposed mitigating measures.
- Identify a source of financing and provide an engineer's opinion of the expected cost per household.

Section 3 – Evaluation of Existing Water Facility

3.1 Description of Existing Facilities

LUCI's estimated average service population is approximately 4,375 residents (1,312 permanent connections). This population was estimated by multiplying the average number of *permanent* service connections for the period by the average household size (2.5 persons per household based on historical data). The number of service connections for each of the 12 months was obtained from LUCI's Florida Department of Environmental Protection (FDEP) monthly operation reports (MORs). LUCI currently services 1,750 total connections (1,736 residential connections and 14 commercial connections). Water usage data indicates the peak month usage increases 60% from May to August when compared to the annual period from September to April. The increased peak month usage during summer months is consistent with the tourism based local economy and indicates a significant transient population. Thus, it is necessary to calculate the number of permanent service connections. The permanent residential connections are estimated to total 1,093 connections (1,750/1.6). This leaves 657 seasonal connections. However, these connections are active for approximately one third of the year, therefore, these account for 219 equivalent connections (657/3). Therefore, the total number of permanent service connections within LUCI's service area is 1,312 connections (1,093+219). Per FAC 62-552.200(31) LUCI is defined as a small community with a population of less than 10,000 within the service area.

The existing LUCI system consists of approximately 149,800 linear feet (28.37 miles) of distribution mains of varying sizes, two water treatment plants (LUCI I & LUCI II), and a booster station (LUCI III). LUCI I has a 6 inch well and LUCI II has a 16 inch well. LUCI I is located on SR 30-A, north of the intersection of SR 30-A and SR 30-E. LUCI II is located three miles to the southeast on CR 30-A. The booster station, LUCI III, is located at 7182 SR 30-E, north of Rish Park on the St. Joseph Peninsula, and serves the St. Joseph Peninsula from the area known as "Stump Hole" to the end of the Peninsula (State Park). **Attachment 3** provides a schematic of

the treatment plants and **Attachment 2** provides a map of the existing water service area.

3.2 Evaluation of Existing System

3.2.1 Condition of Existing Infrastructure

The overall condition of the existing infrastructure within the LUCI water system is poor due to deterioration and aging. The most recent sanitary survey conducted by the Florida Department of Environmental Protection in 2016 identified several areas with deficiencies or that require upgrades, replacement, and maintenance. The FDEP inspection report is provided in **Appendix F**. Items identified included maximum-day supply production in exceedance of 75% of permitted capacity, maintenance at storage tanks, inadequate finished water storage capacity, electrical upgrades, and chlorine room upgrades. In previous Capacity Analysis Reports performed for the LUCI system, the pumps at LUCI I were identified in poor condition as well as general capacity and resiliency deficiencies throughout the system.

3.2.2 Existing Capacity

Tables 1 through **3** summarize the existing LUCI facilities, permitted production capacity, and existing storage capacity. The current total maximum daily production capacity of the wells is 1.224 million gallons per day (MGD). The permitted total Maximum Day production capacity is 1.090 MGD. LUCI's production is provided by two well sites listed in **Table 1** below and referred to as "LUCI I" and "LUCI II". The well sites have onsite chlorine treatment and storage tanks as listed below.

In addition to the facilities listed below, the LUCI system also has an emergency interconnect with the City of Port Saint Joe located approximately 3,700 north of the Jones Homestead subdivision at the intersection of Jones Homestead and Hwy 30A. The interconnect was installed in 2007 and consists of an 8 inch master meter assembly which allows two-way flow measurement and an 8 inch control valve on the City of Port St. Joe side of the meter. The purpose of the interconnect is to provide emergency water supply to the LUCI system as needed when pressure in the system drops below the minimum threshold sensed by the control valve.

Table 1: LUCI Source Facilities

Name/Location of Well	Pumps from: (Name of Aquifer)	Pumps to: (Name/Location of Water Treatment Plant)	Design Capacity of Well Pump, MGD	Finished Water Pumping Capacity (High Service Pumps) (GPD)
LUCI-1 6" Well/5610 SR 30-A	Floridan	LUCI-1/5610 SR 30-A	0.576	432,000
LUCI-2 16" well/7521 CR 30-A	Floridan	LUCI-2/7521 CR 30-A	0.648	432,000
Combined Capacity* (based on largest well and service pump out of service)	-----	-----	0.576	648,000

MGD = Million gallons per day
GPD = Gallons per day

Table 2: LUCI Water Treatment Plants

Water Use Totals	Permitted (GPD)	Historical Use* (GPD)
Average Day Production (ADP)	416,000	368,783
Maximum Day Production (MDP)	1,090,000	1,059,200
Maximum Month (GAL)	20,000,000	19,753,000

*Based on 2006-2016 withdrawal rates

Table 3: LUCI Existing Storage Capacity

Name/Location of Storage Facility	Type of Storage Facility	Useful Capacity of Storage Facility, MG	
		Design Capacity (gal)	Useful Storage Capacity (gal)
LUCI-1 Tank #1	Ground (raw)	12,000	9,600
LUCI-1 Tank #2	Ground w/aerator (raw)	12,000	9,600
LUCI-2 Tank #1	Ground w/aerator (raw)	316,000	252,800
LUCI-2 Tank #2	Hydropneumatic (finished)	5,000	2,500
LUCI-3 Tank #1	Ground (finished)	209,000	200,200

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LUCI-3 Tank #2	Hydropneumatic (finished)	10,000	5,000
Total/Combined Raw Water Storage		340,000	272,000
Total/Combined Finished Water Storage		224,000	207,700
Total/Combined Useful Storage Capacity of All Facilities:		564,000	479,700

3.2.2.1 Permitted Production

Current demand and production was analyzed for the LUCI service area based on historical data obtained from the FDEP combined plant Monthly Operating Reports (MORs) for the period between 2006 and 2016. The current historical data indicates that LUCI is operating at the current permitted Average Daily Production capacity and is within 80% of permitted Maximum Daily Production during peak months.

Table 4: LUCI Production Totals (2006-2016)

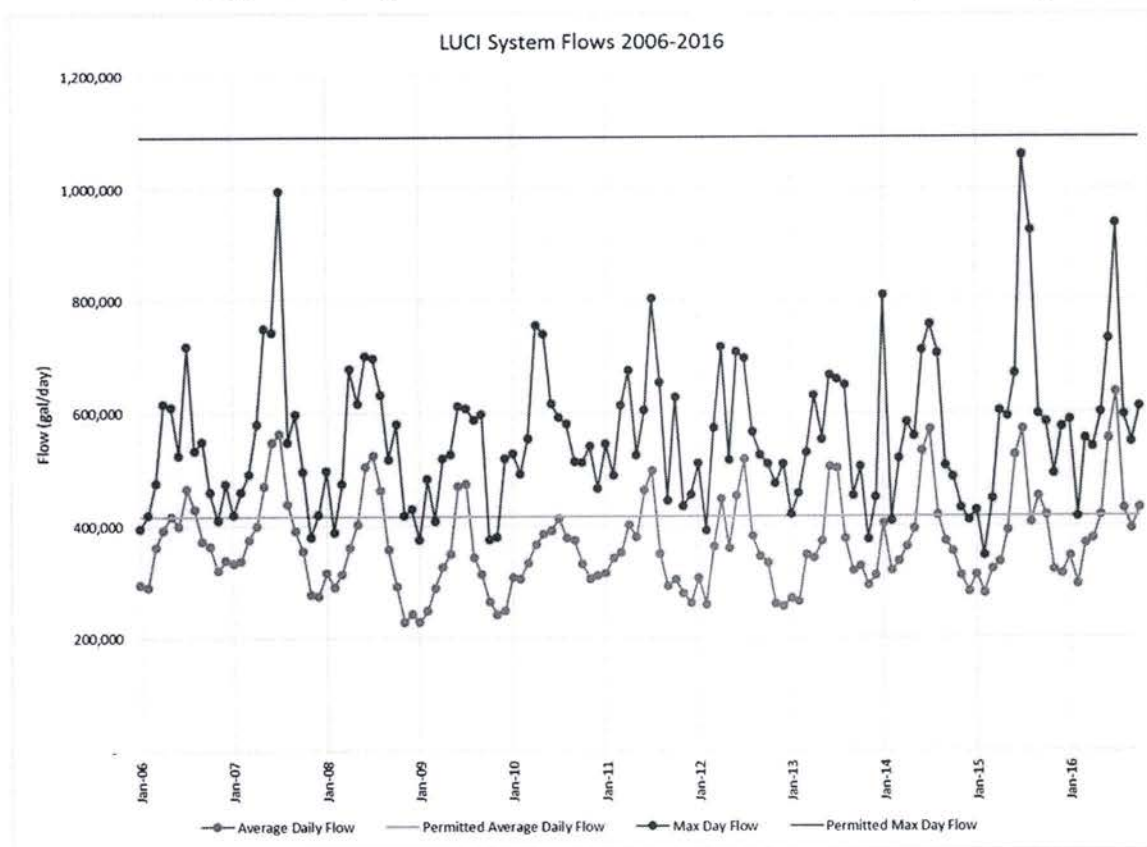
Month/Parameter		Year										
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
January	ADP	295,000	333,000	316,000	228,000	308,000	315,000	307,000	270,500	405,065	312,742	344,903
	MDP	396,000	420,000	498,000	375,000	529,000	545,000	511,000	420,000	809,000	428,000	587,000
	TOTAL	9,145,000	10,328,000	9,788,000	6,626,000	9,556,000	9,762,000	8,897,000	8,386,000	12,557,000	9,695,000	10,692,000
February	ADP	291,000	338,000	291,000	248,000	305,000	342,000	259,000	264,100	319,000	279,036	294,065
	MDP	420,000	460,000	389,000	483,000	493,000	489,000	392,000	457,000	409,000	346,000	416,000
	TOTAL	8,148,000	9,460,000	8,435,000	6,946,000	8,549,000	9,581,000	5,447,000	8,186,000	8,932,000	7,813,000	9,116,000
March	ADP	363,000	376,000	314,000	289,000	334,000	352,000	362,000	347,700	335,935	321,742	368,032
	MDP	476,000	492,000	475,000	409,000	555,000	613,000	573,000	529,500	520,000	447,000	554,000
	TOTAL	11,253,000	11,668,000	9,743,000	8,954,000	10,367,000	10,903,000	11,219,000	10,778,000	10,414,000	9,974,000	11,409,000
April	ADP	393,000	400,000	361,000	326,000	367,000	401,000	448,000	342,500	362,333	334,500	376,742
	MDP	617,000	580,000	678,000	520,000	756,000	676,000	717,000	631,000	583,000	604,000	540,000
	TOTAL	11,790,000	12,002,000	10,834,000	9,441,000	11,016,000	12,016,000	13,452,000	10,619,000	10,870,000	10,035,000	11,679,000
May	ADP	418,000	470,000	403,000	350,000	385,000	380,000	359,000	372,200	393,774	391,065	419,290
	MDP	611,000	750,000	616,000	527,000	741,000	525,000	517,000	553,000	558,000	593,000	600,000
	TOTAL	12,961,000	14,563,000	12,479,000	10,835,000	11,929,000	11,784,000	11,134,000	11,539,000	12,207,000	12,123,000	12,998,000
June	ADP	400,000	548,000	506,000	471,000	392,000	464,000	453,000	504,600	533,333	525,450	554,419
	MDP	526,000	743,000	702,000	612,000	616,000	605,000	708,000	667,000	712,000	670,200	732,000
	TOTAL	11,996,000	16,434,000	15,189,000	14,143,000	11,757,000	13,907,000	13,584,000	15,644,000	16,000,000	15,763,500	17,187,000
July	ADP	466,000	563,000	526,000	475,000	413,000	498,000	518,000	502,500	570,484	570,532	637,194
	MDP	719,000	996,000	697,000	607,000	592,000	804,000	697,000	659,000	757,000	1,059,200	938,000
	TOTAL	14,451,000	17,454,000	16,208,000	14,739,000	12,385,000	15,423,000	18,045,000	15,576,000	17,085,000	17,688,500	19,753,000
August	ADP	431,000	439,000	463,000	344,000	379,000	350,000	381,000	377,200	419,226	406,194	429,645
	MDP	534,000	549,000	632,000	588,000	580,000	654,000	566,000	649,000	706,000	925,000	596,000
	TOTAL	13,361,000	13,609,000	14,350,000	10,669,000	11,757,000	10,859,000	11,808,000	11,693,000	12,996,000	12,592,000	13,319,000
September	ADP	373,000	391,000	358,000	313,000	374,000	292,000	345,000	319,300	373,233	452,367	394,452
	MDP	550,000	597,000	518,000	598,000	514,000	445,000	525,000	453,000	507,000	598,000	549,000
	TOTAL	11,200,000	11,735,000	10,743,000	9,388,000	11,218,000	8,773,000	10,337,000	9,899,000	11,197,000	13,571,000	12,228,000
October	ADP	364,000	355,000	292,000	265,000	332,000	303,000	334,000	328,200	353,323	418,484	432,387
	MDP	460,000	496,000	580,000	375,000	513,000	628,000	510,000	505,000	487,000	583,000	610,000
	TOTAL	11,280,000	11,012,000	9,061,000	7,953,000	10,277,000	9,384,000	10,362,000	10,173,000	10,953,000	12,973,000	13,404,000
November	ADP	320,000	278,000	228,000	242,000	305,000	279,000	259,800	293,400	310,433	320,000	
	MDP	410,000	380,000	419,000	380,000	541,000	434,000	474,500	375,000	432,000	492,000	
	TOTAL	9,600,000	8,334,000	6,614,000	7,022,000	9,137,000	8,371,000	7,794,000	9,095,500	9,313,000	9,600,000	
December	ADP	339,000	275,000	243,000	248,000	310,000	261,000	255,200	310,500	282,032	314,065	
	MDP	475,000	420,000	430,000	520,000	466,000	455,000	510,000	451,000	410,000	575,000	
	TOTAL	10,509,000	8,510,000	7,287,000	7,438,000	9,625,000	8,099,000	7,911,000	9,624,500	8,743,000	9,736,000	
Annual	ADP	371,083	397,167	358,417	316,583	350,333	353,083	356,750	352,725	388,181	387,181	425,113
	MDP	719,000	996,000	702,000	612,000	756,000	804,000	717,000	667,000	809,000	1,059,200	938,000
	TOTAL	135,694,000	145,109,000	130,819,000	114,154,000	127,573,000	128,862,000	127,991,000	131,213,000	141,867,000	141,562,000	131,785,000
	MDF/ADF Peaking Factor	1.94	2.51	1.96	1.93	2.16	2.28	2.01	1.89	2.08	2.74	2.21
Average Peaking		2.15										
Exceeds permitted Average Daily Production												
Within 80% of permitted Maximum Daily Production												
Within 80% of total permitted Daily Production (ADP and MDP)												

For the purposes of this Facilities Plan, historical production data is equated with current and historical demand. Using recorded production quantities for the existing system provides an actual, measured basis for system demand.

Above in **Table 4** current/historical system demand is summarized as the monthly Average Day Production (ADP) and the Max Day Production (MDP) for the ten year historical data period. Production information is provided graphically in **Figure 1** and **Figure 2**. Based on the 10-year historical data, LUCI consistently exceeds permitted ADP during the months of April, May, June, and July in all years with the exception of 2010. In addition, the LUCI system operates within 80% of permitted MDP during the months of July and

August for the years 2006, 2007, 2015, and 2016. Finally, the LUCI system operates within 80% of total permitted production in June and July for the years 2007, 2008, 2012, 2014, 2015, 2016. This data indicates that during peak months, the LUCI system is consistently operating at both the current permitted maximum capacity and near the maximum production potential of its combined facilities. Thus, Lighthouse Utilities must increase both production and permitted capacity to continue to meet current service demands during summer months.

Figure 1 – Graph of Actual and Permitted ADP & MDP (2006-2016)



3.2.2.2 Well Number and Capacity

In addition to projected capacity, the LUCI system must also operate in compliance with state, federal and local rules and regulations. Per Rule 62-555.315(3) F.A.C., the system must be able to provide the Average Day Demand with the largest system well out of service. Based on historical data, the Average Day Production (demand) is approximately 368,783 gpd (256

gpm). The largest well is located at LUCI II. If LUCI II were out of service, LUCI I would be required to meet the ADD. Currently, the LUCI I well has a pumping capacity of 400 gpm which would meet current Average Day Demand with LUCI II well pump out of service. Therefore, currently, the LUCI system operates in compliance with FDEP requirements for well number and capacity under Rule 62-555.315(3).

3.2.2.3 Storage

Storage capacity must also be analyzed for the LUCI system. Total useful finished water storage is defined as the water storage capacity needed for operational equalization to meet peak water demand plus the water storage capacity needed to meet any fire-flow requirements.

The total Average Daily Production (ADP) for the entire LUCI system based on historical data from 2006-2016 is 368,783 gpd or 256 gpm. The historical total Maximum Daily Production (MDP) based on LUCI's historical MOR data was recorded as 1,059,000 gpd (735 gpm). A peaking factor of 4 was assumed to calculate the Peak Hour Production (PHP). Existing Production (current Demand) is summarized as follows:

$$\underline{ADP = 368,783 \text{ gpd (256 gpm)}}$$

$$\underline{MDP = 1,059,000 \text{ gpd (256 gpm)}}$$

$$\underline{PHP = 4 \times ADP = 1,024 \text{ gpm}}$$

The standard for fire flow currently required by Gulf County is 500 gpm for a two hour period.

Useful Storage Volume (V_{US}):

$$V_{US} = ES + FS$$

$$ES = (PHD - TPC) \times 4 \text{ hr}$$

$$FS = (NFFR + MDD - TPC) (NFFD)$$

ES: Equalization Storage

FS: Fire Storage

PHD: Peak Hour Demand

TPC: Treatment Plant Capacity (see **Table 1** Finished Pumping Capacity, combined LUCI I and II with largest pump out of service: 648,000 gpd = 450 gpm)

NFFR: Needed Fire-flow Rate

MDD: Maximum Day Demand

NFFD: Needed Fire-flow Duration

Equalization Storage (ES):

$$ES = (1,024 \text{ gpm} - 450 \text{ gpm}) \times (60 \text{ min/1 hr}) \times 4 \text{ hr}$$

$$ES = 137,760 \text{ gallons}$$

Fire Storage (FS):

$$FS = (500 \text{ gpm} + 256 \text{ gpm} - 450 \text{ gpm}) \times (60 \text{ min/1 hr}) \times 2 \text{ hr}$$

$$FS = 36,720 \text{ gallons}$$

Required Useful Storage Volume (V_{US}):

$$V_{US} = 137,760 \text{ gal} + 36,720 \text{ gal} = 174,480 \text{ gal}$$

Useful storage capacity for the LUCI system is summarized in **Table 3** and totals 207,700 gallons. Therefore, per Section 10.6.3 of the *Water Distribution Systems Handbook*, useful storage capacity in the LUCI system exceeds the required storage and meets the requirements of Rule 62-555.330 F.A.C.

3.2.2.4 Finished Water Pumping Capacity

The existing system uses high service pumps located at LUCI I and LUCI II to distribute finished water throughout the system and to the booster plant at LUCI III. Both LUCI I and II have two high service pumps at each location with pumping capacities of 150 gpm each for a combined pumping capacity of 300 gpm at LUCI I and combined capacity of 300 gpm at LUCI II. These pumps were installed in approximately 1985 and are in good to fair condition per the FDEP Sanitation Survey Report dated September 26, 2016. However, due to their current age, it is expected that the high service pumps at both LUCI I and II

are at the upper end of their design-life and will require replacement within the next 5 to 10 years. Per Rule 62-555.320(15) F.A.C., the total capacity of all high-service pumping stations connected to a water system shall be sufficient to at meet the water system's maximum-day water demand with the largest pump out of service (including design fire-flow demand if fire protection is being provided) and to maintain distribution system pressure as specified in subparagraph 62-555.320(15)(a)2., F.A.C. In addition, the total capacity of the high-service pumping stations combined with the useful elevated finished-water storage capacity shall be sufficient to meet the water system's peak-hour water demand for at least four consecutive hours (and if fire protection is being provided, shall be sufficient to meet the water system's design fire-flow rate plus a background water demand equivalent to the maximum-day demand other than fire-flow demand for the design fire-flow duration).

As described previously in Section 3.2.2.3, The MDP (demand) for LUCI based on historical data is 1,059,000 gpd (735 gpm). The required fire flow rate as described previously in Section 3.2.2.3 is 500 gpm. Therefore, the total required pumping capacity for high service pumps within the system is 1,235 gpm (735 gpm + 500 gpm). However, the existing system has a total combined finished water pumping capacity of 450 gpm from the existing high service pumps at LUCI I and II. Therefore, based on this analysis, the existing LUCI system does not comply with Rule 62-555.320(15)(b) F.A.C. for high service pumping.

However, as shown in the calculations provided in Section 3.2.2.3, the existing LUCI system does comply with the second portion of the Rule which requires that finished-water storage capacity shall be sufficient to meet the water system's peak-hour water demand for at least four consecutive hours (and if fire protection is being provided, shall be sufficient to meet the water system's design fire-flow rate plus a background water demand equivalent to the maximum-day demand other than fire-flow demand for the design fire-flow duration).

3.2.3 Future Demand and Capacity

The LUCI system serves an area of Gulf County that experiences a highly transient

population with significant peaks during summer months due to the tourism-based economy. This also makes growth within the LUCI service area higher than in other portions of the County. Historically, the area has seen tourist-based growth rise significantly. Due to a majority of the service area being located in undeveloped timber land, there is a great potential for growth within the area.

3.2.3.1 Service Area Population Projections

In order to predict future demand and required capacity, the expected population growth must be established. **Tables 5** and **6** below show the past 10 years of data for the population growth within LUCI's service area. These numbers were calculated from LUCI's FDEP MORs by multiplying the number of service connections by 2.5 persons per residence.

Table 5: Historical Service Connections (2006-2016)

Month	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
January	1,251	1,290	1,322	1,352	1,359	1,235	1,373	1,413	1,500	1,639	1,728
February	1,069	1,290	1,327	1,352	1,367	1,369	1,385	1,429	1,500	1,645	1,735
March	1,254	1,290	1,327	1,359	1,361	1,377	1,398	1,433	1,525	1,657	1,761
April	1,259	1,290	1,327	1,359	1,361	1,377	1,398	1,422	1,533	1,666	1,751
May	1,259	1,313	1,327	1,359	1,347	1,377	1,398	1,448	1,541	1,669	1,747
June	1,264	1,313	1,339	1,353	1,347	1,373	1,398	1,448	1,541	1,686	1,758
July	1,264	1,446	1,339	1,353	1,366	1,373	1,398	1,461	1,575	1,701	1,775
August	1,268	1,446	1,347	1,353	1,369	1,373	1,340	1,465	1,585	1,704	1,773
September	1,268	1,327	1,351	1,364	1,369	1,373	1,422	1,478	1,601	1,702	1,783
October	1,268	1,327	1,351	1,351	1,360	1,373	1,422	1,479	1,602	1,718	1,792
November	1,280	1,327	1,352	1,351	1,376	1,373	1,422	1,477	1,623	1,724	
December	1,280	1,327	1,352	1,351	1,376	1,373	1,413	1,499	1,635	1,701	
Average	1,249	1,332	1,338	1,355	1,363	1,362	1,397	1,454	1,563	1,684	1,760

Table 6: Historical Usage per Connection

Data	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*	Average Historical Usage
Annual Avg. Daily Production [gal]	371,083	397,167	358,417	316,583	350,333	353,083	356,750	352,725	388,181	387,181	425,113	368,783
Annual Average Service Connections	1,249	1,332	1,338	1,355	1,363	1,362	1,397	1,454	1,563	1,684	1,760	1,442
Annual Average Production/Service [gal/service]	297	298	268	234	257	259	255	243	248	230	242	257
Avg. Daily Per Capita Production (2.5 Persons/Service) [gal/capita-day]	119	119	107	93	103	104	102	97	99	92	97	103

*2016 represents partial year (Jan. - Oct.)

Based on the historical data presented in **Tables 5** and **6**, the 20 year population projection was based on the greater of the two following rates: 64 new connections per year (historical between 2010 and 2015) or the growth formula $F=P(1+i)^t$ (where F = future population, P = present population, i = growth rate, and t = number of years since the present). Below are the two growth calculations projecting to year 2036 (ten years from present) using data from 2010 to 2015 as the base rate:

Linear Projection Growth Method: 64 New Services per Year

2010 Services: 1,363

2015 Services: 1,684

Average new services from 2010 to 2015 = 64 connections per year

Years to 2036 from base year: 20

Additional connections: $20 \times 64 = 1,284$ new services

2036 Services: $1,684 + 1,284 = 3,044$ Services

Growth Formula Method: $F=P(1+i)^t$

(In order to establish a base growth rate, the data from 2010 – 2015 was utilized as it best represents current trends:)

2010 Services (P): 1,363

2015 Services (F): 1,684

Time in Years (t): 5

Upon substitution into the formula and solving, the growth rate is determined to be 4.32%

20 Year Projection (2036):

2015 Services (P): 1,684

Growth Rate (i): 4.32%

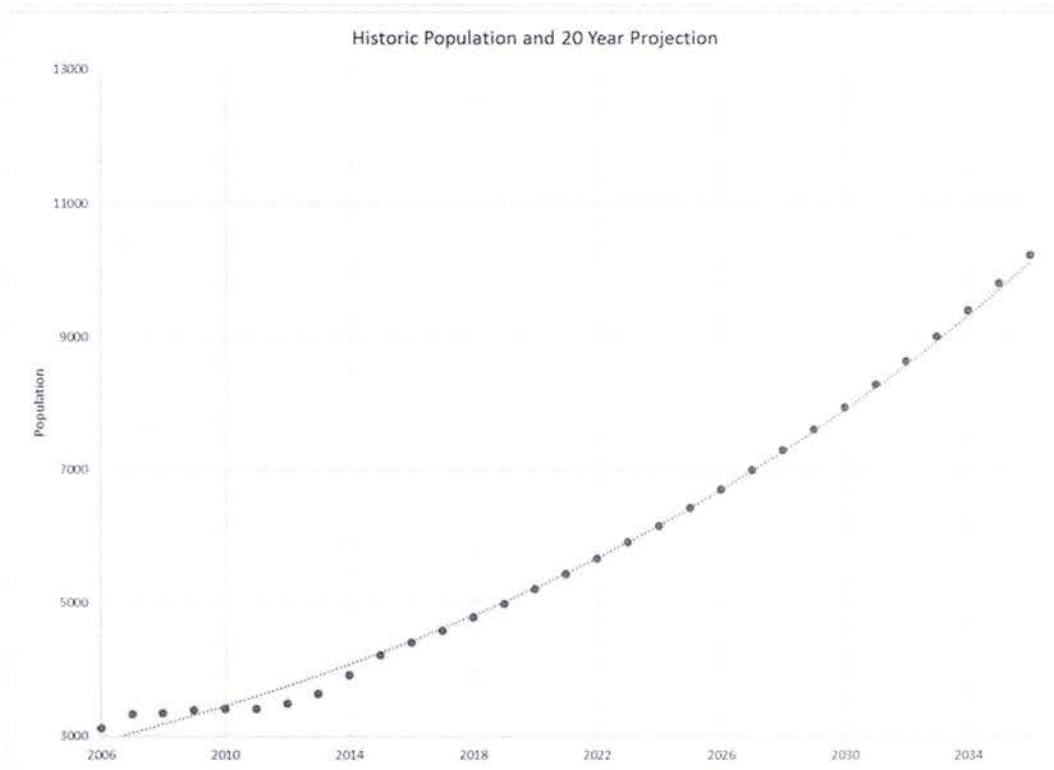
Time in Years (t): 20

2036 Services (F): $1,683(1+0.0432)^{20} = 4,093$ Services

Upon comparison of the two methods, the greater rate resulted in 4,093 services in 2036. Based upon current per capita population estimates of 2.5 persons per household, this results in a 20 year population estimate of 10,233 people. This projection is displayed

along with the historical population estimates in **Figure 2**.

Figure 2: Historic & Projected Population Growth (2006-2036)



3.2.3.2 Future Demand

Based on the projected growth, the total Future Average Daily Demand (FADD) for the entire LUCI system was calculated using a 103 gpd per capita flow demand (based on historical data, the average per capita demand within LUCI's system is 103 gallons per person). The total Future Maximum Daily Demand (FMDD) was calculated using a peaking factor of 2.15 based on LUCI's historical MOR data, **Table 4**. A peaking factor of 4 was assumed to calculate the Future Peak Hour Demand (FPHD). **Table 7** summarizes the calculated future demands for each year projected to 2036. Calculations for the 20-year design projections are as follows for the year 2036:

$$\text{FADD} = 10,233 \text{ persons} \times 103 \text{ gpcd} = \underline{1,053,999 \text{ gpd (732 gpm)}}$$

$$\text{FMDD} = 2.15 \times \text{FADD} = \underline{2,266,097 \text{ gpd (1,574 gpm)}}$$

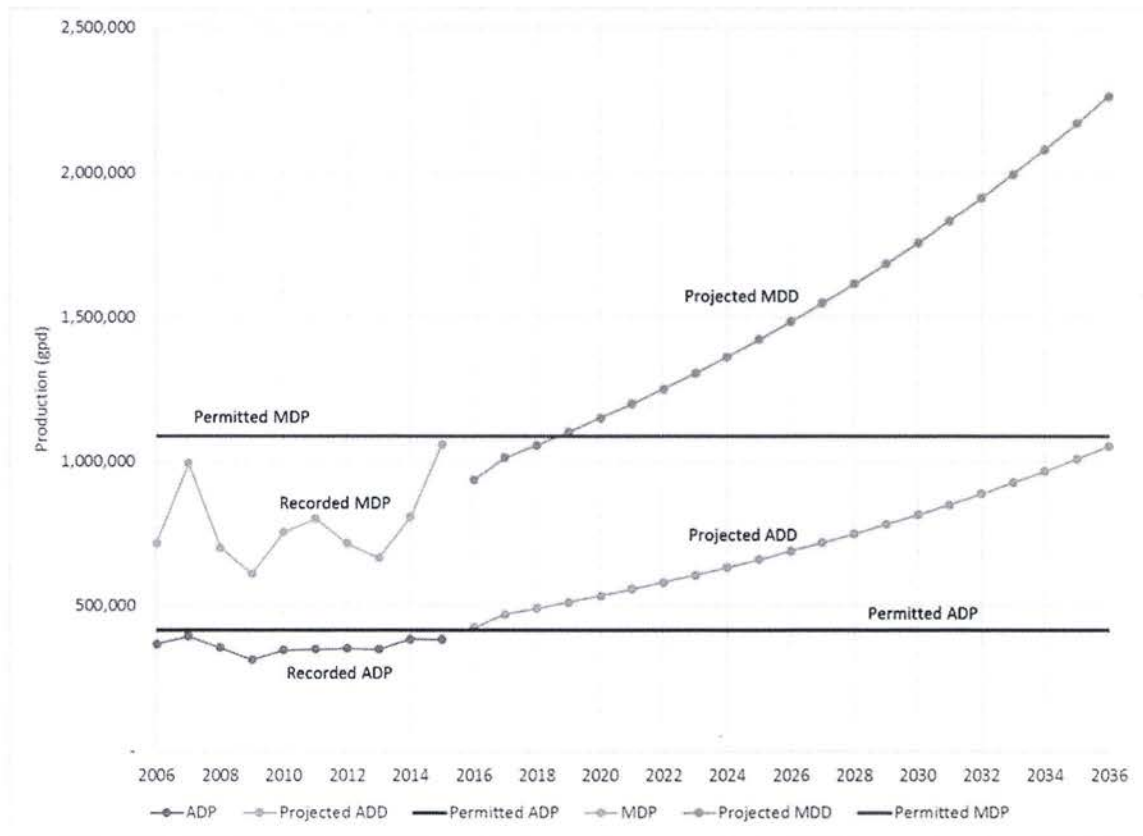
$$\text{FPHD} = 4 \times \text{FADD} = \underline{2,928 \text{ gpm}}$$

Table 7: Projected Future Demand

Parameter	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Service Connections	1,912	1,994	2,081	2,170	2,264	2,362	2,464	2,571	2,682	2,797	2,918	3,044	3,176	3,313	3,456	3,605	3,761	3,924	4,093
Population Estimate	4,780	4,985	5,203	5,425	5,660	5,905	6,160	6,428	6,705	6,993	7,295	7,610	7,940	8,283	8,640	9,013	9,403	9,810	10,233
Average Daily Demand per Person, gpd	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103
Annual Average Daily Demand (ADD), gpd	492,340	513,455	535,909	558,775	582,980	608,215	634,480	662,084	690,615	720,279	751,385	783,830	817,820	853,149	889,920	928,339	968,509	1,010,430	1,053,999
MDD/ADD Peaking Factor	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
Maximum-Day Demand (MDD), gpd	1,058,531	1,103,928	1,152,204	1,201,366	1,253,407	1,307,662	1,364,132	1,423,481	1,484,822	1,548,600	1,615,478	1,685,235	1,758,313	1,834,270	1,913,328	1,995,929	2,082,294	2,172,425	2,266,098
PHP/ADP Peaking Factor	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Peak-Hour Demand (PHD) (gpm)	1,368	1,426	1,489	1,552	1,619	1,689	1,762	1,839	1,918	2,001	2,087	2,177	2,272	2,370	2,472	2,579	2,690	2,807	2,928

Using the calculated future demand projections, the data was plotted yearly against the historical usages in order to show the current production and future demands against the current permitted capacity. This is presented in **Figure 3** below.

Figure 3: Permitted & Historic Production and Projected Future Demands



As presented in **Figure 3**, LUCI currently operates near permitted capacity. Based on historical growth within the service area, future demand will exceed permitted ADP and MDP capacity within the next year (by 2018). The projections also show that the system MDP will exceed pumping capacity by 2018. Therefore, in order to continue to operate, LUCI must immediately pursue increased permitted capacity and facility improvements to increase production capacity.

3.2.3.3 Future Well Number and Capacity

In addition to projected capacity, the LUCI system must also operate in compliance with state, federal and local rules and regulations. Per Rule 62-555.315(3) F.A.C., the system must be able to provide the Average Day Demand with the largest system well out of service. As described above, the projected Average Day Demand (ADD) for the year 2036 is expected to be 1,053,999 gpd (732 gpm). This is based on the projected number of customers using a per capita demand of 103 gpd per capita (based on historic data per capita demands). The largest well is located at LUCI II. If LUCI II were out of service, LUCI I would be required to meet the ADD. Currently, LUCI I has a permitted capacity of 0.576 MGD (576,000 gpd) or 400 gpm. Thus, based on the current system, LUCI would not be able to meet ADD with LUCI II out of service. There would be a deficit of approximately 332 gpm without the well at LUCI II functioning. Based on the projected growth and system demands, it is estimated that the LUCI system would no longer operate in compliance with FDEP requirements for well number and capacity under Rule 62-555.315(3) by the year 2019.

3.2.3.4 Future Storage

In addition to total production, future storage capacity must also be analyzed for the LUCI system. Total useful finished water storage need is defined as the water storage capacity needed for operational equalization to meet peak water demand plus the water storage capacity needed to meet any fire-flow

requirements. The fire flow currently required in by Gulf County is 500 gpm for a two hour duration. The 2036 finished water storage is calculated below using the Water Distribution Systems Handbook method¹.

Useful Storage Volume (V_{US}):

$$V_{US} = ES + FS$$

$$ES = (FPHD - FWP) \times 4 \text{ hr}$$

$$FS = (NFFR + FMDD - FWP) (NFFD)$$

ES: Equalization Storage

FS: Fire Storage

FPHD: Future Peak Hour Demand

FWP: Finished Water Pumping Capacity (2,074 gpm based on projected demand, see Section 3.2.3.5 for calculation)

NFFR: Needed Fire-flow Rate

FMDD: Future Maximum Day Demand

NFFD: Needed Fire-flow Duration

Equalization Storage (ES):

$$ES = (2,928 \text{ gpm} - 2,074 \text{ gpm}^*) \times (60 \text{ min/1 hr}) \times 4 \text{ hr}$$

$$ES = 204,960 \text{ gallons}$$

*Calculation provided in Section 3.2.3.5

Fire Storage (FS):

$$FS = (500 \text{ gpm} + 1,574 \text{ gpm} - 2,074 \text{ gpm}) \times (60 \text{ min/1 hr}) \times 2 \text{ hr}$$

$$FS = 0 \text{ gallons}$$

Future Useful Storage Volume (V_{US}) Demand for Year 2036:

$$V_{US} = 204,960 \text{ gallons}$$

As shown in the calculations above, required finished water storage is based on the finished water pumping capacity and required fire flow. The calculations

¹ "Guidelines for Preparation of Source/Treatment/Storage Capacity Analysis Reports For Public Works Systems", Florida Department of Environmental Protection, July 2004.

above project the required finished water storage based on the recommended upgrades to the high service pumps in order to comply with 62-555.320(15)(b). Due to the significant recommended increase in finished water pumping capacity, the future required fire storage is zero because the high service pumping capacity exceeds the Future Maximum Day Demand with Fire Flow.

A summary of required finished water storage is presented in **Table 8** (below) which shows the projected water demands and finished-water storage needs for 2015-2036. The years 2015 through 2017 are based on the current system's finished water pumping capacity. It is assumed that the recommended upgrades will be implemented by 2019, therefore, upgraded high service pump capacity exceeds the future peak hour demand from 2019 to 2028 and the required storage is negligible. However, beginning in 2028, future peak hour demand begins to exceed the finished water pumping capacity and finished water storage is required as reflected below.

Table 8: Future Finished Water Storage Required

Parameter	Year											
	2015	2016	2017	2028	2029	2030	2031	2032	2033	2034	2035	2036
Projected Finished- Water Storage												
Needed Fire Storage (gal)	76,320	69,240	72,600	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0
Needed Equalization Storage (gal)	114,240	158,160	170,640	3,120	24,720	47,520	71,040	95,520	121,200	147,840	175,920	204,960
Total Needed Storage	190,560	227,400	243,240	3,120	24,720	47,520	71,040	95,520	121,200	147,840	175,920	204,960

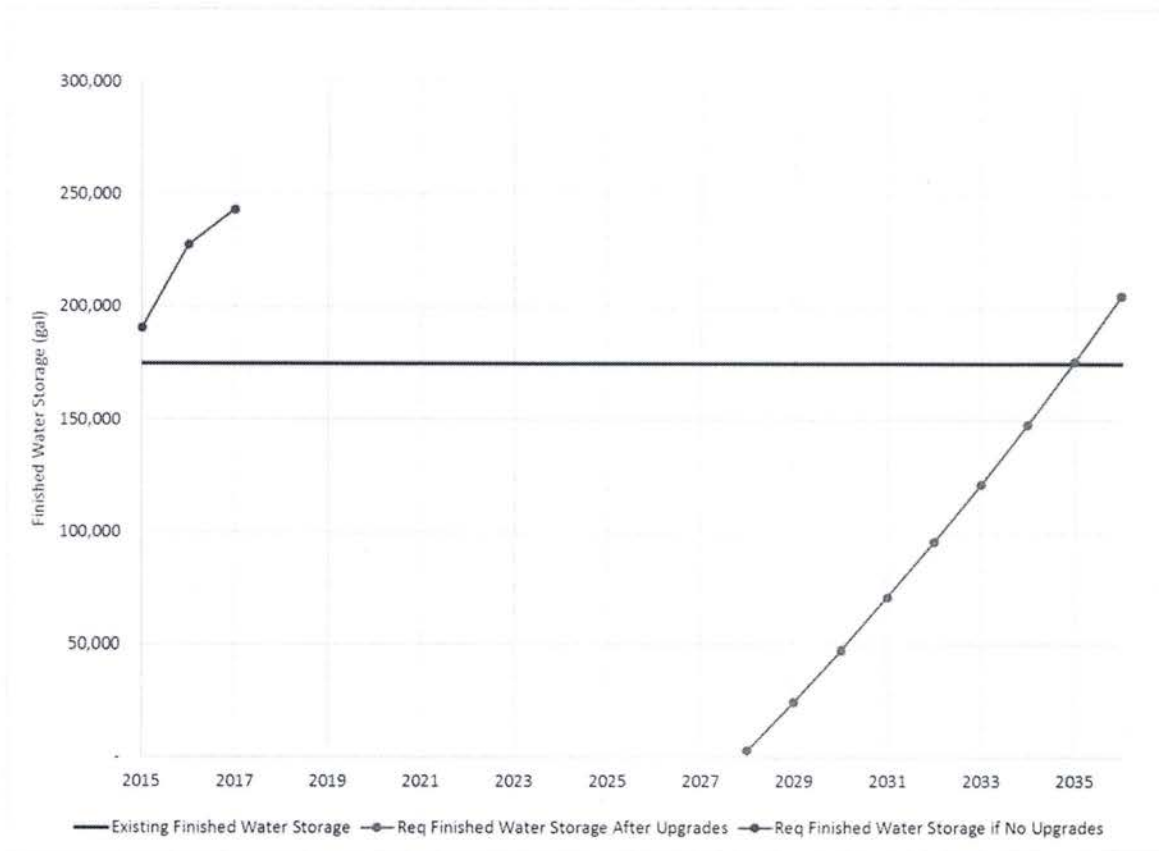
Figure 4 below shows the projected total required water storage plotted against existing water storage capacity. As presented in **Figure 4** the existing total finished-water storage (207,700 gallons) exceeds the projected total finished-water storage demand for 2036 (204,960 gallons). This suggest that the LUCI system currently has sufficient storage to meet the future demand conditions, however, there are additional factors within the system which require additional storage be included in the recommended improvements.

The layout of the LUCI system is such that while the overall system storage is sufficient, 96% percent of the entire system's finished water storage is located at LUCI III. The booster plant at LUCI III improves pressure to the service area on the north portion of the Cape but does not improve fire flows and pressure for the

remaining service areas.

Additional storage is recommended at LUCI II and the proposed LUCI IV locations in order to improve fire flow and pressures within the south Cape service area and Jones Homestead service area. In addition, water storage will be required in order to implement additional recommended improvements including the aerators and the high service pumps at both LUCI II and LUCI IV. The aerators require a tank in order to operate for improved finished water quality. Proper finished water storage is required on the suction side of the proposed high service pumps for proper operation. Therefore, additional finished water storage is recommended.

Figure 4: Existing and Projected Finished Water Storage Required



As depicted in **Table 8** and **Figure 4**, the required finished water storage will be insufficient by 2018. Thus, LUCI will require upgrades to include additional storage to meet the future demands in 2036 and beyond.

3.2.3.5 Future Finished Water Pumping Capacity

Per Rule 62-555.320(15) F.A.C., the total capacity of all high-service pumping stations connected to a water system shall be sufficient to at meet the water system's maximum-day water demand (including design fire-flow demand if fire protection is being provided) with the largest pump out of service and to maintain distribution system pressure as specified in subparagraph 62-555.320(15)(a)2., F.A.C. In addition, the total capacity of the high-service pumping stations combined with the useful finished-water storage capacity shall be sufficient to meet the water system's peak-hour water demand for at least four consecutive hours (and if fire protection is being provided, shall be sufficient to meet the water system's design fire-flow rate plus a background water demand equivalent to the maximum-day demand other than fire-flow demand for the design fire-flow duration).

As described previously in Section 3.2.3.3, The FMDD for LUCI based on growth projections is 2,266,097 gpd (1,574 gpm). The required fire flow rate as described previously in Section 3.2.3.4 is 500 gpm. Therefore, the total required pumping capacity for high service pumps within the system is 2,074 gpm (1,574 gpm + 500 gpm) with the largest pump out of service. The high service pumps at LUCI II will require upgrades in order to comply with Rule 62-555.320(15)(b) F.A.C. for high service pumping.

As shown in the calculations provided in Section 3.2.2.4, the LUCI system will require upgrades to finished-water storage capacity in order to meet the water system's peak-hour water demand for at least four consecutive hours and sufficient to meet the water system's combined design fire-flow rate and future maximum-day demand in order to comply with the second part of Rule 62-555.320(15)(b) F.A.C. for high service pumping.

3.2.4 Resiliency and System Efficiency

Both wells, pumping stations, and treatment plants at LUCI I and II are located within the 100-yr FEMA Flood zone. These are critical facilities; the entire system is likely to

fail if one or both of these locations were damaged. Therefore, resiliency must be considered in an analysis of the existing system and proposed improvements. Measures have been taken at both LUCI I and II to elevate the pumps and controls, however, new flood maps have been released for Gulf County that have raised the base flood elevations in most coastal areas of the County, therefore, the current flood mitigation measures at the pump stations may not be sufficient. Finally, the support structures (offices, etc.) located at LUCI II are below the established flood elevation.

3.2.5 Minimum Fire Protection

Fire protection provided by the LUCI water system is restricted by the existing distribution system and by the current storage capacity. The booster stations and existing pump stations cannot overcome the head losses generated by the length and line sizes of the distribution system. This limits the ability of the LUCI system to meet required fire flow in outlying portions of the distribution system, specifically, the Jones Homestead region and Indian Pass portion of the system.

Fire flow scenarios for the existing LUCI system have been modeled. The results of the hydraulic model scenario show the available fire flow in all areas of the LUCI system. The model results indicate that portions of the service area have fire flows below 500 gpm, specifically, these areas are Jones Homestead, Indian Pass, and the Gulf County Line. Improvements to the LUCI system would design for higher fire flows and give more adequate fire protection within the service area.

Based on the projected future demands, the LUCI system will require upgrades to include additional storage in order to meet the finished storage volume required for future fire flow protection within the system. In addition, in order to meet the higher standard for fire protection within Jones Homestead and Indian Pass, an additional well and increased production capacity will be required. A new well and treatment facility within the Jones Homestead area will alleviate the prohibitive head losses in the distribution system by reducing the distance between the outer limits of the service area and the new pumping station. This will allow the system to meet fire flows of 500 gpm consistently throughout the service area.

Section 4 - Environmental Impacts

4.1 Socio-Economical Conditions

The LUCI improvements project will have a positive impact on residents within the service area because the project will allow the LUCI to provide safe, reliable, uninterrupted water service. In 2016 there were 1,549 residential service connections within the service area. The estimated equivalent dwelling unit (EDU) for Gulf County equates to approximately 2.5 persons per residential connection. Therefore, it is estimated that the LUCI water system currently serves 3,873 total people during peak summer months.

The 2012-2016 US Census Bureau records for Gulf County estimate approximately 16.70% (or 13.70% of families) live below the national poverty line. The County's median household income was \$40,822 and the State of Florida's estimated median household income was \$48,900. Lighthouse Utilities serves the southern portion of unincorporated Gulf County. Due to the fact that its service area is unincorporated, census data is not available directly for LUCI's service area (it is not a municipality and only encompasses a portion of Gulf County). Therefore, census tract data was analyzed to determine the Median Household Income (MHI) for LUCI's service area.

LUCI's entire service area is located entirely within census tract 9603. Tract 9603 includes four populated areas where the majority of residents are concentrated. These are as follows: Jones Homestead, Indian Pass, Cape San Blas, and Howard's Creek. LUCI's service area includes all of these populated areas with the exception of Howard's Creek. The US Census Bureau for 2012-2016, 5-year data period reflects approximately 1,559 households within tract 9603. Based on LUCI's monthly operating reports for 2017, there are approximately 1,312 permanent residences within the utility's service area (please note that only permanent residences are included because transient residential populations would not be included in the census tract data for Tract 9603 – these transient residents would be included in census data in the locations that they report to the US Census Bureau to be the locations of their primary residence). Based on tract data and connection data, LUCI's service area comprises approximately 84% of the entire population for census tract 9603 (significantly more than half of the contributing population). Therefore, it is assumed that the MHI reported for tract 9603 is an appropriate estimate for showing that LUCI's service area is below the state

average. The MHI for tract 9603 is the highest in Gulf County's census tracts, however, it is below the state average. MHI for LUCI's service area is \$44,875 (state average is \$48,900). Based on LUCI's population making up the majority of the entire census tract, the incomes of residents within LUCI's are contributing significantly to the MHI for tract 9603. It appears that the MHI for census tract 9603 represents an accurate estimate for the MHI within LUCI's service area. In fact, if the lowest MHI within Gulf County (Wewahitchka with MHI = \$29,135) was assumed for all non-LUCI residents within tract 9603 and the incomes were solved for the portion of residents within LUCI's service area based on tract 9603 MHI of \$44,875, LUCI's service area would mathematically have to be below the state average. (However, please note that applying the lowest incomes within Gulf County to all non-LUCI residents is not necessarily an accurate assumption; it is more likely, based on MHI for the tract, that non-LUCI residents within tract 9603 have a much *higher* MHI than \$29,135 which only further drives down the MHI associated with LUCI's service area).

According to the SRF Affordability Calculation Spreadsheet, the calculated LUCI Affordability Index is 104. An overview of Gulf County's demographics is provided in **Appendix A**.

4.2 Land Use and Development

The water system improvements project will primarily be located within County and State right-of-way or easements. Portions of the project will also be located on property already owned and used by Lighthouse Utilities Company, Inc. Some of the Alternatives considered for the project improvements include land acquisition for a new well facility. Only properties with compatible adjacent land uses will be considered for the new well facility. If required, a land use change will be requested for acquired properties.

4.3 Cultural and Historical Resources

No cultural resources are known to be within the project area. No Federal or State Historical landmarks have been identified within the project area. No negative impacts to any cultural resource or historical sites are expected with this project.

4.4 Threatened and Endangered Species

The proposed project improvements will be located primarily within existing road corridors and right of ways that do not contain natural vegetation. These are areas that are regularly mowed and maintained. Improvements at the LUCI I and LUCI II sites are adjacent to right of ways within fenced gravel areas; all vegetation in these areas has been previously removed. There are no known rare, endangered, or threatened species of vegetation or animals within the existing facilities area. The Florida Natural Areas Inventory Biodiversity Matrix Query Results for the project area are provided in **Appendix B**. The habitat of likely species indicated in this report is not consistent with the portions of the project area where existing facilities are located.

Threatened and endangered species may be present at newly acquired properties outside of the current infrastructure. Any improvements which will require development on vacant land will proceed according to all local and state permit requirements. Consultation with Florida Fish and Wildlife and the United States Army Corps of Engineers will be coordinated during the permitting process in order to mitigate potential impacts to threatened or endangered species.

4.5 Wetlands and Critical Habitats

The proposed project area includes wetlands areas. Wetlands encountered within the limits of proposed project will be protected from disturbance by the use of directional bores and/or temporarily impacted with open trenches. Wetlands will be preserved and protected by a 25 foot buffer zone. The exact location and limits of wetland impacts will be identified during design of the project and all necessary coordination with regulatory agencies will be performed throughout the permitting process. Wetland impacts are expected to be temporary and proper minimization, avoidance, and mitigation will be implemented as required.

According to the USDA Natural Resources Conservation Service, there are no prime or

unique farmlands in the service area. Please refer to **Appendix C**.

4.6 Surface Water Bodies

There are no Outstanding Florida Waters, or Wild and Scenic rivers within the project area. All surface waters within the project area are designated Class III waters, suitable for recreation and for propagation of fish and wildlife. Saint Joseph Bay is located adjacent to the project area. **Appendix D** includes the Gulf County 303(d) Listed Waters. The proposed project will not negatively impact water quality in surrounding water bodies. Appropriate Best Management Practices will be incorporated into both design and construction of the improvements to address stormwater pollution and erosion during project implementation. Once the improvements have been implemented there is very low risk to surface water bodies. The only hazardous material associated with the project once completed is the onsite use of chlorine for treatment, however, this project will result in proper support facility buildings which will be resilient to flooding and will therefore, reduce risk of potential release to surface bodies of any onsite treatment chemicals.

4.7 Flood Plain

As previously described, both LUCI I and LUCI II are critical facilities for the LUCI system and both wells are located within the FEMA 100-year flood zone. Portions and components of these facilities are located below the base flood elevation. In addition, FEMA has recently published new FEMA flood maps for much of coastal Gulf County, therefore, the previous efforts to flood proof the well/pump station sites are likely to be insufficient to mitigate the new established flood elevations. The proposed project alternatives for the LUCI system improvements consider resiliency, protection of critical infrastructure, and moving new critical infrastructure out of the flood zone.

4.8 Climate

The LUCI service area is located in coastal Gulf County. Gulf County has a moderate climate. Summers are long, warm and humid. Winters are generally mild. The Gulf of

Mexico moderates the maximum and minimum temperatures. According to the Gulf County data provided by the USDA National Water and Climate Center, the average summer temperature is 80°F and the average daily high is 91°F. In winter, the average temperature is approximately 53°F and the average daily minimum is 41°F. Gulf County does experience occasional freezes between the months of November and March and the lowest temperature recorded was 11 degrees Fahrenheit.

The total annual precipitation is about 69 inches. Approximately 34% of the rainfall occurs in the summer. An additional 24% occurs during the months of January, February and March. The driest months of the year are October, November, and April.

The LUCI service area is located primarily along the coast, therefore, hurricanes should be considered with regard to climate effects on local infrastructure. Hurricanes in Gulf County are most likely to occur between the months of June through November. The possibility of a hurricane threatens the functionality of the LUCI system at several locations including the booster station (LUCI III) and at both existing well/pumping stations (LUCI I and II). The proposed project alternatives will address emergency facilities operation to mitigate the effect of hurricanes on the ability of the LUCI system to provide services during a natural disaster.

4.9 Soils, Topography, Geology, and Groundwater

Project area soils have been mapped by the Soil Conservation Service of the U.S. Department of Agriculture. The topography within the project area is mostly flat terrain. The average elevation varies from sea level to 30 feet. The majority of the soils in the project area consist of fine sands and silty sands which are moderately drained to excessively drained, as shown in the Area Soils Map provided in Appendix C. Aggressive/corrosive soils are known to be located within the project area. Bedrock and overburden are generally deep (greater than 15 feet) and groundwater is typically encountered within this area as shallow as 2 feet deep. There are no challenges to the project design anticipated based on the soils, topography or geology. However, buoyancy of buried structures in areas with shallow groundwater will be considered during the design

phase of the project.

4.10 Air Quality

The air quality in Gulf County is high due to a lack of major sources of air emissions. The closest FDEP Air Quality Monitor for Gulf County is located at St Andrews State Park and at St Marks State Park. The historical Air Quality Index for Gulf County reports 77% - 83% percent Good days with less than 2% Unhealthy for Sensitive Groups. The remaining 15 to 20% of days are classified as Moderate. The proposed project will have no long term adverse air quality effects.

Section 5 - Development of Alternatives

5.1 General

The main priority of the proposed project is to upgrade the existing water system and install new facilities in order to meet the LUCI systems current and projected demand. To determine the needed water system improvements, multiple Capacity Analysis Reports performed for LUCI since 2005 were reviewed. In addition, the most recent (2016) Sanitary Survey inspection performed by FDEP was reviewed. Each of these reports include a recommended list of improvements to be implemented. Finally, site inspection and interviews with the LUCI system Operator were conducted to further analyze the components and challenges of the existing water system.

Three alternatives were considered for the proposed water system improvement project. The first alternative includes only the rehabilitation and maintenance of the existing facilities necessary to address all outstanding items of concern listed in the 2016 FDEP sanitary survey. The second alternative includes significant improvements to the two well stations in order to increase resiliency of critical infrastructure. The third alternative includes the improvements at the well stations described in Alternative Two, but also includes a new well station within the Jones Homestead area which would allow the system to meet future demand and fire flows in addition to improving resiliency of the system's critical infrastructure. A financial analysis comparison of each alternative is provided in the following section and detailed cost analysis of each alternative is provided in Attachments 5-7.

5.2 Alternative One – Existing Facilities Rehabilitation and Maintenance

5.2.1 Description

Alternative One focuses on the rehabilitation and maintenance of the existing water facility components that are in poor condition due to deterioration over time. This alternative would address all outstanding items of concern listed in the FDEP Sanitary Survey performed in 2016. These improvements are as follows:

- Replace tank aerators at both LUCI I and II with hydrogen sulfide removal system in order to improve chlorine residuals throughout system.
- Cleaning of tank at LUCI III and installation of screens on all tank overflow pipes.
- Washout of accumulated sludge/biogrowth at all treatment tanks.
- Purchase portable generators for back-up power supply for high service pumps and chlorinators at LUCI I, II, and III.
- Replace high service pumps at LUCI I and II in order to comply with Rule 62-555.320(15)(b) F.A.C.

Implementation of Alternative One will not cause adverse environmental impacts. All work will be performed at the existing facilities, therefore, no land acquisitions or new construction will be required. In addition, this Alternative does not include an increase in the permitted or production capacity, therefore, this Alternative does not have new hydrogeologic impacts. The existing facility rehabilitation and maintenance improvements included in this alternative will improve the reliability and safety of the existing water system.

5.2.2 Map

The project area and proposed water system improvements for Alternative One are shown in **Attachment 5**.

5.2.3 Cost Estimate

The total project cost for the Alternative One water system improvements is estimated at \$1,460,296.00, including technical service costs. The proposed rehabilitation and maintenance improvements to the system will not affect the Operation and Maintenance cost of the existing LUCI system, therefore, there will be no customer utility rate increases to pay for the improvements. A detailed breakdown of the Alternative One project costs are shown in **Attachment 5**.

5.2.4 Advantages/Disadvantages

The advantages and disadvantages to Alternate One are summarized as follows:

ADVANTAGES

- Rehabilitation of existing facilities that are in poor condition.
- Improves water system reliability, efficiency and safety.
- Facility maintenance and improvements will address all outstanding conditions listed in the FDEP sanitary survey performed in 2016.

DISADVANTAGES

- The improvements included in Alternative One will not increase the system's permitted and production capacity.
- Alternative One will not increase the system's useful finished storage capacity.
- Alternative One will not accommodate anticipated future water demands or meet future capacity requirements of the system.
- Alternative One will not improve fire flow protection for the portions of the system that do not currently meet the general standard of 500 gpm.
- Alternative One does not improve resiliency of the well stations and leaves the entire system vulnerable to disruption during emergency/natural disaster.
- Improvements will result in utility rates increase to provide revenues for debt services.
- By approximately 2019, the LUCI system will not be able to autonomously operate in compliance with Rule 62-555.315(3) F.A.C. for well number and capacity with

regards to the largest well out of service. This disadvantage could be offset by utilizing the interconnection with the City of Port St. Joe water system.

5.3 Alternative Two – Improvements to Increase Permitted & Production Capacity and Improved System Resiliency

5.3.1 Description

Alternative Two focuses on improving the system's resiliency to disruption during natural disasters/emergency. Alternative Two also includes increasing the system's permitted and production capacity to meet projected future water demand. These improvements are listed below.

Proposed Improvements at LUCI I:

- Demolition/removal of all facilities at well station LUCI I (including storage tanks and chlorine treatment) except current well and pump.
- Electrical upgrades to elevate pump controls above new FEMA Base Flood Elevation (BFE).
- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances on platform elevated above BFE for back-up power supply.
- Upgrade well pump motor.
- Installation of new enclosed pump house, elevated above BFE.
- Installation of new well building.
- Installation of new piping and flow meter.
- Installation of 8 inch raw water main from LUCI I to LUCI II (approximately 12,000 linear feet).

Proposed Improvements at LUCI II:

- Upgrade existing 16" well to pump up to 700 gpm (including associated electrical upgrades and controls).
- Request permit modification to allow for additional capacity to address

projected future demands.

- Construction of new well building.
- Replace tank aerator with hydrogen sulfide treatment system and disinfection byproducts treatment system.
- New liquid chlorine treatment system and piping.
- Fiberglass building for chlorine treatment system, elevated above BFE.
- Electrical building with climate control. Finish floor to be elevated above BFE.
- Install new service pumps including new above grade piping, valves, concrete pad, instrumentation, controls, and telemetry.
- Electrical power upgrades including elevating all controls and equipment above BFE.
- Convert 316,000 gallon raw water tank to finished water storage tank for increased storage capacity.
- Replace all existing piping within facility yard.
- Install new master meter assembly.
- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances on platform elevated above BFE for back-up power supply.
- Installation of sidewalks for access.
- Repair to existing gravel driveway.
- Replace high service pumps at LUCI I and II in order to comply with Rule 62-555.320(15)(b) F.A.C.

Proposed Improvements at LUCI III:

- Installation of new disinfection by products treatment system.

Additional Improvements:

- Installation of 250 LF of 8" directional bore at Indian Pass to replace existing crossing. The existing water line is attached to the roadway bridge and the existing anchoring is failing.
- Installation of 1,100 LF of 16" directional bore at Money Bayou to replace

existing crossing. The existing water line is attached to the roadway bridge and the existing anchoring failed in 2017 and currently water line is chained to the bridge.

- Installation of 1,500 LF of 12" directional bore at the Stump Hole to replace existing crossing which has been eroded. The Stump Hole area was damaged by Hurricane Irma and has further eroded to undermine the roadway and existing water line.

The purpose of the improvements to Alternate Two is to consolidate the majority of the system's critical infrastructure to the LUCI II location. LUCI I will become a raw water pumping station. Existing water treatment and storage components at LUCI I will be demolished and those components at LUCI II will be upgraded. In addition, both LUCI I and LUCI II will be improved to remove vulnerable equipment out of the flood zone and both well stations will be improved with backup power supply in case of a natural disaster or other power outage.

The majority of the improvements associated with construction of Alternative Two will occur either within FDOT right of way or on the properties currently occupied by the existing facilities, therefore, no land acquisitions will be required. Construction of the new raw water main from LUCI I to LUCI II will require crossing several wetlands, however, the water main will be designed to directional bore under wetlands to minimize impacts. Wetland impacts during construction are expected to be temporary. The Alternative Two facility improvements will improve reliability and safety of the LUCI system. In addition, the permitting and well upgrades will increase system capacity. Section 3.2.3.1 provides the calculated future projections for the 20 year design. The projected Future Average Daily Demand (FADD) is 733 gpm; the Future Maximum Daily Demand (FMDD) is projected to be 1,576 gpm; and the Future Peak Hourly Demand (FPHD) is projected to be 2,932 gpm. Based on the current production capacity at LUCI I of 400 gpm and the proposed upgrades to pumping capacity at LUCI II to 700 gpm, Alternative Two would provide a total of 1,100 gpm of production. This would provide 100% of the FADD, 70% of the FMDD, and 37%

of the FPHD. Therefore, Alternative Two would increase the system capacity, but not sufficiently to meet future demands for the 20 year design period.

5.3.2 Map

The project area and proposed water system improvements for Alternative Two are shown in **Attachment 6**.

5.3.3 Cost Estimate

The total project cost opinion for the Alternative Two water system improvements is estimated at \$4,039,723.00, including construction, planning, administration, permitting, engineering and other technical service costs. The proposed water system improvements will positively affect the Operation and Maintenance cost of the existing water system. By removing vulnerable equipment at LUCI I (except the well and well pump) and consolidating the finished water storage and treatment to LUCI II, the costs associated with operating and maintaining the system will be reduced to a single location. This is expected to reduce the maintenance costs. In addition, replacing the aging equipment with new system components is expected to reduce the frequency of failures and maintenance. A detailed breakdown of the Alternative Two project costs are shown in **Attachment 6**.

5.3.4 Advantages/Disadvantages

The advantages and disadvantages to Alternate Two are summarized as follows:

ADVANTAGES

- Replacement of existing facilities that are in poor condition.
- Improves water system reliability, efficiency and safety.
- Improvements will increase system reliability and resiliency (reduce potential damage) in a natural disaster/emergency.

- Improvements will reduce operation and maintenance cost of system.
- Improvements will increase permitted and production capacity of the water system and will meet up to 100% of the FADD, 70% of the FMDD, and 37% of the FPHD.

DISADVANTAGES

- Alternative Two will not increase the system's useful finished storage capacity (to meet future demand).
- Alternative Two will only address a portion of the projected future demand capacity.
- Alternative Two will not improve fire flow protection for the portions of the system that do not currently meet the general standard of 500 gpm.
- Improvements will result in utility rates increase to provide revenues for debt services.
- By approximately 2019, the LUCI system will not be able to autonomously operate in compliance with Rule 62-555.315(3) F.A.C. for well number and capacity with regards to the largest well out of service. This disadvantage could be offset by utilizing the interconnection with the City of Port St. Joe water system.
- Based on projected demands, Alternative Two will require that the LUCI system rely on the interconnection to the City of Port St. Joe water system by 2019 in order to meet FMDD and FPHD.

5.4 Alternative Three – New LUCI IV Well and Treatment Plant, Increased Capacity to Meet Future Demand, Fire Flow, and Improved System Resiliency

5.4.1 Description

Alternative Three focuses on implementing all of the improvements listed in Alternative Two, but also includes a new well and treatment plant within the Jones Homestead area of the system which would allow the system to fully meet future demand capacity and would also provide sufficient fire flow to all residents within the service area. In order to maintain service during implementation of the proposed improvements and due to the scope of work required, it is recommended that

Alternative three be broken into two construction phases. The proposed improvements and phasing are listed below.

Construction Phase I:

- Permitting, design and construction of new 16" well, pump, and appurtenances (proposed LUCI IV) within Jones Homestead distribution area.
- Construction of new well building for proposed LUCI IV.
- Construction of a new hydrogen sulfide treatment system and disinfection byproduct system.
- New 250,000 gallon ground storage tank at LUCI IV.
- Installation of chlorine treatment system.
- Fiberglass building for chlorine treatment system.
- Electrical and office building with office space, climate control, and restrooms.
- Electrical power upgrades including upgrading to 3-phase power associated with improvements.
- Installation of service pumps, piping, valves, concrete slab, instrumentation, controls, and telemetry.
- Install new master meter assembly.
- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances.
- Installation of safety fence, sidewalks, driveway, and associated stormwater facilities.
- Installation of new disinfection by products treatment system.
- Installation of 250 LF of 8" directional bore at Indian Pass to replace existing crossing. The existing water line is attached to the roadway bridge and the existing anchoring is failing.
- Installation of 1,100 LF of 16" directional bore at Money Bayou to replace existing crossing. The existing water line is attached to the roadway bridge and the existing anchoring failed in 2017 and currently water line is chained to the bridge.
- Installation of 1,500 LF of 12" directional bore at the Stump Hole to replace

existing crossing which has been eroded. The Stump Hole area was damaged by Hurricane Irma and has further eroded to undermine the roadway and existing water line.

Construction Phase II:

- **All improvements listed in Alternative Two for LUCI I and LUCI II.**

The purpose of Alternative Three is to accomplish all of the improvements listed in Alternative Two with regards to the existing facilities, but also includes a new well and treatment plant (LUCI IV) to increase system permitted and production capacity to meet future demand and fire flow requirements. Implementation of Alternative Three will greatly improve the entire system's reliability, capacity to meet future demand, provide fire flow and provide a more reliable water distribution system to residents throughout the service area. In addition, by phasing the construction as described above into two phases, the new well and facilities as LUCI IV may be implemented and brought into service such that there are minimal interruptions to service during the improvements proposed for upgrading the existing system components.

The majority of the improvements associated with construction of Alternative Three will occur either within FDOT right of way or on the properties currently occupied by the existing facilities. However, the improvements associated with installation of LUCI IV will require land acquisition for the new well/treatment system. Parcels located in upland locations, out of the flood zone, and compatible with the adjacent land uses will be considered for the land acquisition. The Alternative Three facility improvements will ensure improved reliability and safety of the LUCI system. In addition, the permitting and new well will increase system capacity to be capable of meeting 100% of the projected future demand.

5.4.2 Map

The project area and proposed water system improvements for Alternative Three are shown in **Attachment 7**.

5.4.3 Cost Estimate

The total project cost opinion for the Alternative Three water system improvements is estimated at \$7,291,314.00, including construction, planning, administration, permitting, engineering and other technical service costs. The proposed water transmission and collection system improvements will affect the Operation and Maintenance cost of the existing water system by adding proposed LUCI IV. However, this will be offset by the reduction in operation and maintenance costs provided by the improvements at LUCI I and II. A detailed breakdown of the Alternative Three project costs are shown in **Attachment 7** and these are broken out into the two construction phases.

5.4.4 Advantages/Disadvantages

The advantages and disadvantages to Alternate Three are summarized as follows:

ADVANTAGES

- Replacement of existing facilities that are in poor condition.
- Improves water system reliability, efficiency and safety.
- Improvements will increase system reliability and resiliency (reduce potential damage) in a natural disaster/emergency.
- Improvements will increase permitted and production capacity of the water system and will meet up to 100% of project future system demands without requiring utilization of the interconnection with the City of Port St Joe water system.
- Improvements will allow system to provide standard fire flows of 500 gpm to residents throughout the service area.
- Improvements at LUCI IV will be located outside of the flood zone.

- Improvements at LUCI IV will provide sufficient useful finished storage capacity required to meet future demand.
- Alternate Three will provide more consistent water service throughout the distribution system.
- Alternate Three will allow the LUCI system to autonomously operate in compliance with Rule 62-555.315(3) F.A.C. for well number and capacity with regards to the largest well out of service without requiring that the interconnect with the City of Port St. Joe be utilized.

DISADVANTAGES

- Improvements will result in utility rates increase to provide revenues for debt services.

5.5 Comparison of Alternatives

TABLE 9			
COMPARISON OF ALTERNATIVES			
Alternative / Expense	Total Project Cost Construction & Non-Construction	Annual Debt Service No Loan Forgiveness	Revenue Available for SRF Loan
Alternative One: Existing Facilities Improvements	\$1,460,296.00	\$87,071.52	\$400,000
Alternative Two: Increased Capacity and System Resiliency	\$4,039,273.00	\$240,872.27	\$400,000
Alternative Three: Increased Capacity to Meet Future Demand and System Resiliency	\$7,291,314.00	\$380,199.81	\$400,000

¹ Annual Debt Service for SRF Loan calculated at 1.86% interest rate for a 20 year term with semi-annual repayments and multiplied by a 15% Pledged Revenue Factor

As shown, the Alternative One total project cost is significantly less than Alternative Two and Alternative Three project cost. The Alternative One improvements meet the LUCI system's immediate needs, which include

rehabilitation of existing facilities in order to address the outstanding items of concern listed in the 2016 FDEP Sanitary Survey. These rehabilitation improvements are required to prevent failures and to correct safety concerns for existing water system. However, this solution will only temporarily improve the system's issues. Alternative One does not address current and projected capacity concerns. Alternative One does not improve resiliency to protect the system from natural disaster. Therefore, Alternative One is not recommended.

Alternative Two addresses many of the system's current and future issues. However, Alternative Two does not address adequate fire flow throughout the system. Alternative Two will increase permitted/production capacity, but not sufficiently to meet projected demands of the planning period. Alternative Two does not increase useful finished storage which will be required within the planning period.

Alternative Three has the highest project cost, however, Alternative Three is the only alternative that fully addresses the LUCI system's immediate and long term needs. This alternative increases capacity to sufficiently meet projected demand, provides adequate fire protection throughout the service area, improves system resiliency, reduces maintenance and system failures, and increases consistency and safety throughout the water service area. Alternative Three is the recommended project for implementation.

Section 6 – The Selected Alternative

6.1 Description of Proposed Facilities

Based on an analysis of the advantages and disadvantages of the options presented for improvements to the LUCI system, Alternative Three is the recommended plan to maximize the benefits of improvements for the next 20 years. The Selected Alternative will consolidate the majority of the system's critical infrastructure to the LUCI II location. LUCI I will become a raw water pumping station. A new 6 inch raw water main will be installed from LUCI I to LUCI II. Existing water treatment and storage components at LUCI I will

be demolished and those components at LUCI II will be upgraded. In addition, both LUCI I and LUCI II will be improved to raise vulnerable equipment above the base flood elevation and both well facilities will be improved with backup power supply in case of a natural disaster or other power outage. Upgrades to the well pumps, service pumps, pipes, tanks, and chlorination system will be included. Support facilities with employee amenities will be installed. The Selected Plan will include installation of a new well/treatment station (LUCI IV) within the Jones Homestead area in order to increase system permitted and production capacity to sufficiently meet the future demand and fire flow requirements. Implementation of Alternative Three will greatly improve the entire system's reliability, capacity to meet future demand, provide fire flow and provide a safer water distribution system to residents throughout the service area. Details of the improvements at each well location are listed below. An exhibit showing the location of proposed improvements associated with the Selected Plan is included in **Attachment 7**.

CONSTRUCTION PHASE I:

6.1.1 Proposed LUCI III Improvements (Selected Alternative)

- Installation of new disinfection by products treatment system.

6.1.2 Additional Improvements (Selected Alternative)

- Installation of 250 LF of 8" directional bore at Indian Pass to replace existing crossing. The existing water line is attached to the roadway bridge and the existing anchoring is failing.
- Installation of 1,100 LF of 16" directional bore at Money Bayou to replace existing crossing. The existing water line is attached to the roadway bridge and the existing anchoring failed in 2017 and currently water line is chained to the bridge.
- Installation of 1,500 LF of 12" directional bore at the Stump Hole to replace existing crossing which has been eroded. The Stump Hole area was damaged by Hurricane Irma and has further eroded to undermine the roadway and existing water line.

6.1.3 Proposed LUCI IV Improvements (Selected Alternative)

- All improvements listed in Alternative Two for LUCI I and II.
- Permitting, design and construction of new 16 inch well, pump, and appurtenances (proposed LUCI IV) within Jones Homestead distribution area.
- Construction of new well building for proposed LUCI IV.
- Construction of a new hydrogen sulfide removal system.
- New 250,000 gallon ground storage tank at LUCI IV.
- Installation of chlorine treatment system.
- Fiberglass building for chlorine treatment system.
- Mechanical support building.
- Electrical power upgrades including upgrading to 3-phase power associated with improvements.
- Installation of service pumps, piping, valves, concrete slab, instrumentation, controls, and telemetry.
- Install new master meter assembly.
- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances.
- Installation of safety fence, sidewalks, driveway, and associated stormwater facilities.

CONSTRUCTION PHASE II:

6.1.4 LUCI I Improvements (Selected Alternative)

- Demolition/removal of all facilities at well station LUCI I (including storage tanks and chlorine treatment) except current well and pump.
- Electrical upgrades to elevate pump controls above new FEMA Base Flood Elevation (BFE).
- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances on platform elevated above BFE for back-up power supply.
- Upgrade well pump motor.
- Installation of new enclosed pump house, elevated above BFE.
- Installation of new well building.

- Installation of new piping and flow meter.
- Installation of 8 inch raw water main from LUCI I to LUCI II (approximately 12,000 linear feet).

6.1.5 LUCI II Improvements (Selected Alternative)

- Upgrade existing 16" well to pump up to 700 gpm (including associated electrical upgrades and controls).
- Request permit modification to allow for additional capacity to address projected future demands.
- Construction of new well building.
- Replace tank aerator with hydrogen sulfide treatment system and disinfection byproducts treatment system.
- New liquid chlorine treatment system and piping.
- Fiberglass building for chlorine treatment system, elevated above BFE.
- Electrical building with climate control. Finish floor to be elevated above BFE.
- Install new service pumps including new above grade piping, valves, concrete pad, instrumentation, controls, and telemetry.
- Electrical power upgrades including elevating all controls and equipment above BFE.
- Convert 316,000 gallon raw water tank to finished water storage tank for increased storage capacity.
- Replace all existing piping within facility yard.
- Install new master meter assembly.
- Installation of generator with automatic transfer switch, fuel tank, and all associated appurtenances on platform elevated above BFE for back-up power supply.
- Installation of sidewalks for access.
- Repair to existing gravel driveway.
- Replace high service pumps at LUCI I and II in order to comply with Rule 62-555.320(15)(b) F.A.C.

6.2 Environmental Impacts of Proposed Facilities

The short-term impacts during construction include increased noise levels and potential for erosion and sedimentation. To prevent erosion from stormwater at the water plant construction sites and along the alignment for the new raw water line during construction, Best Management Practices to minimize erosion and stormwater pollution will be utilized. These include but are not limited to minimizing soil disturbance and the installation of erosion controls, such as hay bales and silt fencing and establishing temporary and permanent vegetation. In addition to temporary construction impacts, the proposed project area includes wetlands. Wetlands encountered within the limits of the proposed project will be protected from disturbance by the use of directional bores and/or temporarily impacted with open trenches. Wetlands will be preserved and protected with a 25 foot buffer zone. The exact location and limits of wetland impacts, will be identified during design of the project and all necessary coordination with regulatory agencies will be performed throughout the permitting process. It is expected that wetland impacts will be temporary and impacts will be properly minimized, avoided, and mitigated as necessary.

The long-term impacts of the project are beneficial to residents. These benefits include a reliable, economical and environmentally safe water system capable of sustaining the future growth and demands of unincorporated Gulf County and significantly improved fire protection.

The proposed project will not have significant adverse effects on Wild and Scenic Rivers or on flora, fauna, threatened or endangered plant or animal species, prime agricultural lands, wetland, undisturbed natural areas, or the socio-economic character of the area. There will be no impacts to archeological, historical, or cultural sites recorded in the project area.

6.3 Cost to Construct System Improvements

The cost estimate for the proposed project including construction and technical services costs is \$7,291,314.00. A detailed construction and technical services cost estimate is presented in **Attachment 7**. The following tabulation presents the total project cost

including construction and technical services.

Construction (Including contingency)	\$ 6,572,528.00
CEI/Technical Services	\$ 658,786.00
Land	\$ 60,000.00
Loan Service Fee @ 2.0%	\$ 145,826.28
Total Project Cost	\$ 7,437,140.28

6.4 Consistency with the Comprehensive Plan

The proposed project improvements are consistent with the Gulf County Comprehensive Plan.

Section 7 - Implementation and Compliance

7.1 Public Hearing / Dedicated Revenue Hearing

A public hearing was held at on April 16th, 2018 to explain the water system improvements project and the financial impact of affected parties. Following the public hearing, Lighthouse Utilities Company, Inc. will approved the facility plan and authorize the implementation of the recommended improvements. The public hearing notification proof of publication, public hearing minutes, was submitted separately to the Florida Department of Environmental Protection State Revolving Fund on April 12th, 2018.

7.2 Regulatory Agency Review

To qualify for a subsidized loan from the State Revolving Fund, the following governmental agencies will be provided copies of the Facilities Plan for review and comments.

- Florida Department of Environmental Protection
- Florida Department of Health
- Northwest Florida Water Management District
- United States Environmental Protection Agency
- State Clearing House

7.3 Financial Planning

The Florida Department of Environmental Protection's State Revolving Fund is expected to be the primary financing source for the project. Pledged revenues for debt payments are the Lighthouse Utilities Company's monthly water income. Residential customers currently make up 99% of LUCI's annual revenues and the remaining 1% consists of commercial customers. The current average monthly water bill is \$15.00 for a residential connection with typical water consumption. Assuming 100% project funding through the SRF Loan, utility rate increases will be required to provide additional revenues for the proposed project. The anticipated annual debt service for the proposed project capital cost is \$380,199.81, assuming 100% SRF Loan at 1.86% interest rate for a 20 year term. A business plan has been prepared to determine the financial impact the water system improvements will have on LUCI's utility customers. LUCI's business plan, which includes a schedule of actual revenues, projected revenues and prior liens, is located in **Appendix E**.

7.4 Implementation

Lighthouse Utilities Company, Inc. has the sole authority to implement the recommended facilities. There are no inter-local agreements necessary for LUCI to provide water services throughout the project planning area.

7.5 Implementation Schedule

A project implementation schedule is provided in **Attachment 10**.

7.6 Compliance

The LUCI water system improvements project will be designed, constructed and operated in accordance with all applicable local, state, and federal requirements and standard engineering practices including:

- Gulf County Comprehensive Plan
- Florida Administrative Code Chapter 62-555 – Permitting, Construction, Operation, and Maintenance of Public Water Systems

- EPA Clean Water Act Requirements
- Rehabilitation Act of 1973 – Title 29 U.S.C. 794 Section 504
- Civil Rights Act of 1964 – Title 42 U.S.C. 2000d
- The Americans with Disabilities Act of 1990 – Title 42 U.S.C. 12101
- Age Discrimination Act of 1975 – Title 42 U.S.C. 6101

The following list identifies the anticipated permits and approvals required for the collection and transmission construction and operation.

State of Florida:

- NFWFMD – Consumptive Use Permit
- FDEP – Application for a Specific Permit to Construct PWS Components
- FDEP – Notice of Intent to use NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities
- FDEP – Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components into Operation
- FDOT - Right of Way Use Permit
- State Clearing House Environmental Review Approval

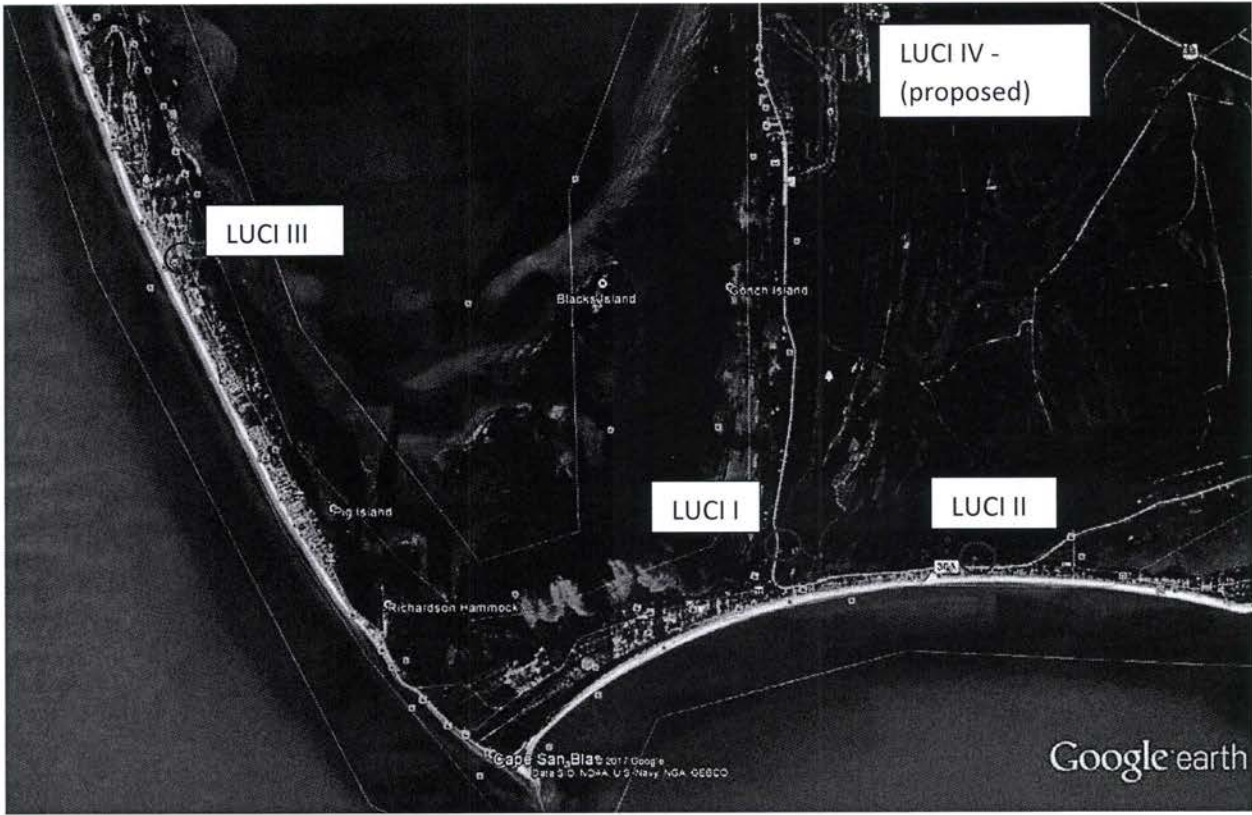
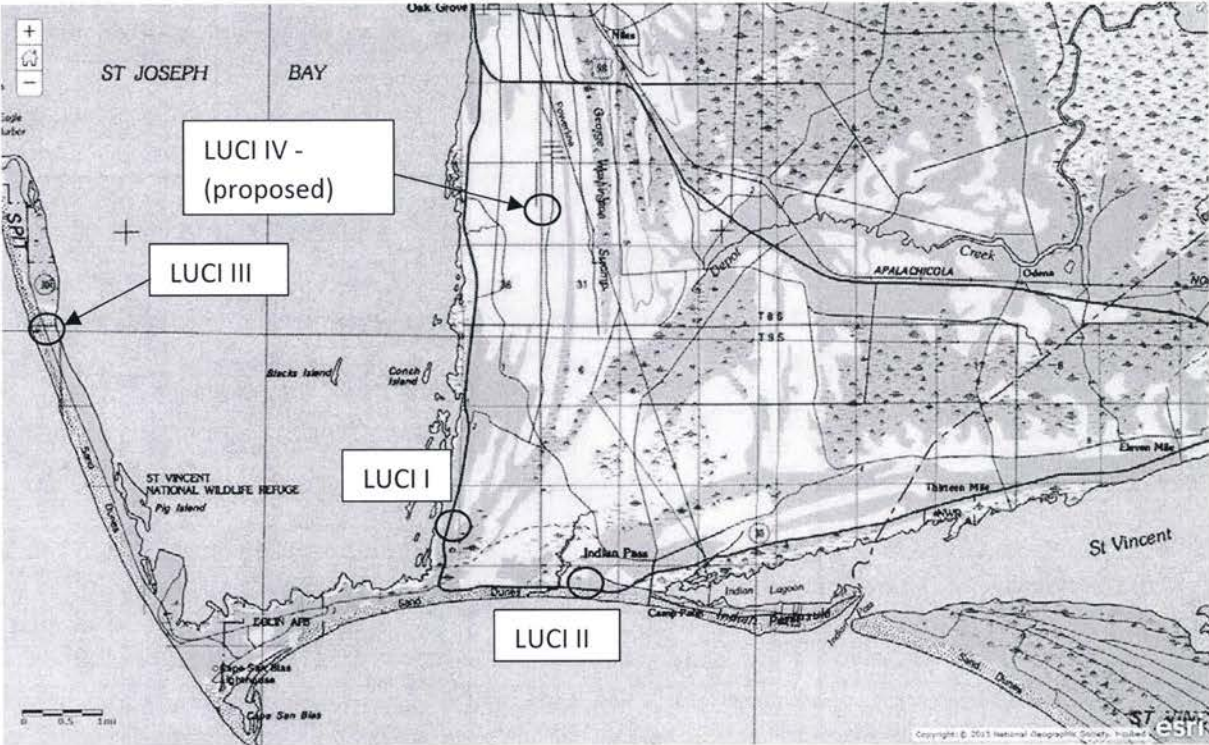
Federal:

- USACE – Nationwide Permit for Dredge and Fill

ATTACHMENT 1

PROJECT LOCATION MAP

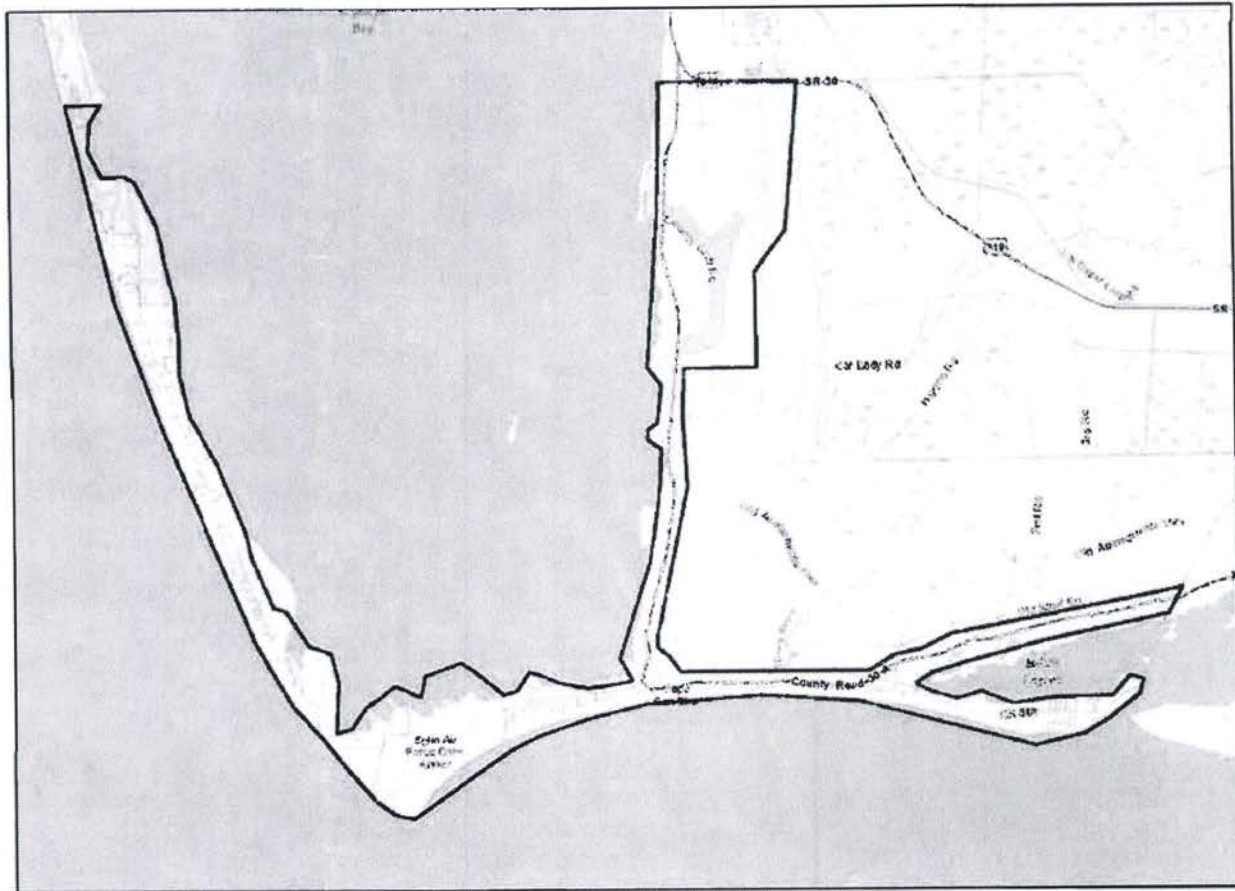
Lighthouse Utilities Company, Inc.
SRF Planning Document – Project Location Map



ATTACHMENT 2

WATER SERVICE AREA MAP

Lighthouse Utilities Company, Inc.
SRF Planning Document – Water Service Area Map



Coverage Area Boundaries
Lighthouse Utilities Company, Inc.
Service and Franchise

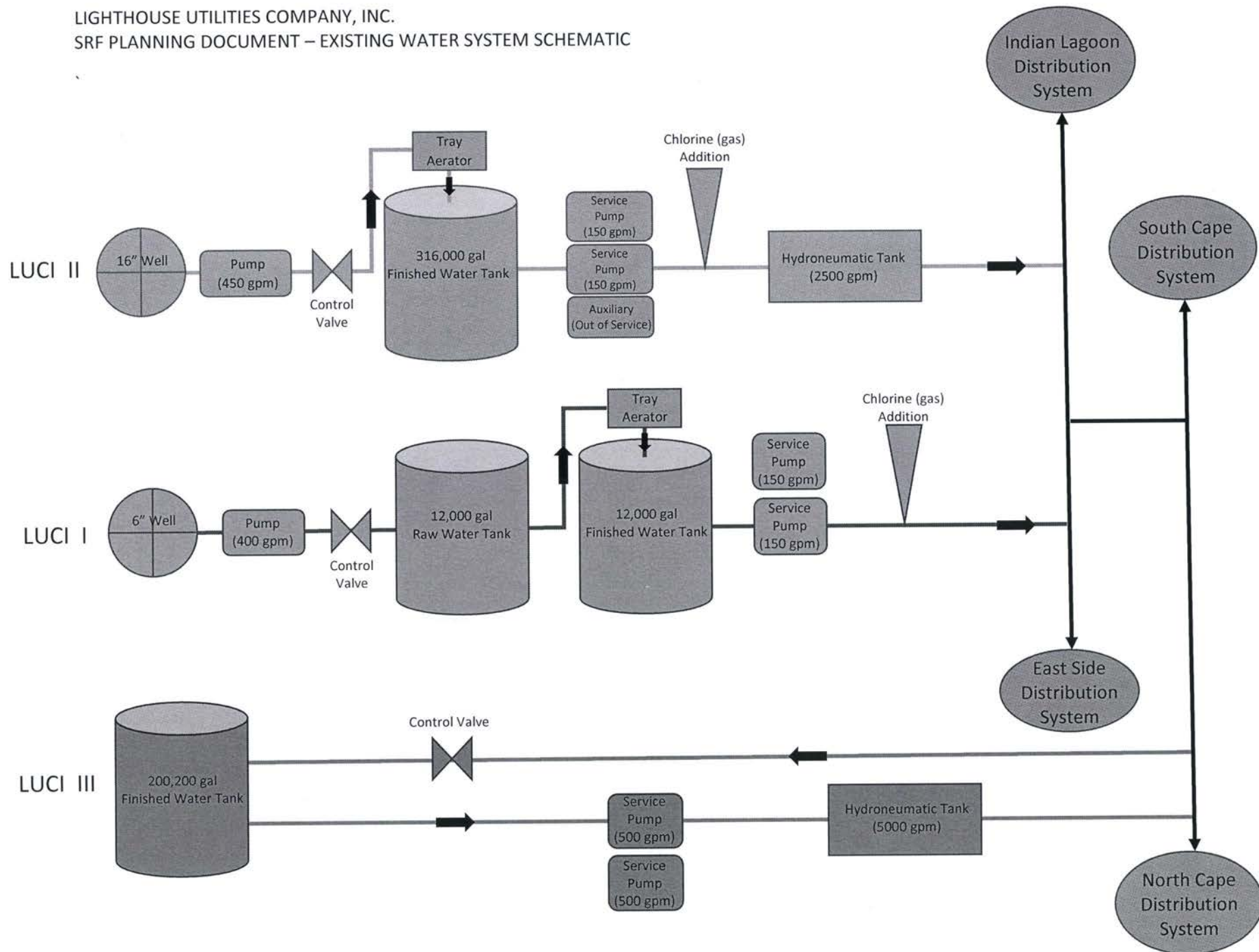
0 0.75 1.5 3 Miles



ATTACHMENT 3

WATER SYSTEM SCHEMATIC

LIGHTHOUSE UTILITIES COMPANY, INC.
SRF PLANNING DOCUMENT – EXISTING WATER SYSTEM SCHEMATIC



ATTACHMENT 4

EXISTING WATER SYSTEM EXHIBIT

ATTACHMENT 5

ALTERNATIVE ONE: COST ESTIMATE & IMPROVEMENTS

ENGINEER'S COST OPINION FOR
ALTERNATIVE ONE - SRF PLANNING DOCUMENT
LIGHTHOUSE UTILITIES COMPANY, INC

	Description	Quantity	Unit	Unit Price	Extension
GENERAL COSTS					
1	Flushing/Testing	1	LS	\$ 20,000.00	\$ 20,000.00
LUCI I IMPROVEMENTS					
2	Demo Aerator and Install H2S Removal System	1	LS	\$ 200,000.00	\$ 200,000.00
3	Tank Cleaning (all treatment tanks)	1	LS	\$ 100,000.00	\$ 100,000.00
6	Generator and all appurtenances (including fuel tank and elevated platform)	1	LS	\$ 100,000.00	\$ 100,000.00
LUCI II IMPROVEMENTS					
7	Demo Aerator and Install H2S Removal System	1	LS	\$ 250,000.00	\$ 250,000.00
8	Tank Cleaning (all treatment tanks)	1	LS	\$ 100,000.00	\$ 100,000.00
11	Generator and all appurtenances (including fuel tank and elevated platform)	1	LS	\$ 100,000.00	\$ 100,000.00
LUCI III SITE IMPROVEMENTS					
12	Tank Cleaning (finished water)	1	LS	\$ 100,000.00	\$ 100,000.00
13	Install screens on overflow pipes	1	LS	\$ 200.00	\$ 200.00
15	Generator and all appurtenances (including fuel tank and elevated platform)	1	LS	\$ 100,000.00	\$ 100,000.00
Subtotal					\$ 1,070,200
10% Bonds, Insurance, Mobilization					\$ 107,020
Construction Subtotal					\$ 1,177,220
5% Contingency					\$ 53,510
Engineer's Cost Opinion of Construction Total					\$ 1,230,730
Surveying Services					\$ 5,000
Engineering Design (8.09% per USDA curve)					\$ 99,566
Geotechnical Services					\$ 5,000
Construction Services (8 month construction period)					\$ 120,000
Total Estimated Cost					\$ 1,460,296

Lighthouse Utilities Company, Inc.
SRF Planning Document – Improvements Alternate One



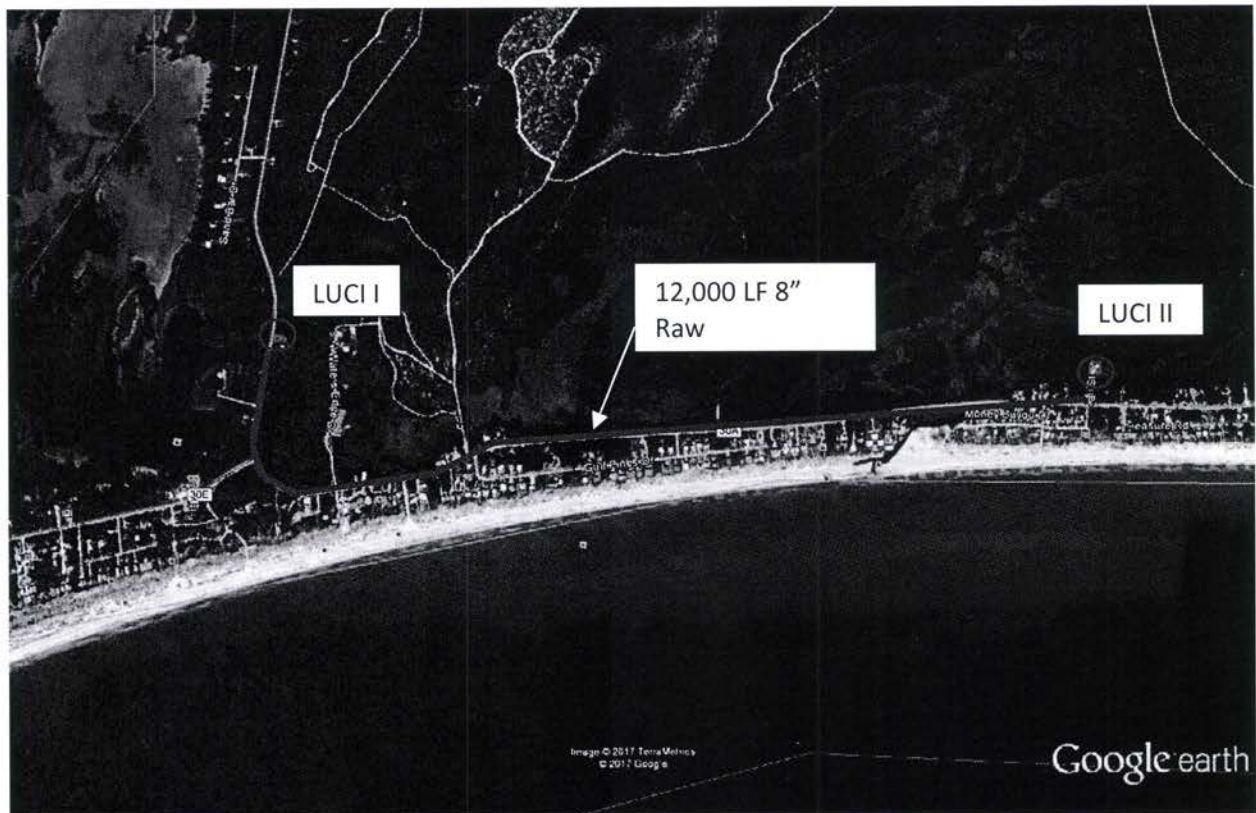
ATTACHMENT 6

ALTERNATIVE TWO: COST ESTIMATE & IMPROVEMENTS

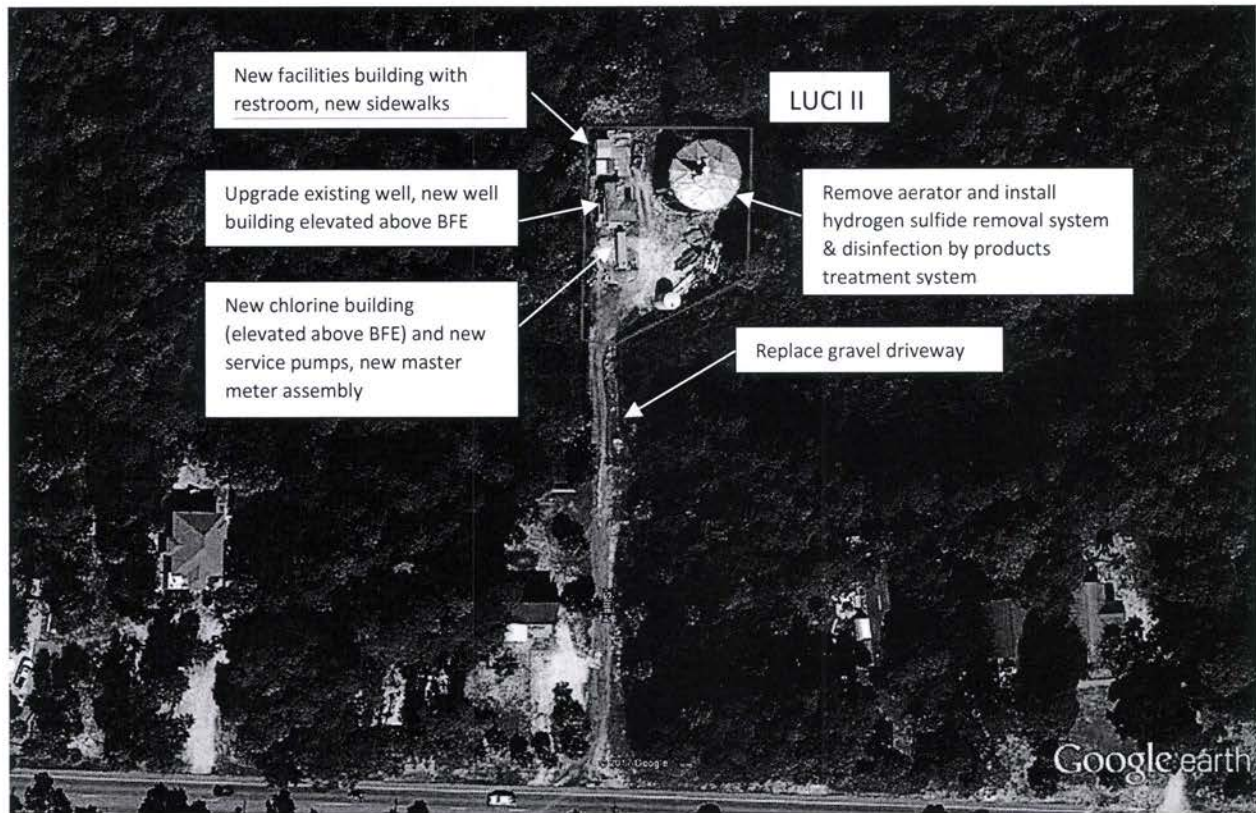
ENGINEER'S COST OPINION FOR
ALTERNATIVE TWO - SRF PLANNING DOCUMENT
LIGHTHOUSE UTILITIES COMPANY, INC

	Description	Quantity	Unit	Unit Price	Extension
GENERAL COSTS					
1	Flushing/Testing	1	LS	\$ 20,000.00	\$ 20,000.00
2	Layout/As-Builts	1	LS	\$ 50,000.00	\$ 50,000.00
3	Demolition	1	LS	\$ 150,000.00	\$ 150,000.00
LUCI 1 WELL IMPROVEMENTS					
4	Upgrade Well Pump Motor	1	LS	\$ 75,000.00	\$ 75,000.00
5	Electrical Modifications	1	LS	\$ 50,000.00	\$ 50,000.00
6	Structural Modifications (Elevated Enclosure)	1	LS	\$ 100,000.00	\$ 100,000.00
7	Piping and Flow Meter	1	LS	\$ 30,000.00	\$ 30,000.00
7	Generator and all appurtenances (including fuel tank and elevated platform)	1	LS	\$ 90,000.00	\$ 90,000.00
LUCI 1 PIPING AND DISTRIBUTION					
8	8" Raw Water Main to LUCI - 2 (includes fittings, valves, etc.)	9,000	LF	\$ 40.00	\$ 360,000.00
9	8" Fusible PVC Directional Bores	3,000	LF	\$ 100.00	\$ 300,000.00
LUCI 2 PRODUCTION WELL					
10	Upgrade Existing 16" Well to 700 gpm	1	LS	\$ 120,000.00	\$ 120,000.00
11	Electrical and Controls	1	LS	\$ 50,000.00	\$ 50,000.00
12	Well Building	1	LS	\$ 60,000.00	\$ 60,000.00
LUCI 2 GROUND STORAGE TANK					
13	Demo Aerator and Install H2S and Disinfection Byproducts Treatment Systems	1	LS	\$ 350,000.00	\$ 350,000.00
LUCI 2 MCC BUILDING, CHLORINE BUILDING					
14	MCC Building	400	SF	\$ 200.00	\$ 80,000.00
15	Fiberglass Chlorine Building (54"x72"x84" high)	1	LS	\$ 40,000.00	\$ 40,000.00
16	Liquid Chlorine Equipment and Piping	1	LS	\$ 30,000.00	\$ 30,000.00
17	HVAC	1	LS	\$ 15,000.00	\$ 15,000.00
LUCI 2 SERVICE PUMPS					
18	Service Pumps	4	EA	\$ 30,000.00	\$ 120,000.00
19	Above-Grade Piping, Valves for Pumps	1	EA	\$ 60,000.00	\$ 60,000.00
20	Concrete Foundation	1	EA	\$ 40,000.00	\$ 40,000.00
21	Instrumentation, Controls, and Telemetry	1	LS	\$ 75,000.00	\$ 75,000.00
22	Electrical Power (Complete)	1	LS	\$ 225,000.00	\$ 225,000.00
23	Generator and all appurtenances (including fuel tank and elevated platform)	1	LS	\$ 100,000.00	\$ 100,000.00
LUCI 2 SITE IMPROVEMENTS					
24	Erosion Control	1	LS	\$ 10,000.00	\$ 10,000.00
25	4" Concrete Sidewalk	40	SY	\$ 35.00	\$ 5,000.00
26	Driveway - Limerock	100	CY	\$ 25.00	\$ 15,000.00
LUCI 2 PIPING AND DISTRIBUTION					
27	Yard Piping	1	LS	\$ 60,000.00	\$ 60,000.00
28	Master Meter Assembly (above grade)	1	LS	\$ 30,000.00	\$ 30,000.00
LUCI 3 SITE IMPROVEMENTS					
29	Install H2S and Disinfection Byproducts Treatment Systems	1	LS	\$ 50,000.00	\$ 50,000.00
ADDITIONAL IMPROVEMENTS					
30	8" Fusible PVC Directional Bores (Indian Pass)	250	LF	\$ 100.00	\$ 25,000.00
31	12" Fusible PVC Directional Bores (Stumphole)	1,500	LF	\$ 120.00	\$ 180,000.00
32	16" Fusible PVC Directional Bores (Money Bayou)	1,100	LF	\$ 150.00	\$ 165,000.00
Subtotal					\$ 3,130,000
10% Bonds, Insurance, Mobilization					\$ 313,000
Construction Subtotal					\$ 3,443,000
5% Contingency					\$ 156,500
Engineer's Cost Opinion of Construction Total					\$ 3,599,500
Surveying Services					\$ 17,000
Engineering Design (7.22% per USDA fee curve)					\$ 259,884
Geotechnical Services					\$ 8,000
Construction Services (12 month construction period)					\$ 180,000
Total Estimated Cost					\$ 4,064,384

Lighthouse Utilities Company, Inc.
SRF Planning Document – Improvements Alternate Two



Lighthouse Utilities Company, Inc.
SRF Planning Document – Improvements Alternate Two

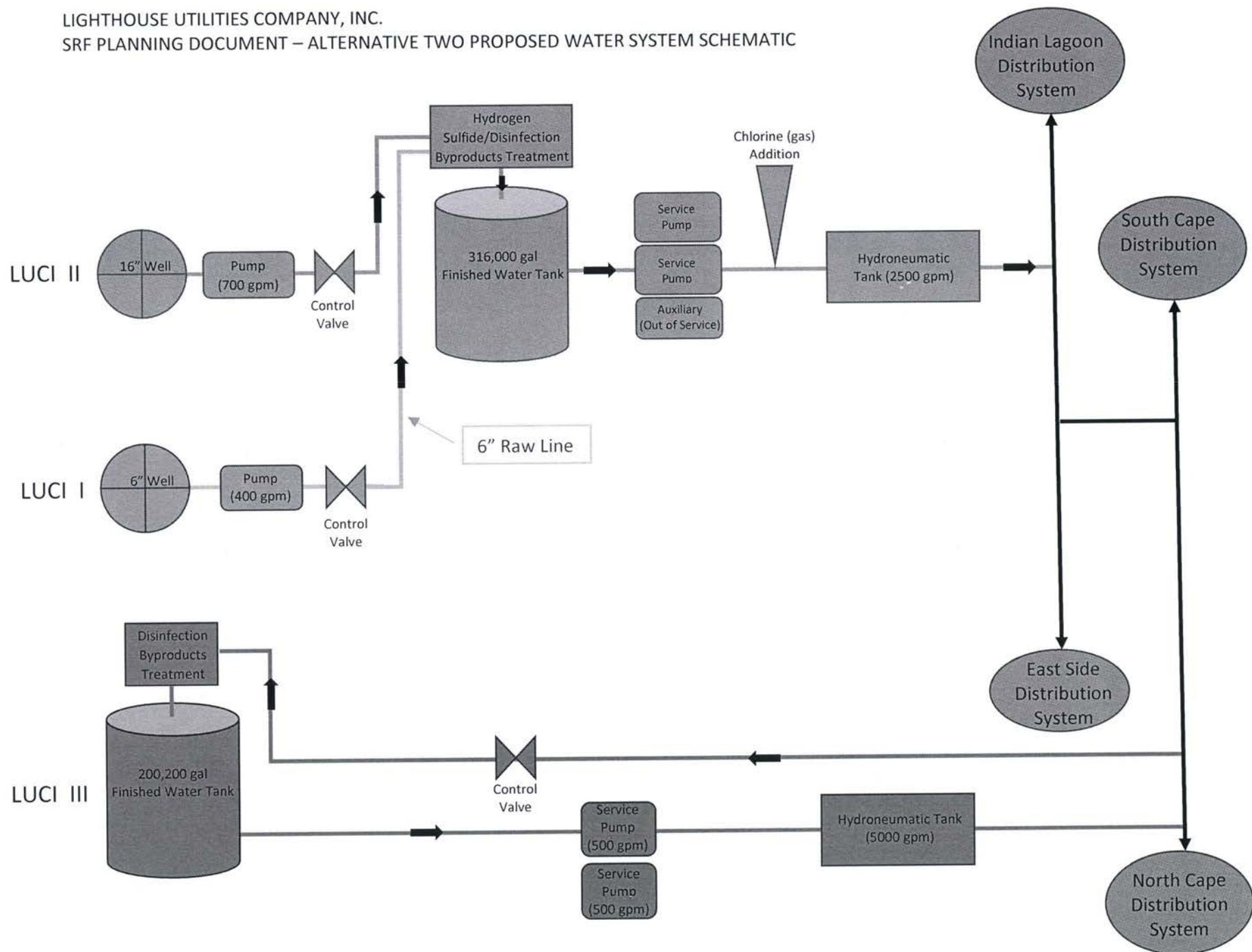


Lighthouse Utilities Company, Inc.
SRF Planning Document – Improvements Alternate Two



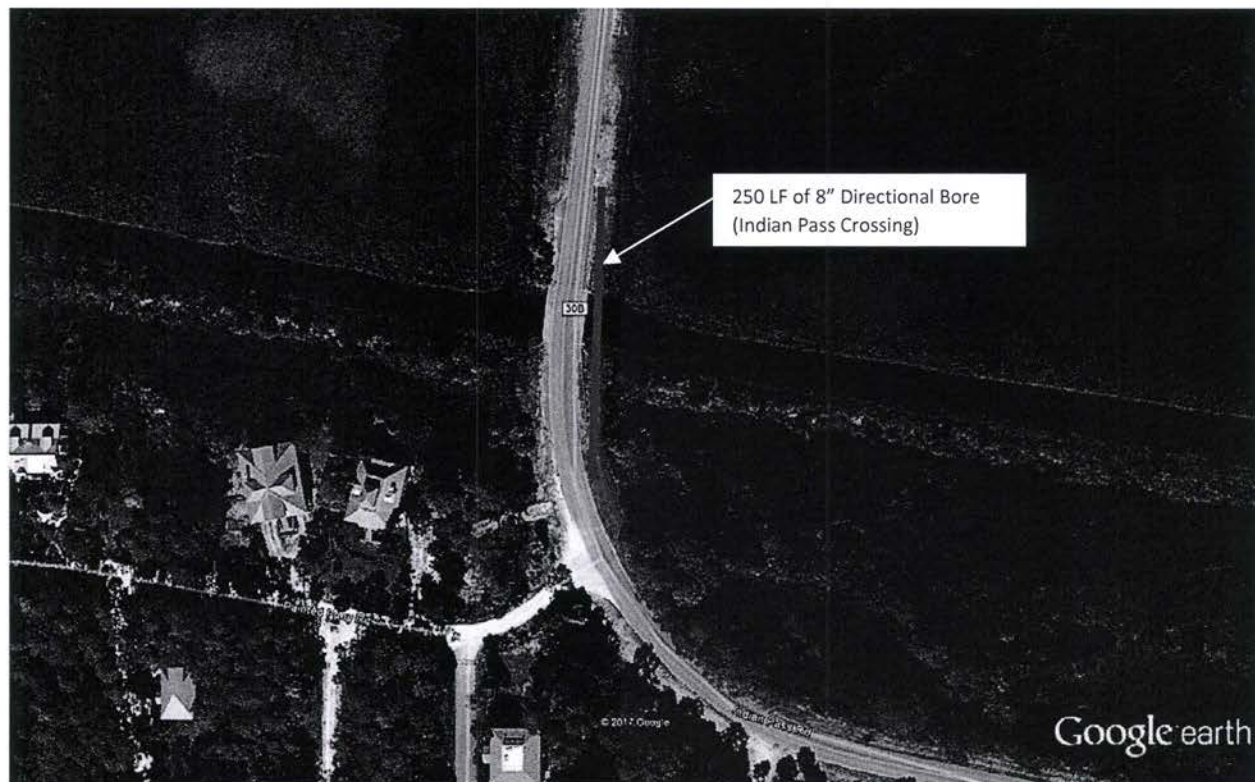
LIGHTHOUSE UTILITIES COMPANY, INC.

SRF PLANNING DOCUMENT – ALTERNATIVE TWO PROPOSED WATER SYSTEM SCHEMATIC

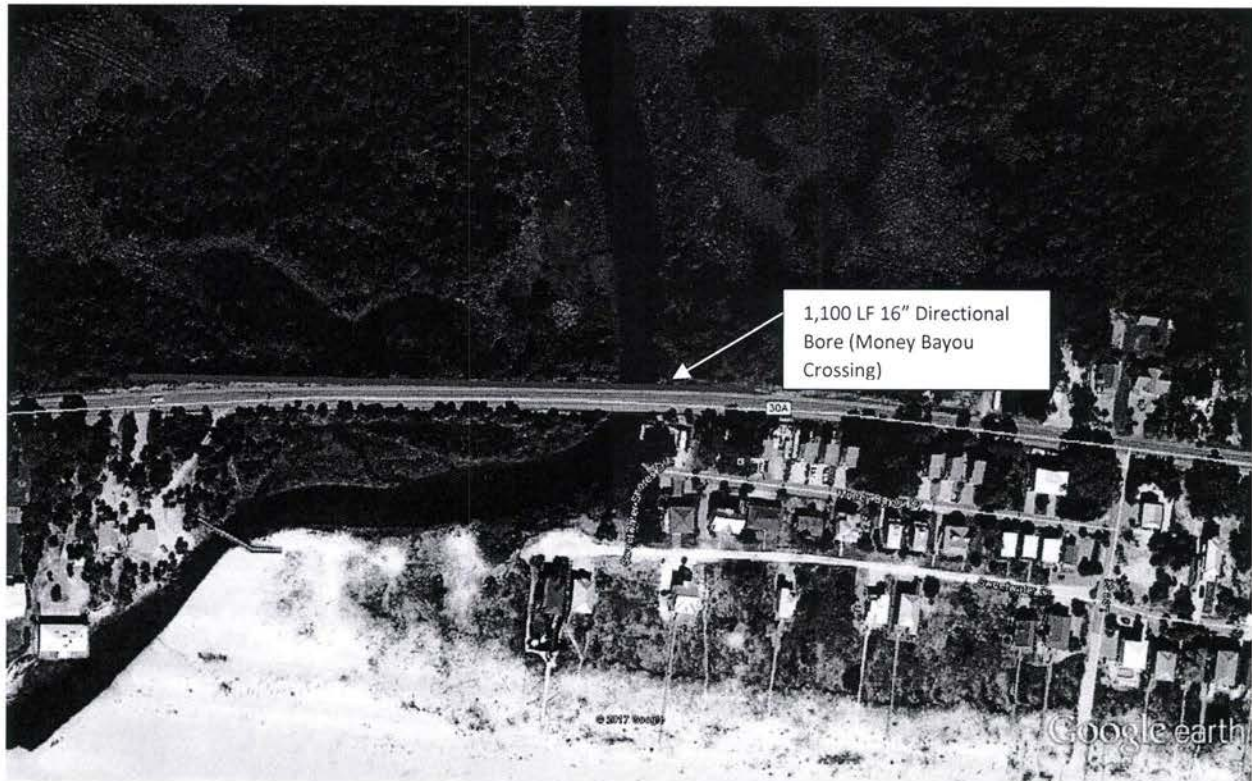


ATTACHMENT 7

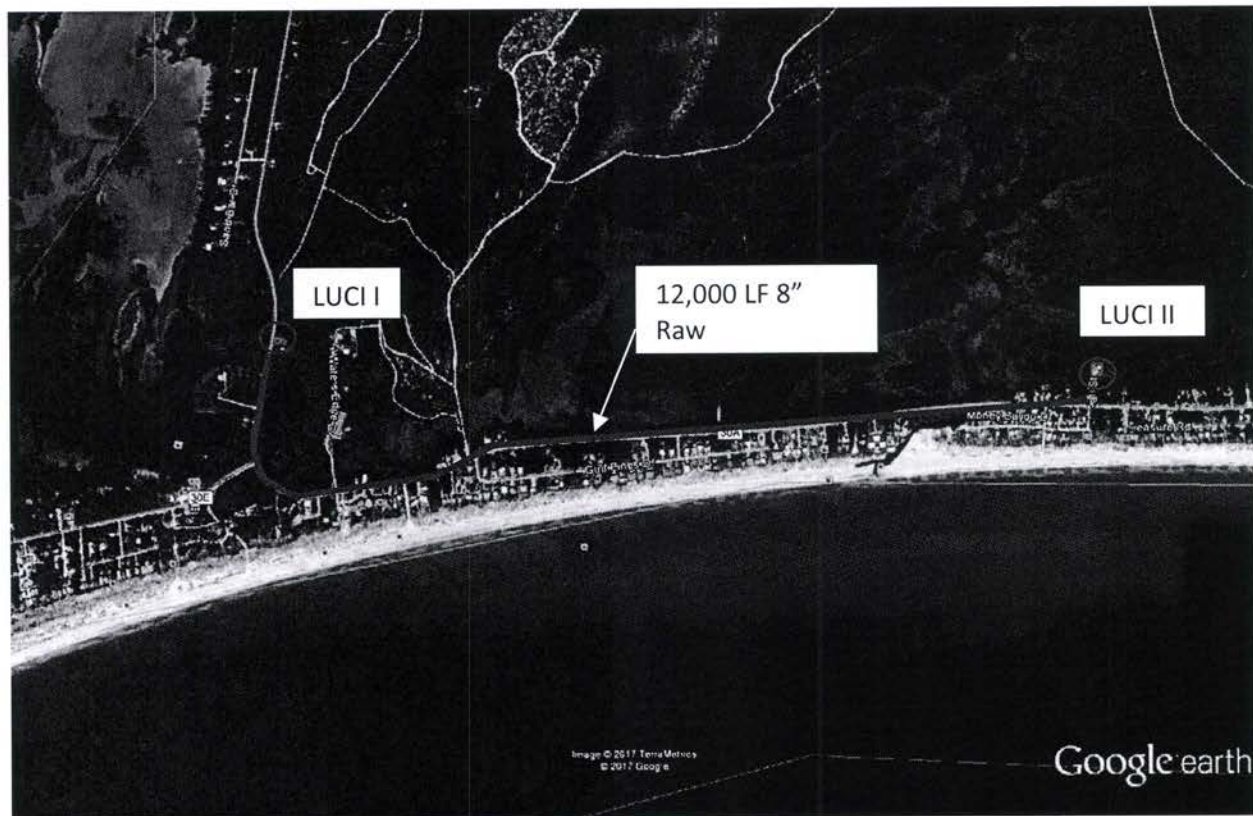
ALTERNATIVE THREE: COST ESTIMATE & IMPROVEMENTS



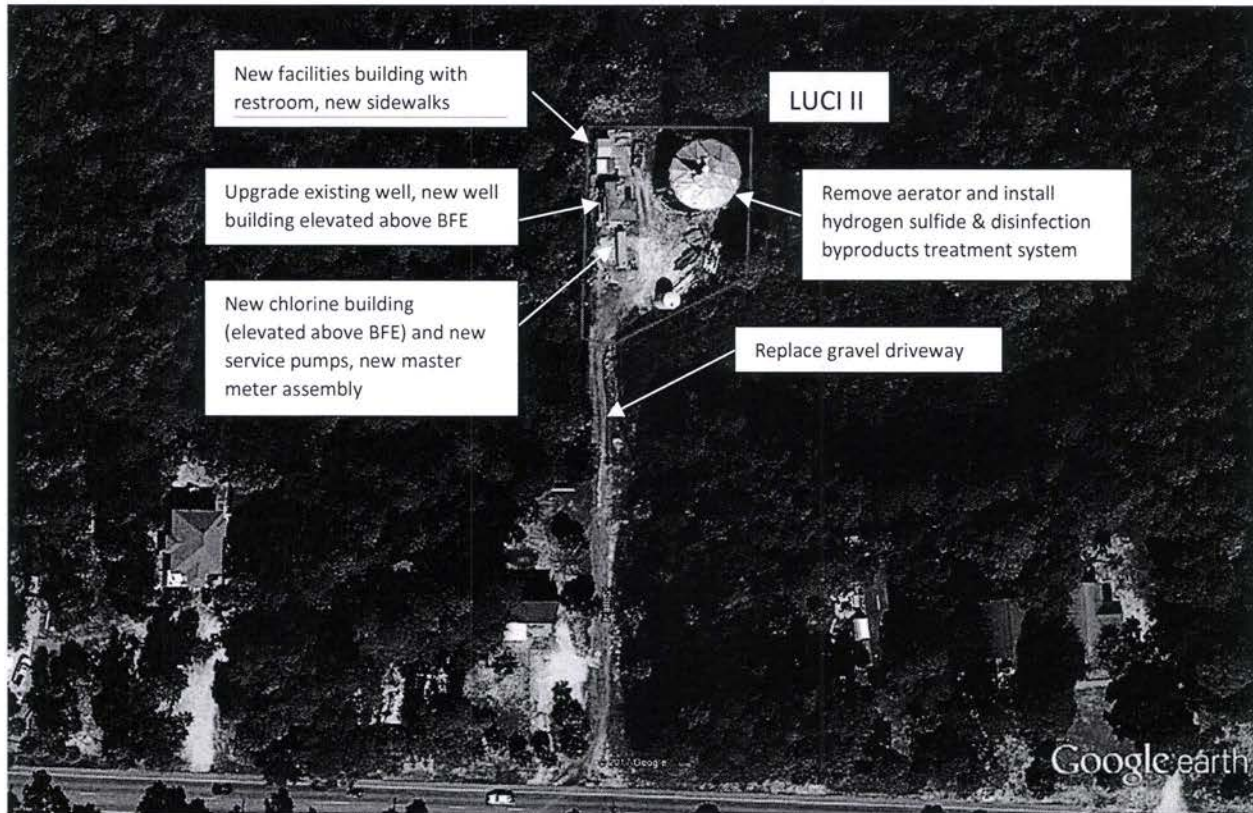
PHASE I CONSTRUCTION



PHASE II CONSTRUCTION

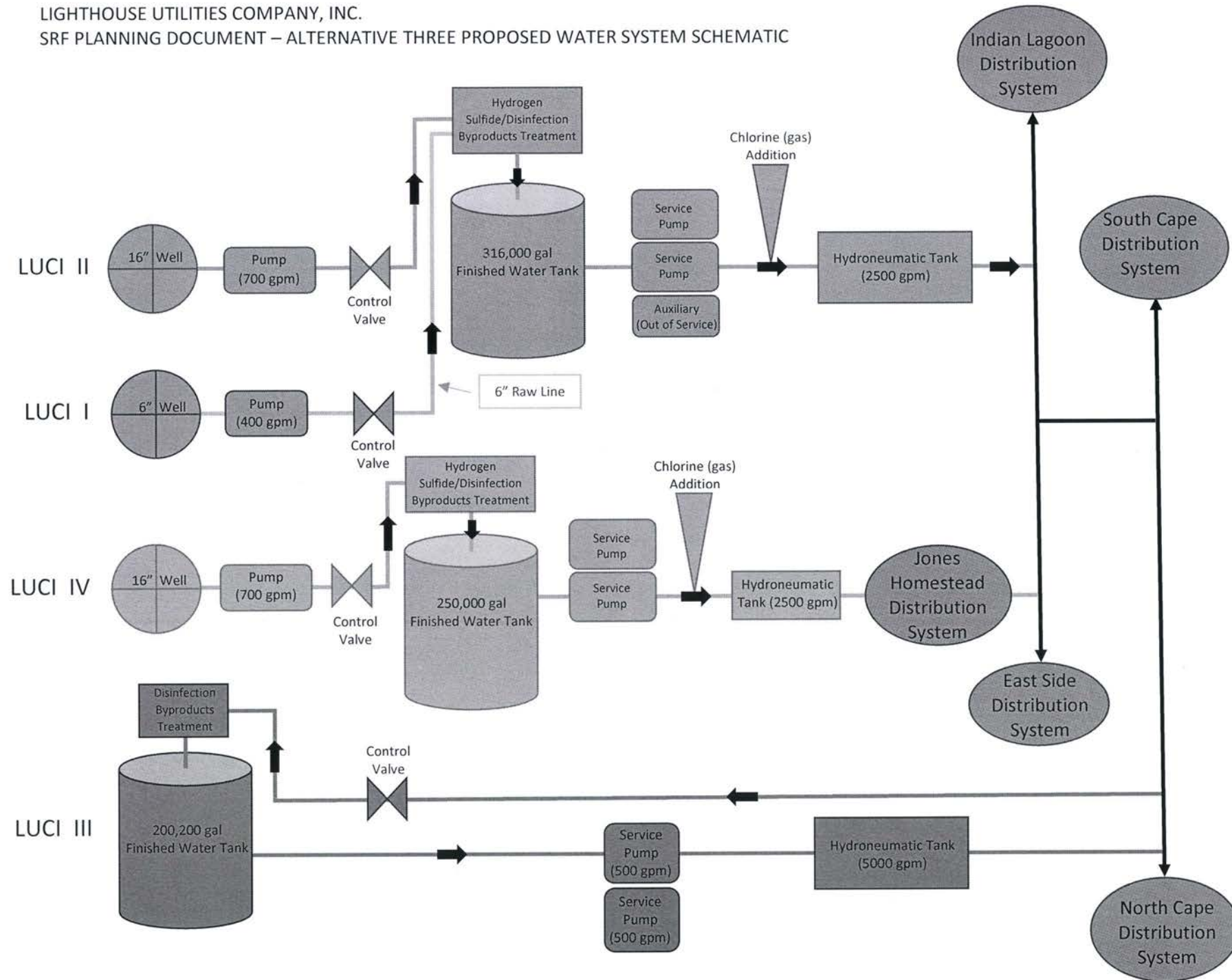


PHASE II CONSTRUCTION



ENGINEER'S COST OPINION FOR
ALTERNATIVE THREE - SRF PLANNING DOCUMENT
LIGHTHOUSE UTILITIES COMPANY, INC

	Description	Quantity	Unit	Unit Price	Extension
PHASE I CONSTRUCTION COST					
GENERAL COSTS					
2	Clearing and Grubbing	1	LS	\$ 5,000.00	\$ 5,000.00
3	Flushing/Testing	1	LS	\$ 10,000.00	\$ 10,000.00
4	Layout/As-Builts	1	LS	\$ 25,000.00	\$ 25,000.00
5	Earthwork Fill and Site Prep	1	LS	\$ 30,000.00	\$ 30,000.00
PRODUCTION WELL					
6	16" Well, Pump, and Appurtenances	1	LS	\$ 600,000.00	\$ 600,000.00
7	Electrical and Controls	1	LS	\$ 40,000.00	\$ 40,000.00
8	Well Building	1	LS	\$ 40,000.00	\$ 40,000.00
GROUND STORAGE TANK					
9	200,000 Gallon Ground Storage Tank (concrete)	1	LS	\$ 280,000.00	\$ 280,000.00
10	Hydrogen Sulfide and Disinfection Byproducts Treatment Systems	1	LS	\$ 300,000.00	\$ 300,000.00
MCC BUILDING, CHLORINE BUILDING					
12	MCC Building with Office Space and Bathroom	1,200	SF	\$ 200.00	\$ 240,000.00
13	Liquid Chlorine Equipment and Piping	1	LS	\$ 50,000.00	\$ 50,000.00
16	HVAC	1	LS	\$ 10,000.00	\$ 10,000.00
SERVICE PUMPS					
17	Service Pumps	4	EA	\$ 30,000.00	\$ 120,000.00
18	Above-Grade Piping, Valves for Pumps	1	EA	\$ 60,000.00	\$ 60,000.00
19	Concrete Foundation & Cover	1	EA	\$ 40,000.00	\$ 40,000.00
20	Instrumentation, Controls, and Telemetry	1	LS	\$ 75,000.00	\$ 75,000.00
21	Electrical Power (Complete)	1	LS	\$ 340,000.00	\$ 340,000.00
22	Generator and all appurtenances (including fuel tank)	1	LS	\$ 100,000.00	\$ 100,000.00
SITE IMPROVEMENTS					
23	Erosion Control	1	LS	\$ 10,000.00	\$ 10,000.00
24	6' Fence with 3 16' Gates	800	LF	\$ 20.00	\$ 16,000.00
25	4" Concrete Sidewalk	100	SY	\$ 35.00	\$ 3,500.00
26	Driveway - Concrete	200	CY	\$ 115.00	\$ 23,000.00
27	Driveway - Limerock	120	CY	\$ 25.00	\$ 3,000.00
28	Drainage and Stormwater Treatment	1	LS	\$ 50,000.00	\$ 50,000.00
29	Electrical Upgrades (to 3-phase power)	1	LS	\$ 20,000.00	\$ 20,000.00
PIPING AND DISTRIBUTION					
30	Yard Piping	1	LS	\$ 60,000.00	\$ 60,000.00
31	12" Master Meter Assembly (above grade)	1	LS	\$ 30,000.00	\$ 30,000.00
SUBTOTAL FOR LUCI IV IMPROVEMENTS					\$ 2,580,500.00
LUCI 3 SITE IMPROVEMENTS					
29	Install Disinfection Byproducts Treatment Systems	1	LS	\$ 50,000.00	\$ 50,000.00
ADDITIONAL IMPROVEMENTS					
30	8" Fusible PVC Directional Bores (Indian Pass)	250	LF	\$ 100.00	\$ 25,000.00
31	12" Fusible PVC Directional Bores (Stumphole)	1,500	LF	\$ 120.00	\$ 180,000.00
32	16" Fusible PVC Directional Bores (Money Bayou)	1,100	LF	\$ 150.00	\$ 165,000.00
SUBTOTAL FOR PHASE I CONSTRUCTION					\$ 3,000,500.00
PHASE II CONSTRUCTION COST					
ALL IMPROVEMENTS INCLUDED IN FOR LUCI I AND II					
1	All Improvements for LUCI I and II	1	LS	\$ 2,690,000.00	\$ 2,690,000.00
SUBTOTAL FOR PHASE II CONSTRUCTION					\$ 2,690,000.00
Subtotal Alternate Three (Phase I and II Construction)					\$ 5,690,500
10% Bonds, Insurance, Mobilization					\$ 569,050
Construction Subtotal					\$ 6,259,550
5% Contingency					\$ 312,978
Engineer's Cost Opinion of Construction Total					\$ 6,572,528
Surveying Services					\$ 25,000
Engineering Design (6.64% per USDA curve)					\$ 433,786.82
Geotechnical Services					\$ 20,000
Construction Services (12 month construction period)					\$ 180,000
Land					\$ 60,000
Total Estimated Cost					\$ 7,291,314

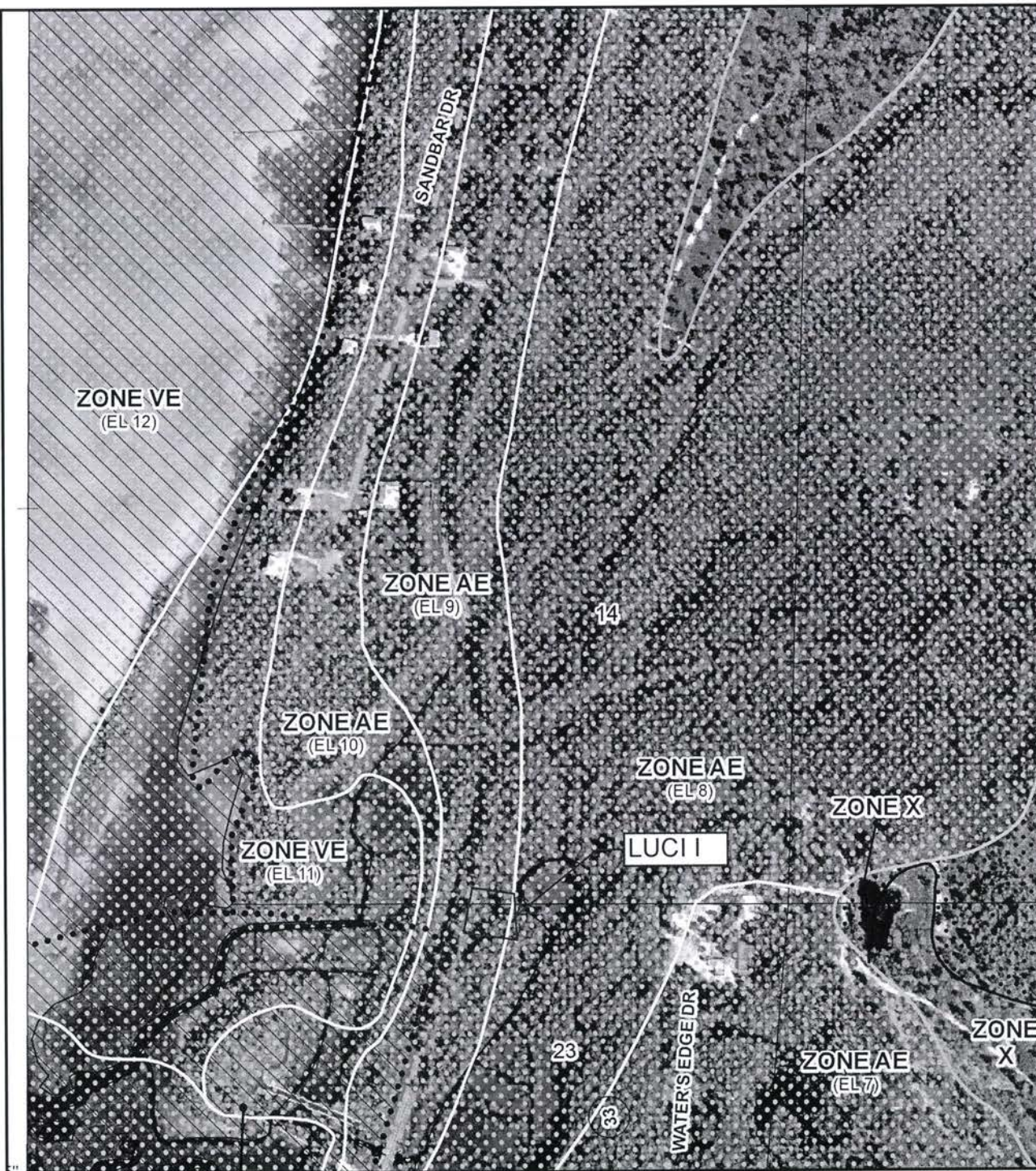
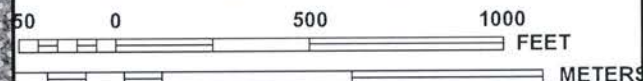


ATTACHMENT 8

FEMA FIRMETTE MAPS



MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0433F

FIRM

FLOOD INSURANCE RATE MAP

GULF COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 433 OF 461

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GULF COUNTY	120098	0433	F

NOTE:
THIS MAP INCORPORATES APPROXIMATE BOUNDARIES OF COASTAL BARRIER RESOURCE SYSTEM UNITS AND/OR OTHERWISE PROTECTED AREAS ESTABLISHED UNDER THE COASTAL BARRIER IMPROVEMENT ACT OF 1990 (PL 101-591).

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

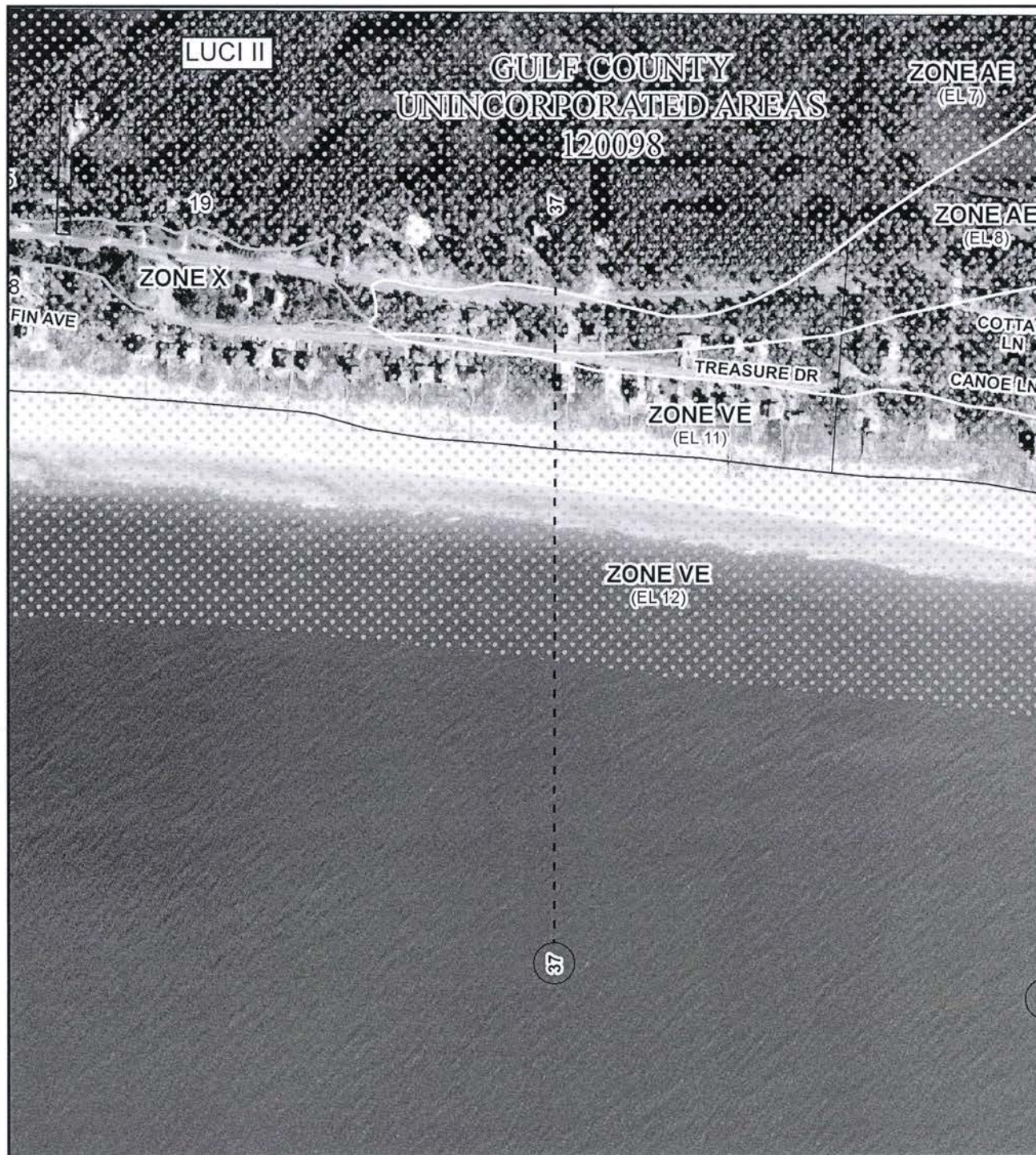


MAP NUMBER
12045C0433F

MAP REVISED
SEPTEMBER 28, 2007

Federal Emergency Management Agency

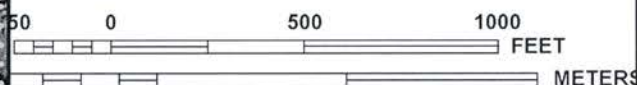
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



National Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



NFIP

PANEL 0442F

FIRM

FLOOD INSURANCE RATE MAP

GULF COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 442 OF 461

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GULF COUNTY	120098	0442	F

*NOTE:
THIS MAP INCORPORATES APPROXIMATE BOUNDARIES OF
COASTAL BARRIER RESOURCE SYSTEM UNITS AND/OR
OTHERWISE PROTECTED AREAS ESTABLISHED UNDER THE
COASTAL BARRIER IMPROVEMENT ACT OF 1990 (PL 101-591).

Notice to User: The Map Number shown below should be
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shown above should be used on insurance applications for the
subject community.

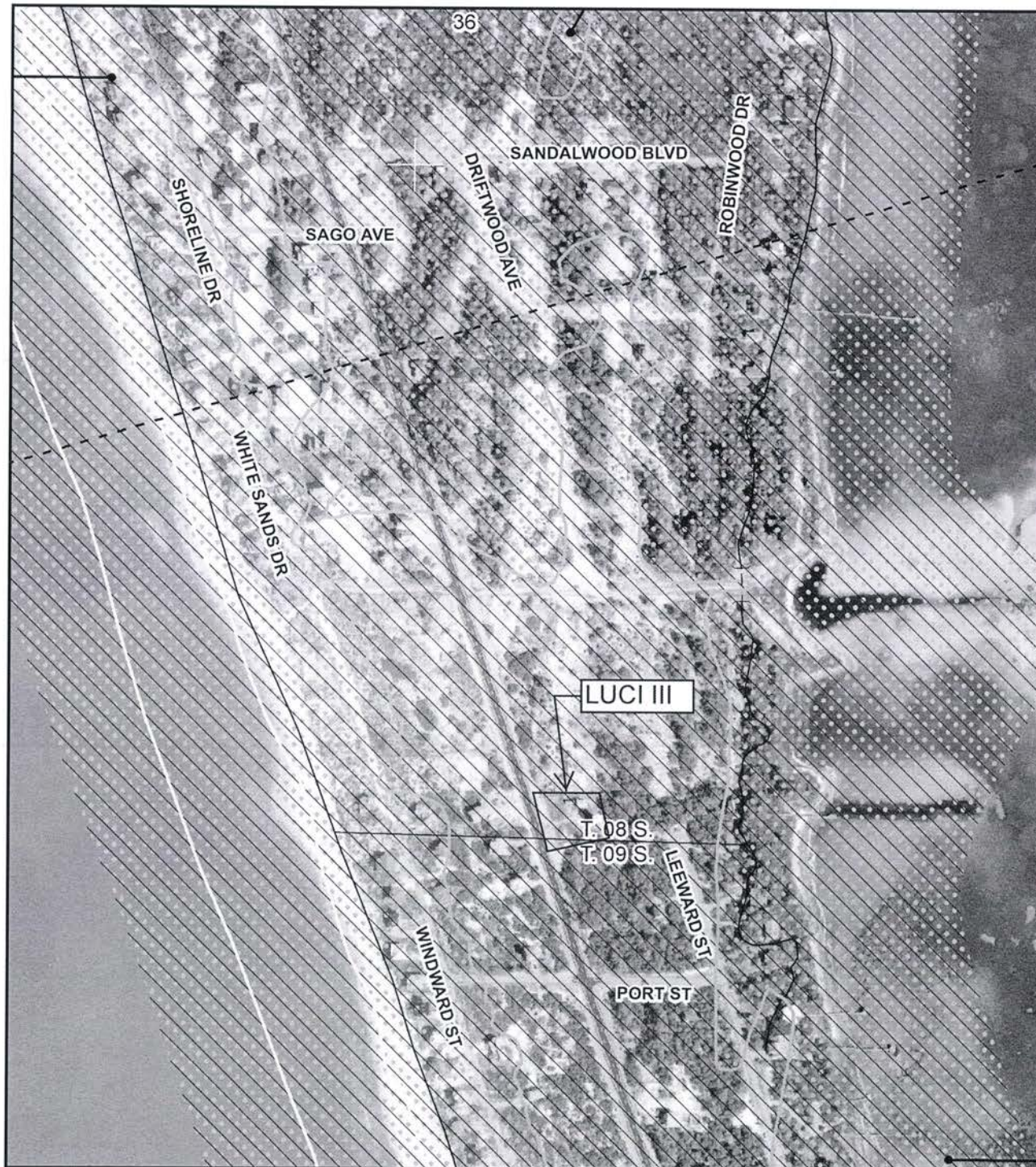


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MAP REVISED
SEPTEMBER 28, 2007

Federal Emergency Management Agency

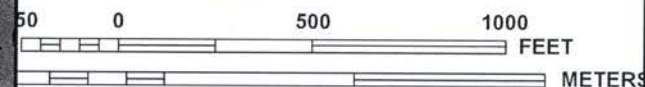
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



National Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0407F

FIRM

FLOOD INSURANCE RATE MAP

GULF COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 407 OF 461

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GULF COUNTY	120098	0407	F

NOTE:
THIS MAP INCORPORATES APPROXIMATE BOUNDARIES OF COASTAL BARRIER RESOURCE SYSTEM UNITS AND/OR OTHERWISE PROTECTED AREAS ESTABLISHED UNDER THE COASTAL BARRIER IMPROVEMENT ACT OF 1990 (PL 101-591).

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
12045C0407F

MAP REVISED
SEPTEMBER 28, 2007

Federal Emergency Management Agency

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COUNTY
RATED AREAS
0098

PLANTATION DR

CESSNA DR

PONDEROSA PINES DR

PALMBREEZE WAY

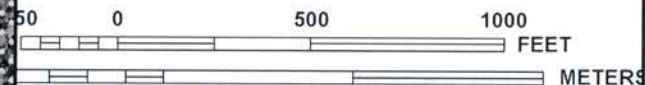
JONES HOMESTEAD AREA
- LOCATION FOR LUCI IV
TO BE DETERMINED
DURING DESIGN

ZONE X

ZONE X



MAP SCALE 1" = 500'



NFP

PANEL 0343G

FIRM

FLOOD INSURANCE RATE MAP

GULF COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 343 OF 461

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GULF COUNTY	120098	0343	G
PORT ST. JOE, CITY OF	120099	0343	G

NOTE:
THIS MAP INCORPORATES APPROXIMATE BOUNDARIES OF
COASTAL BARRIER RESOURCE SYSTEM UNITS AND/OR
OTHERWISE PROTECTED AREAS ESTABLISHED UNDER THE
COASTAL BARRIER IMPROVEMENT ACT OF 1990 (PL 101-591).

Notice to User: The Map Number shown below should be
used when placing map orders; the Community Number
shown above should be used on insurance applications for the
subject community.

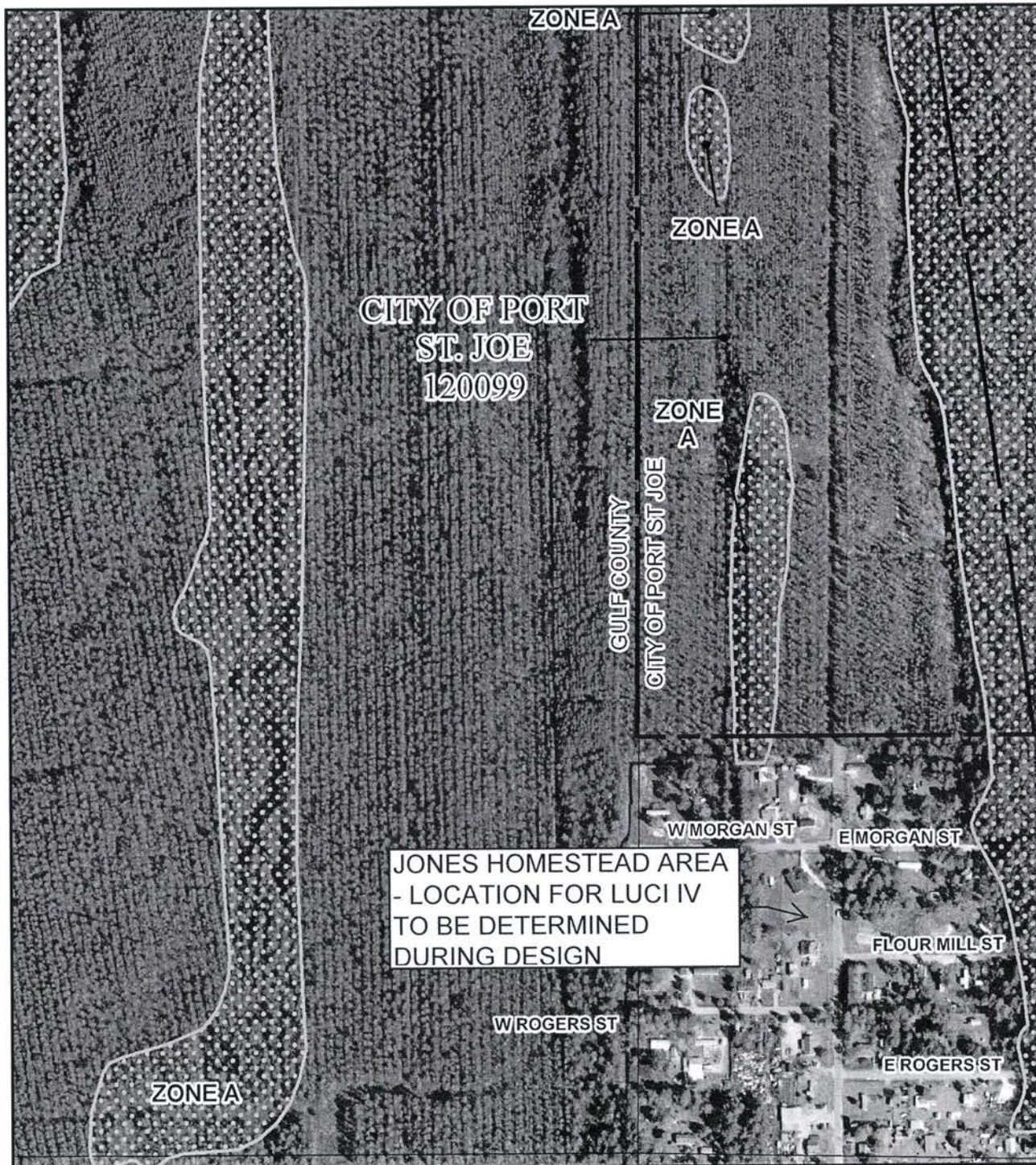


MAP NUMBER
12045C0343G

MAP REVISED
APRIL 16, 2009

Federal Emergency Management Agency

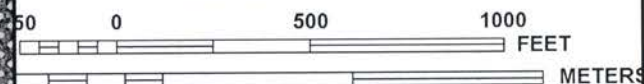
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



National Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0343G

FIRM

FLOOD INSURANCE RATE MAP

GULF COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 343 OF 461

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GULF COUNTY	120098	0343	G
PORT ST. JOE, CITY OF	120099	0343	G

NOTE:
THIS MAP INCORPORATES APPROXIMATE BOUNDARIES OF COASTAL BARRIER RESOURCE SYSTEM UNITS AND/OR OTHERWISE PROTECTED AREAS ESTABLISHED UNDER THE COASTAL BARRIER IMPROVEMENT ACT OF 1990 (PL 101-591).

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MAP NUMBER
12045C0343G

MAP REVISED
APRIL 16, 2009

Federal Emergency Management Agency

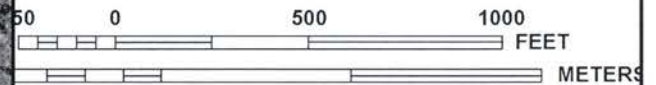
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



National Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



NFIP

PANEL 0343G

FIRM

FLOOD INSURANCE RATE MAP

GULF COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 343 OF 461

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GULF COUNTY	120098	0343	G
PORT ST. JOE, CITY OF	120099	0343	G

NOTE:

THIS MAP INCORPORATES APPROXIMATE BOUNDARIES OF COASTAL BARRIER RESOURCE SYSTEM UNITS AND/OR OTHERWISE PROTECTED AREAS ESTABLISHED UNDER THE COASTAL BARRIER IMPROVEMENT ACT OF 1990 (PL 101-591).

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
12045C0343G

MAP REVISED
APRIL 16, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

ATTACHMENT 9

WETLAND MAPS



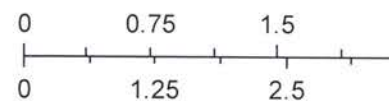
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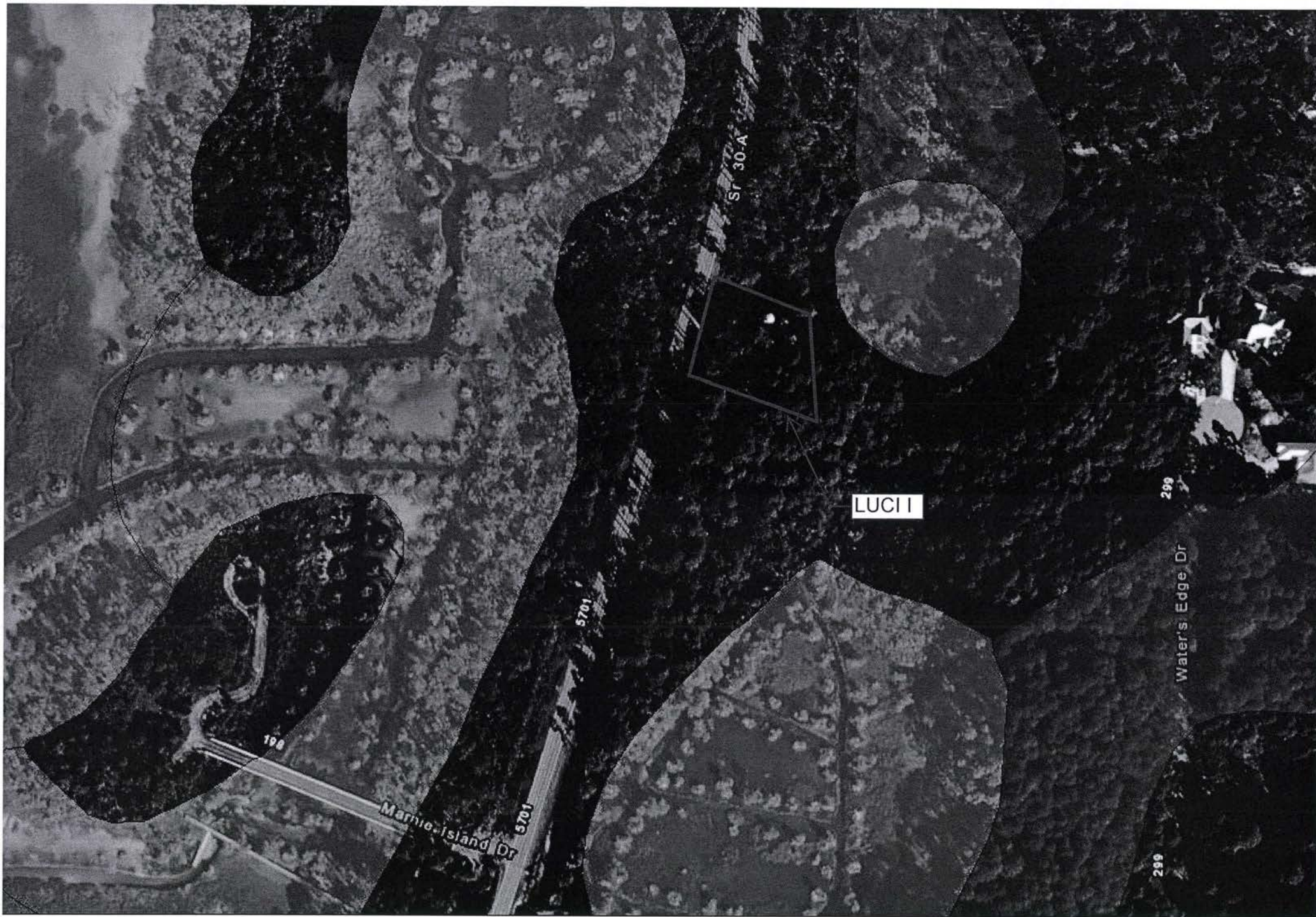
Inventory (areas)

Marine Deepwater

Marine Wetland

Emergent Wetland





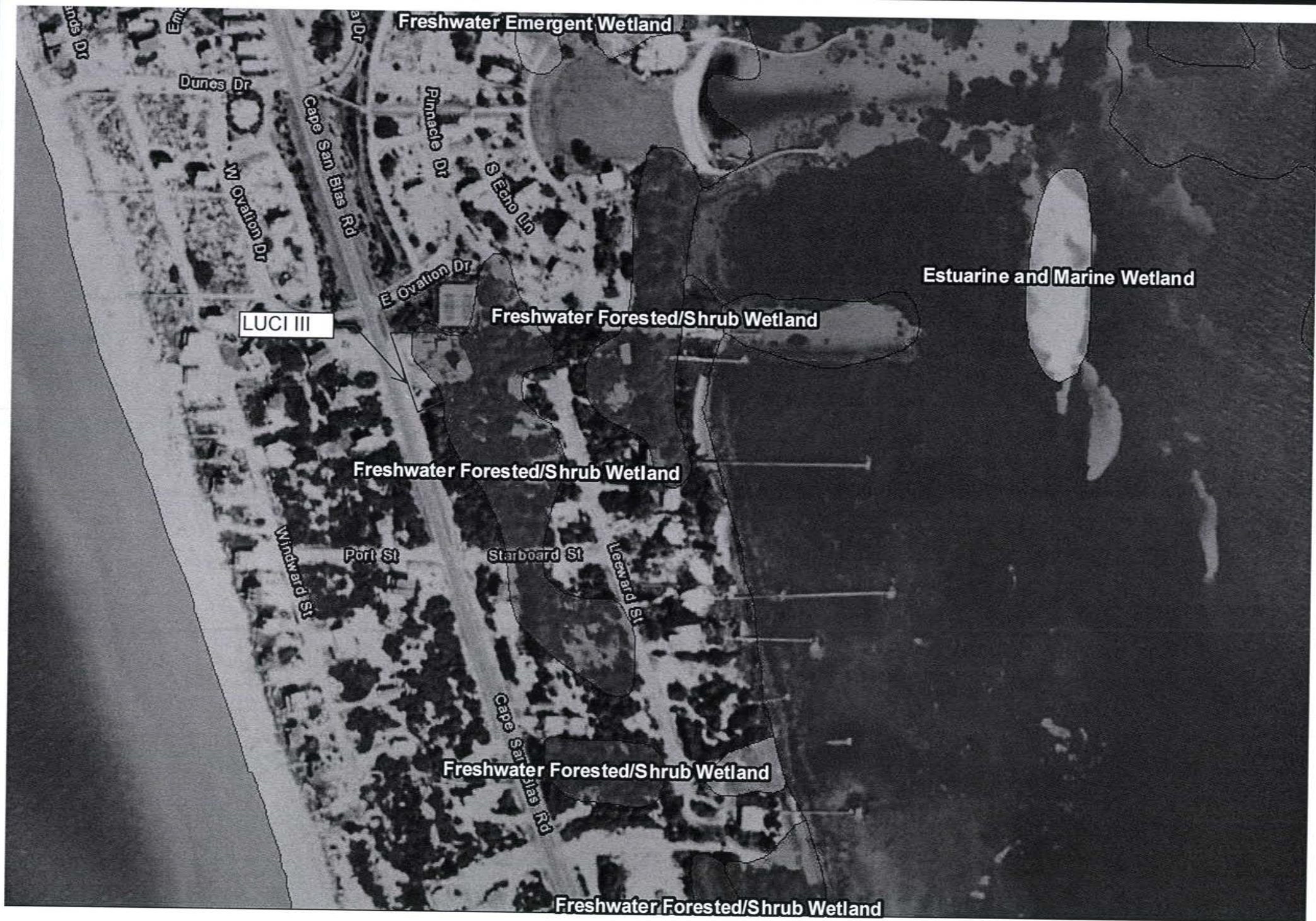
■ Lake

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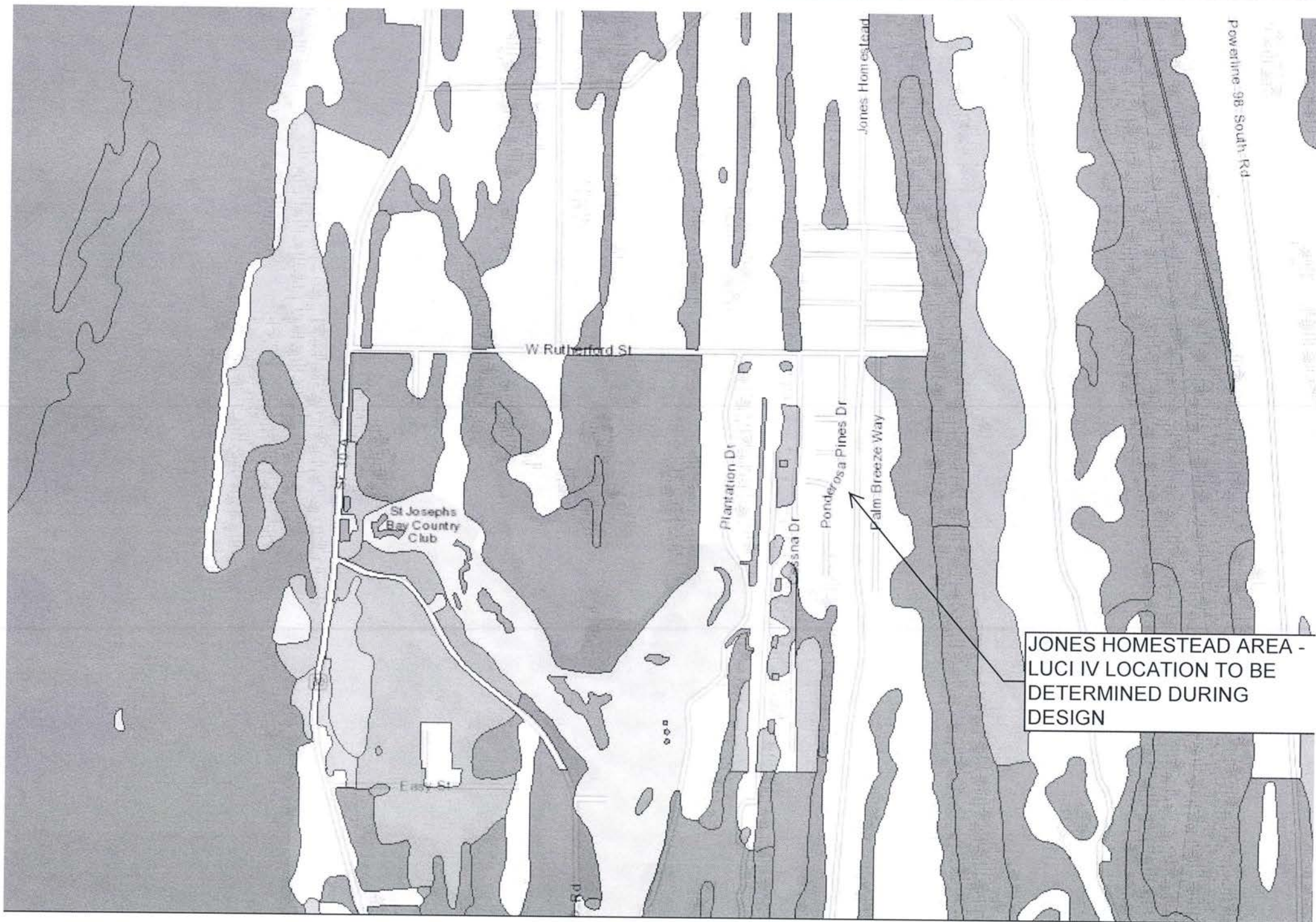
■ Lake

0 0.0275



■ Lake

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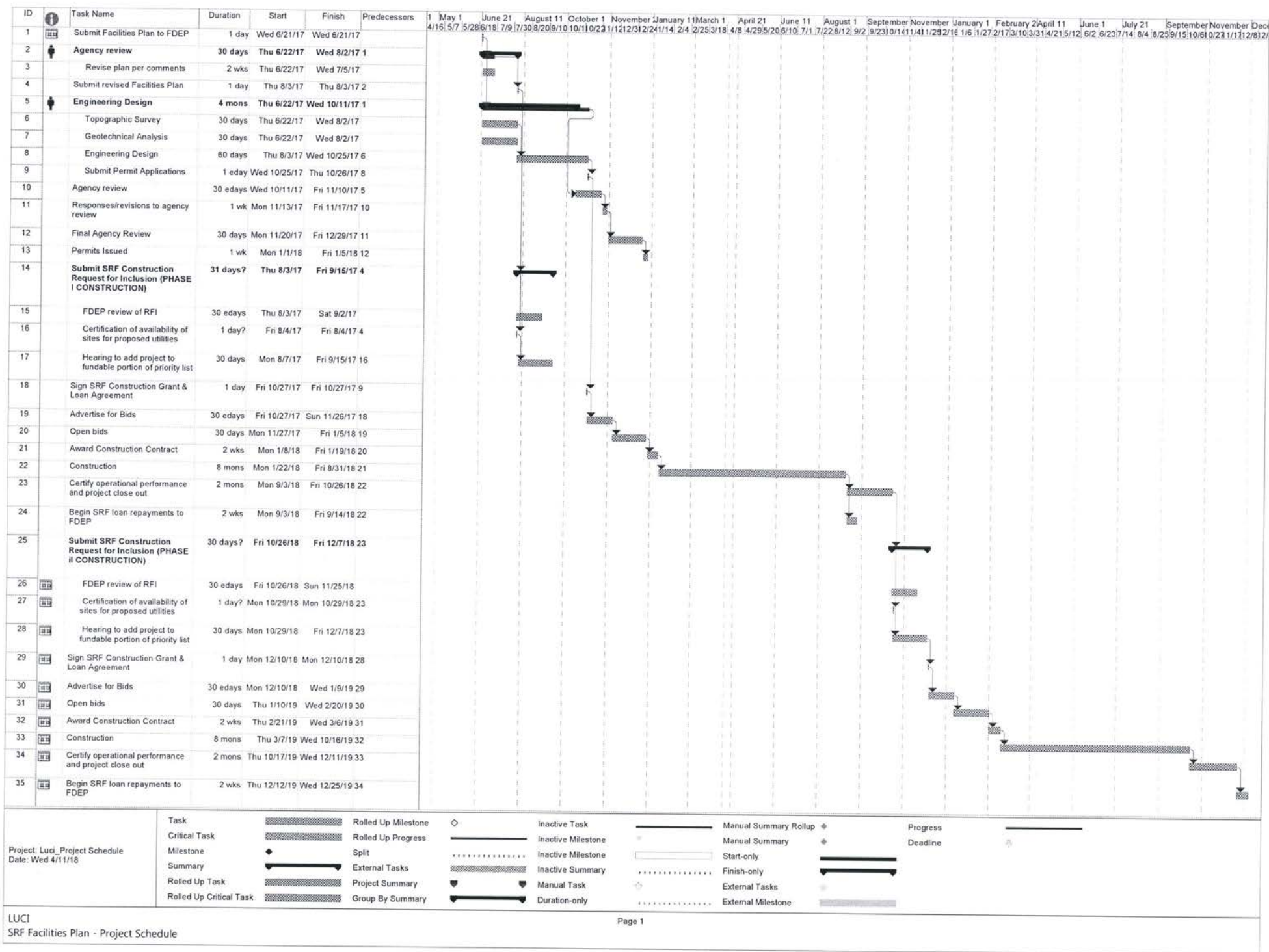


■ Lake

0 0.225

ATTACHMENT 10

PROJECT IMPLEMENTATION SCHEDULE



APPENDIX A

PROJECT AREA DEMOGRAPHICS

Gulf County, Florida

From Wikipedia, the free encyclopedia

Gulf County is a county located in the panhandle of the U.S. state of Florida. As of the 2010 census, the population was 15,863.^[1] Its county seat is Port St. Joe.^[2]

Gulf County is included in the Panama City, FL Metropolitan Statistical Area.

Contents

- 1 History
- 2 Politics
- 3 Geography
 - 3.1 Time zones
 - 3.2 Adjacent counties
 - 3.3 National protected area
- 4 Demographics
- 5 Politics
- 6 Education
 - 6.1 Libraries
- 7 Communities
 - 7.1 Cities
 - 7.2 Unincorporated communities
- 8 Transportation
 - 8.1 Airports
- 9 See also
- 10 References
- 11 External links
 - 11.1 Government links/Constitutional offices
 - 11.1.1 Special districts
 - 11.1.2 Judicial branch
 - 11.2 Tourism links
 - 11.3 Business links

History

Gulf County, created in 1925, was named for the Gulf of Mexico. Wewahitchka was its first county seat and the 1927 Gulf County Courthouse is still in existence. In 1965 the county seat was moved to Port Saint Joe, which under its original name Saint Joseph, had been the site of Florida's first Constitutional Convention in 1838.

Politics

Gulf County, Florida



Gulf County Courthouse



Location in the U.S. state of Florida



Florida's location in the U.S.

Founded	June 6, 1925
Named for	Gulf of Mexico
Seat	Port St. Joe
Largest city	Port St. Joe
Area	
 • Total	756 sq mi (1,958 km ²)
 • Land	564 sq mi (1,461 km ²)
 • Water	192 sq mi (497 km ²), 25.4%
Population (est.)	
 • (2015)	15,871
 • Density	28/sq mi (11/km ²)
Congressional district	2nd

Gulf County is heavily Democratic at the local level. However, the county tends to vote Republican in statewide and national elections. It has only supported a Democrat for president three times since 1960—in 1976, 1980 and 1996.

As of 2012, there are 9479 registered voters. The Democratic Party (5320, 56%) holds a large advantage over the Republican Party (3305, 34%).

The county commission consists of three Democrats and two Republicans.

Democrats control all other county government positions (Clerk of the Court, Property Appraiser, Sheriff, Superintendent of Schools, Tax Collector).

The county is part of Florida's 2nd congressional district, represented by Democrat Gwen Graham.

Despite remaining a Democratic stronghold, in the 2008 Presidential election John McCain carried the county with 69% of the vote.

George W. Bush carried the county in 2004.

Geography

According to the U.S. Census Bureau, the county has a total area of 756 square miles (1,960 km²), of which 564 square miles (1,460 km²) is land and 192 square miles (500 km²) (25.4%) is water.^[3]

Time zones

By way of the Intracoastal Waterway, Gulf County is one of a small number of counties in the United States to be under two time zones, Eastern and Central in this case.

Adjacent counties

- Calhoun County, Florida — north
- Liberty County, Florida — northeast
- Franklin County, Florida — east
- Bay County, Florida — west

National protected area

- St. Vincent National Wildlife Refuge (part)

Demographics

As of the census^[9] of 2000, there were 13,332 people, 4,931 households, and 3,535 families residing in the county. The population density was 24 inhabitants per square mile (9.3/km²). There were 7,587 housing units at an average density of 14 per square mile (5/km²). The racial makeup of the county was 79.89%

Time zones	Eastern: UTC-5/-4 Southern portion Central: UTC-6/-5 Northern portion
Website	www.gulfcountygovernment.com (http://www.gulfcountygovernme nt.com)



Entering the Eastern Time Zone

Historical population

Census	Pop.	%±
1930	3,182	—

White, 16.94% Black or African American, 0.65% Native American, 0.40% Asian, 0.05% Pacific Islander, 0.53% from other races, and 1.55% from two or more races. 2.03% of the population were Hispanic or Latino of any race.

There were 4,931 households out of which 28.40% had children under the age of 18 living with them, 55.50% were married couples living together, 11.90% had a female householder with no husband present, and 28.30% were non-families. 25.50% of all households were made up of individuals and 11.40% had someone living alone who was 65 years of age or older. The average household size was 2.42 and the average family size was 2.87.

In the county, the population was spread out with 21.70% under the age of 18, 6.80% from 18 to 24, 29.40% from 25 to 44, 26.00% from 45 to 64, and 16.20% who were 65 years of age or older. The median age was 40 years. For every 100 females there were 114.60 males. For every 100 females age 18 and over, there were 116.70 males.

The median income for a household in the county was \$30,276, and the median income for a family was \$36,289. Males had a median income of \$27,539 versus \$20,780 for females. The per capita income for the county was \$14,449. About 13.70% of families and 16.70% of the population were below the poverty line, including 20.80% of those under age 18 and 14.10% of those age 65 or over.

1940	6,951	118.4%
1950	7,460	7.3%
1960	9,937	33.2%
1970	10,096	1.6%
1980	10,658	5.6%
1990	11,504	7.9%
2000	13,332	15.9%
2010	15,863	19.0%
Est. 2015	15,871 ^[4]	0.1%

U.S. Decennial Census^[5]
 1790-1960^[6] 1900-1990^[7]
 1990-2000^[8] 2010-2015^[1]

Politics

Presidential elections results

Year	Republican	Democratic	Other
2016	72.7%	23.5%	3.8%
2012	70.3%	28.3%	1.4%
2008	69.0%	29.8%	1.2%
2004	66.0%	33.1%	0.9%
2000	57.8%	39.0%	3.2%

Education

Gulf County is served by Gulf County Schools.

Libraries

Gulf County is part of the Northwest Regional Library System (http://www.nwrls.com/locations_text.html) (NWRLS), which serves Bay and Liberty Counties as well.

- Bay County Public Library
- Panama City Beach Public Library
- Parker Public Library
- Springfield Public Library
- Gulf County Public Library
- Charles Whitehead Public Library
- Harrell Memorial Library of Liberty County

- Jimmy Weaver Memorial Library

Communities

Cities

- Port St. Joe
- Wewahitchka

Unincorporated communities

- Cape San Blas
- Dalkeith
- Highland View
- Honeyville
- Indian Pass
- Oak Grove
- Overstreet
- White City

Transportation

Airports

- Costin Airport

See also

- National Register of Historic Places listings in Gulf County, Florida

References

1. "State & County QuickFacts" (<http://quickfacts.census.gov/qfd/states/12/12045.html>). United States Census Bureau. Retrieved February 12, 2014.
2. "Find a County" (<http://www.naco.org/Counties/Pages/FindACounty.aspx>). National Association of Counties. Retrieved 2011-06-07.
3. "US Gazetteer files: 2010, 2000, and 1990" (<http://www.census.gov/geo/www/gazetteer/gazette.html>). United States Census Bureau. 2011-02-12. Retrieved 2011-04-23.
4. "County Totals Dataset: Population, Population Change and Estimated Components of Population Change: April 1, 2010 to July 1, 2015" (<http://www.census.gov/popest/data/counties/totals/2015/CO-EST2015-alldata.html>). Retrieved July 2, 2016.
5. "U.S. Decennial Census" (<http://www.census.gov/prod/www/decennial.html>). United States Census Bureau. Retrieved June 13, 2014.
6. "Historical Census Browser" (<http://mapserver.lib.virginia.edu>). University of Virginia Library. Retrieved June 13, 2014.
7. "Population of Counties by Decennial Census: 1900 to 1990" (<http://www.census.gov/population/cencounts/fl190090.txt>). United States Census Bureau. Retrieved June 13, 2014.
8. "Census 2000 PHC-T-4. Ranking Tables for Counties: 1990 and 2000" (<http://www.census.gov/population/www/cen2000/briefs/phc-t4/tables/tab02.pdf>) (PDF). United States Census Bureau. Retrieved June 13, 2014.
9. "American FactFinder" (<http://factfinder2.census.gov>). United States Census Bureau. Retrieved 2011-05-14.

External links

Government links/Constitutional offices

- Gulf County Board of County Commissioners (<http://www.gulfcountygovernment.com/>)
- Gulf County Supervisor of Elections (<http://www.gulfcountytaxcollector.com/>)
- Gulf County Property Appraiser (<http://www.qpublic.net/gulf/>)
- Gulf County Sheriff's Office (<http://www.gulfsheriff.com/>)
- Gulf County Tax Collector (<http://www.gulfcountytaxcollector.com/>)



Wikimedia Commons has media related to ***Gulf County, Florida.***

Special districts

- Gulf County School District (<http://www.gulf.k12.fl.us/>)
- Northwest Florida Water Management District (<http://www.nwfwmd.state.fl.us/>)

Judicial branch

- Gulf County Clerk of Courts (<http://www.gulfclerk.com/>)
- Circuit and County Court for the 14th Judicial Circuit of Florida (<http://www.jud14.flcourts.org/>) serving Bay, Calhoun, Gulf, Holmes, Jackson and Washington counties

Tourism links

- Gulf County Tourism Development Council (<http://www.visitgulf.com/>)

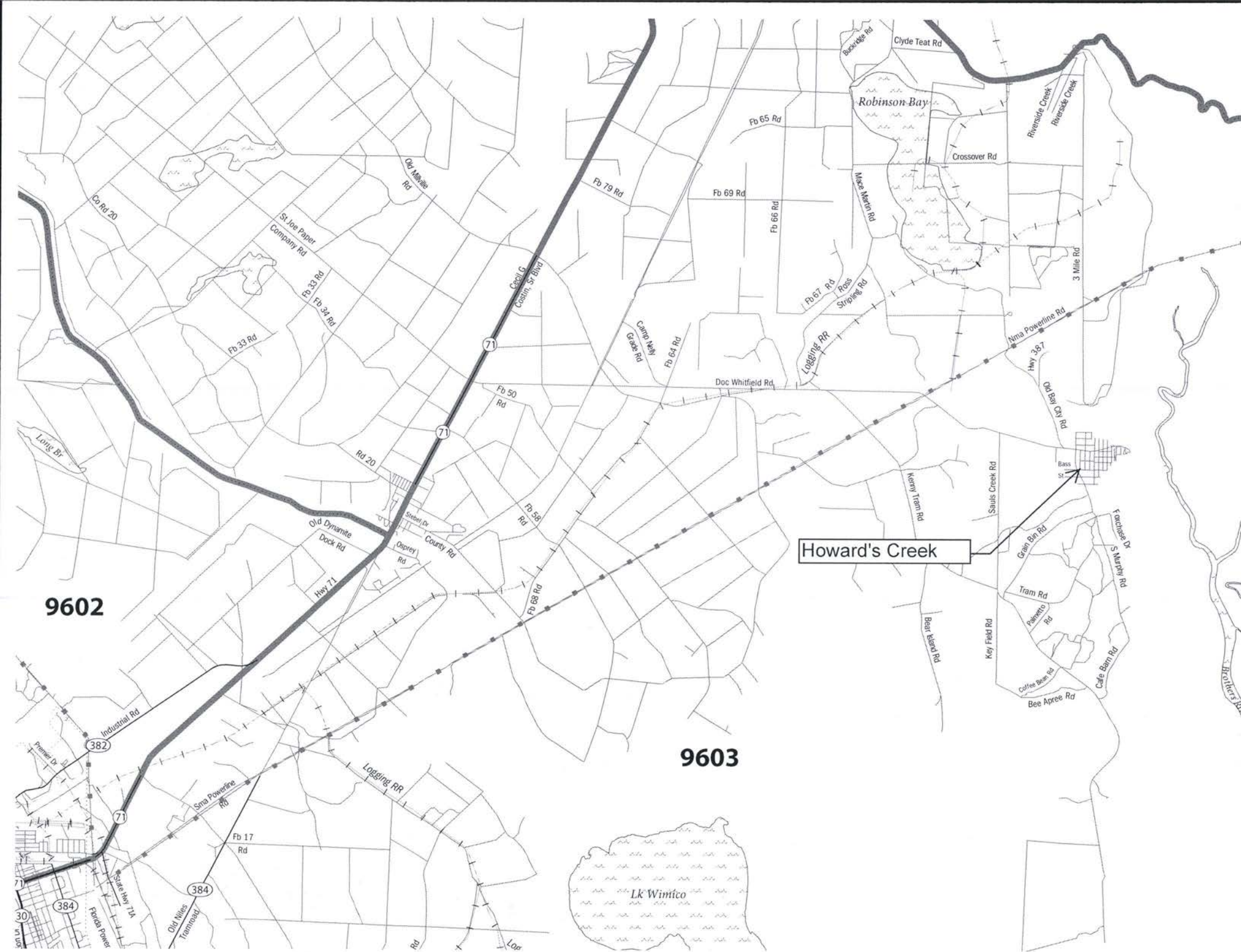
Business links

- Gulf County Chamber of Commerce (<http://www.GulfChamber.org/>)

Retrieved from "https://en.wikipedia.org/w/index.php?title=Gulf_County,_Florida&oldid=782613880"

Categories: Florida counties | 1925 establishments in Florida | Counties in multiple time zones
| Gulf County, Florida | North Florida | Populated places established in 1925

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DP03

SELECTED ECONOMIC CHARACTERISTICS
2012-2016 American Community Survey 5-Year Estimates

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

4,303 - 4,320 of 16,980

Versions of this table are available for the following years:

2016
2015
2014
2013
2012
2011
2010

1
137
of
137

Subject	Census Tract 9602, Gulf County, Florida		Census Tract 9603, Gulf County, Florida				Census Tract 9900, Gulf County, Florida				Census Tract 9601, Hamilton County, Florida				Census Tract 9602, Hamilton County, Florida			
	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
EMPLOYMENT STATUS																		
Population 16 years and over	3,310	(X)	3,648	+/-326	3,648	(X)	0	+/-13	0	(X)	7,424	+/-290	7,424	(X)	3,321	+/-227	3,321	(X)
In labor force	55.7%	+/-5.8	1,763	+/-230	48.3%	+/-4.7	0	+/-13	-	**	2,386	+/-319	32.1%	+/-3.9	1,578	+/-212	47.5%	+/-5.1
Civilian labor force	55.0%	+/-5.8	1,763	+/-230	48.3%	+/-4.7	0	+/-13	-	**	2,386	+/-319	32.1%	+/-3.9	1,578	+/-212	47.5%	+/-5.1
Employed	50.4%	+/-6.8	1,693	+/-223	46.4%	+/-4.7	0	+/-13	-	**	2,064	+/-274	27.8%	+/-3.4	1,358	+/-202	40.9%	+/-5.0
Unemployed	4.5%	+/-3.3	70	+/-46	1.9%	+/-1.3	0	+/-13	-	**	322	+/-157	4.3%	+/-2.1	220	+/-89	6.6%	+/-2.6
Armed Forces	0.7%	+/-0.9	0	+/-13	0.0%	+/-1.1	0	+/-13	-	**	0	+/-19	0.0%	+/-0.5	0	+/-13	0.0%	+/-1.2
Not in labor force	44.3%	+/-5.8	1,885	+/-245	51.7%	+/-4.7	0	+/-13	-	**	5,038	+/-326	67.9%	+/-3.9	1,743	+/-195	52.5%	+/-5.1
Civilian labor force	1,819	(X)	1,763	+/-230	1,763	(X)	0	+/-13	0	(X)	2,386	+/-319	2,386	(X)	1,578	+/-212	1,578	(X)
Unemployment Rate	8.2%	+/-6.2	(X)	(X)	4.0%	+/-2.5	(X)	(X)	-	**	(X)	(X)	13.5%	+/-5.9	(X)	(X)	13.9%	+/-5.4
Females 16 years and over	1,813	(X)	1,496	+/-178	1,496	(X)	0	+/-13	0	(X)	2,431	+/-203	2,431	(X)	1,735	+/-143	1,735	(X)
In labor force	45.7%	+/-7.7	769	+/-148	51.4%	+/-7.0	0	+/-13	-	**	1,263	+/-189	52.0%	+/-6.9	729	+/-121	42.0%	+/-5.7
Civilian labor force	45.7%	+/-7.7	769	+/-148	51.4%	+/-7.0	0	+/-13	-	**	1,263	+/-189	52.0%	+/-6.9	729	+/-121	42.0%	+/-5.7
Employed	40.1%	+/-8.1	741	+/-144	49.5%	+/-6.8	0	+/-13	-	**	1,118	+/-177	46.0%	+/-6.5	629	+/-113	36.3%	+/-5.7
Own children of the householder under 6 years	234	(X)	270	+/-93	270	(X)	0	+/-13	0	(X)	454	+/-97	454	(X)	274	+/-94	274	(X)
All parents in family in labor force	57.7%	+/-26.8	203	+/-96	75.2%	+/-23.6	0	+/-13	-	**	221	+/-120	48.7%	+/-22.9	147	+/-83	53.6%	+/-23.7
Own children of the householder 6 to 17 years	384	(X)	321	+/-94	321	(X)	0	+/-13	0	(X)	659	+/-173	659	(X)	837	+/-150	837	(X)
All parents in family in labor force	86.5%	+/-12.2	265	+/-97	82.6%	+/-14.6	0	+/-13	-	**	567	+/-174	86.0%	+/-10.2	380	+/-111	45.4%	+/-13.1
COMMUTING TO WORK																		
Workers 16 years and over	1,652	(X)	1,680	+/-225	1,680	(X)	0	+/-13	0	(X)	2,041	+/-279	2,041	(X)	1,324	+/-205	1,324	(X)
Car, truck, or van -- drove alone	76.6%	+/-7.8	1,332	+/-207	79.3%	+/-7.3	0	+/-13	-	**	1,729	+/-277	84.7%	+/-6.5	984	+/-196	74.3%	+/-9.9
Car, truck, or van -- carpooled	16.0%	+/-7.8	164	+/-104	9.8%	+/-6.1	0	+/-13	-	**	244	+/-139	12.0%	+/-6.6	156	+/-93	11.8%	+/-6.8
Public transportation (excluding taxicab)	0.1%	+/-0.4	0	+/-13	0.0%	+/-2.3	0	+/-13	-	**	0	+/-19	0.0%	+/-1.9	9	+/-13	0.7%	+/-1.0
Walked	2.5%	+/-2.2	0	+/-13	0.0%	+/-2.3	0	+/-13	-	**	0	+/-19	0.0%	+/-1.9	42	+/-45	3.2%	+/-3.3
Other means	1.6%	+/-2.3	16	+/-22	1.0%	+/-1.3	0	+/-13	-	**	30	+/-34	1.5%	+/-1.7	47	+/-57	3.5%	+/-4.3
Worked at home	3.2%	+/-3.1	168	+/-88	10.0%	+/-4.8	0	+/-13	-	**	38	+/-27	1.9%	+/-1.4	86	+/-73	6.5%	+/-5.4
Mean travel time to work (minutes)	(X)	(X)	16.7	+/-3.5	(X)	(X)	-	**	(X)	(X)	16.8	+/-1.9	(X)	(X)	24.2	+/-2.3	(X)	(X)
OCCUPATION																		

American FactFinder - Results

Subject	Census Tract 9602, Gulf County, Florida		Census Tract 9603, Gulf County, Florida				Census Tract 9900, Gulf County, Florida				Census Tract 9601, Hamilton County, Florida				Census Tract 9602, Hamilton County, Florida			
	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
Civilian employed population 16 years and over	1,669	(X)	1,693	+/-223	1,693	(X)	0	+/-13	0	(X)	2,064	+/-274	2,064	(X)	1,358	+/-202	1,358	(X)
Management, business, science, and arts occupations	24.0%	+/-6.6	456	+/-115	26.9%	+/-6.6	0	+/-13	-	**	466	+/-130	22.6%	+/-5.8	452	+/-128	33.3%	+/-7.8
Service occupations	26.4%	+/-8.0	304	+/-133	18.0%	+/-7.3	0	+/-13	-	**	685	+/-134	33.2%	+/-6.2	264	+/-93	19.4%	+/-6.0
Sales and office occupations	26.8%	+/-8.1	557	+/-167	32.9%	+/-7.7	0	+/-13	-	**	409	+/-142	19.8%	+/-5.7	232	+/-83	17.1%	+/-5.5
Natural resources, construction, and maintenance occupations	8.3%	+/-5.1	231	+/-106	13.6%	+/-6.0	0	+/-13	-	**	180	+/-95	8.7%	+/-4.4	242	+/-80	17.8%	+/-5.1
Production, transportation, and material moving occupations	14.6%	+/-6.4	145	+/-80	8.6%	+/-4.8	0	+/-13	-	**	324	+/-114	15.7%	+/-4.9	168	+/-74	12.4%	+/-5.4
INDUSTRY																		
Civilian employed population 16 years and over	1,669	(X)	1,693	+/-223	1,693	(X)	0	+/-13	0	(X)	2,064	+/-274	2,064	(X)	1,358	+/-202	1,358	(X)
Agriculture, forestry, fishing and hunting, and mining	0.0%	+/-2.4	17	+/-18	1.0%	+/-1.0	0	+/-13	-	**	64	+/-37	3.1%	+/-1.9	221	+/-94	16.3%	+/-6.1
Construction	6.4%	+/-4.7	239	+/-112	14.1%	+/-6.5	0	+/-13	-	**	150	+/-87	7.3%	+/-4.0	83	+/-67	6.1%	+/-4.9
Manufacturing	4.7%	+/-3.7	50	+/-40	3.0%	+/-2.4	0	+/-13	-	**	148	+/-67	7.2%	+/-3.2	141	+/-76	10.4%	+/-5.2
Wholesale trade	1.2%	+/-2.0	58	+/-52	3.4%	+/-3.0	0	+/-13	-	**	8	+/-15	0.4%	+/-0.7	5	+/-9	0.4%	+/-0.7
Retail trade	10.1%	+/-6.0	270	+/-143	15.9%	+/-7.9	0	+/-13	-	**	261	+/-121	12.6%	+/-5.5	64	+/-48	4.7%	+/-3.3
Transportation and warehousing, and utilities	8.6%	+/-4.6	103	+/-53	6.1%	+/-3.2	0	+/-13	-	**	213	+/-109	10.3%	+/-5.0	101	+/-59	7.4%	+/-4.4
Information	2.7%	+/-2.4	73	+/-61	4.3%	+/-3.6	0	+/-13	-	**	24	+/-35	1.2%	+/-1.7	10	+/-15	0.7%	+/-1.1
Finance and insurance, and real estate and rental and leasing	6.2%	+/-3.6	93	+/-56	5.5%	+/-3.2	0	+/-13	-	**	91	+/-60	4.4%	+/-2.8	54	+/-41	4.0%	+/-2.9
Professional, scientific, and management, and administrative and waste management services	11.8%	+/-5.8	173	+/-93	10.2%	+/-5.6	0	+/-13	-	**	62	+/-58	3.0%	+/-2.8	88	+/-66	6.5%	+/-4.6
Educational services, and health care and social assistance	15.2%	+/-6.5	274	+/-94	16.2%	+/-5.1	0	+/-13	-	**	630	+/-142	30.5%	+/-5.8	286	+/-97	21.1%	+/-6.9
Arts, entertainment, and recreation, and accommodation and food services	14.6%	+/-8.1	168	+/-104	9.9%	+/-5.8	0	+/-13	-	**	151	+/-66	7.3%	+/-3.1	117	+/-75	8.6%	+/-5.1
Other services, except public administration	7.3%	+/-4.8	69	+/-49	4.1%	+/-2.8	0	+/-13	-	**	36	+/-28	1.7%	+/-1.4	65	+/-41	4.8%	+/-3.3
Public administration	11.3%	+/-4.7	106	+/-62	6.3%	+/-3.6	0	+/-13	-	**	226	+/-90	10.9%	+/-4.0	123	+/-62	9.1%	+/-4.6
CLASS OF WORKER																		
Civilian employed population 16 years and over	1,669	(X)	1,693	+/-223	1,693	(X)	0	+/-13	0	(X)	2,064	+/-274	2,064	(X)	1,358	+/-202	1,358	(X)
Private wage and salary workers	71.7%	+/-7.9	1,278	+/-220	75.5%	+/-6.6	0	+/-13	-	**	1,275	+/-213	61.8%	+/-6.5	808	+/-181	59.5%	+/-8.6
Government workers	19.4%	+/-5.6	270	+/-87	15.9%	+/-5.3	0	+/-13	-	**	629	+/-165	30.5%	+/-6.6	367	+/-126	27.0%	+/-9.1
Self-employed in own not incorporated business workers	8.9%	+/-4.8	139	+/-74	8.2%	+/-4.1	0	+/-13	-	**	160	+/-83	7.8%	+/-4.0	180	+/-92	13.3%	+/-6.3
Unpaid family workers	0.0%	+/-2.4	6	+/-9	0.4%	+/-0.5	0	+/-13	-	**	0	+/-19	0.0%	+/-1.9	3	+/-8	0.2%	+/-0.6
INCOME AND BENEFITS (IN 2016 INFLATION-ADJUSTED DOLLARS)																		

Subject	Census Tract 9602, Gulf County, Florida		Census Tract 9603, Gulf County, Florida				Census Tract 9900, Gulf County, Florida				Census Tract 9601, Hamilton County, Florida				Census Tract 9602, Hamilton County, Florida			
	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
Total households	1,558	(X)	1,559	+/-197	1,559	(X)	0	+/-13	0	(X)	2,293	+/-181	2,293	(X)	1,724	+/-180	1,724	(X)
Less than \$10,000	3.5%	+/-2.2	133	+/-57	8.5%	+/-3.5	0	+/-13	-	**	429	+/-152	18.7%	+/-6.5	127	+/-55	7.4%	+/-3.1
\$10,000 to \$14,999	6.8%	+/-3.7	109	+/-50	7.0%	+/-3.2	0	+/-13	-	**	143	+/-83	6.2%	+/-3.6	218	+/-97	12.6%	+/-5.3
\$15,000 to \$24,999	15.1%	+/-5.0	199	+/-85	12.8%	+/-5.2	0	+/-13	-	**	260	+/-99	11.3%	+/-4.2	227	+/-89	13.2%	+/-4.8
\$25,000 to \$34,999	14.8%	+/-5.6	169	+/-79	10.8%	+/-4.8	0	+/-13	-	**	177	+/-95	7.7%	+/-4.1	208	+/-74	12.1%	+/-4.0
\$35,000 to \$49,999	18.7%	+/-6.3	218	+/-97	14.0%	+/-6.0	0	+/-13	-	**	406	+/-117	17.7%	+/-5.2	254	+/-94	14.7%	+/-5.4
\$50,000 to \$74,999	16.8%	+/-6.3	260	+/-85	16.7%	+/-5.4	0	+/-13	-	**	471	+/-142	20.5%	+/-5.9	252	+/-112	14.6%	+/-6.2
\$75,000 to \$99,999	14.4%	+/-5.1	198	+/-78	12.7%	+/-4.6	0	+/-13	-	**	157	+/-76	6.8%	+/-3.3	208	+/-81	12.1%	+/-4.7
\$100,000 to \$149,999	8.1%	+/-4.6	159	+/-70	10.2%	+/-4.1	0	+/-13	-	**	154	+/-66	6.7%	+/-2.9	148	+/-82	8.6%	+/-4.5
\$150,000 to \$199,999	1.0%	+/-1.1	37	+/-32	2.4%	+/-2.0	0	+/-13	-	**	63	+/-60	2.7%	+/-2.6	48	+/-52	2.8%	+/-3.0
\$200,000 or more	0.8%	+/-1.1	77	+/-60	4.9%	+/-3.8	0	+/-13	-	**	33	+/-49	1.4%	+/-2.1	34	+/-32	2.0%	+/-1.9
Median household income (dollars)	(X)	(X)	44,875	+/-11,149	(X)	(X)	-	**	(X)	(X)	41,013	+/-5,158	(X)	(X)	39,494	+/-4,008	(X)	(X)
Mean household income (dollars)	(X)	(X)	64,522	+/-10,390	(X)	(X)	-	**	(X)	(X)	48,625	+/-6,946	(X)	(X)	57,014	+/-10,025	(X)	(X)
With earnings	66.9%	+/-7.3	1,067	+/-161	68.4%	+/-5.5	0	+/-13	-	**	1,642	+/-166	71.6%	+/-5.1	1,133	+/-169	65.7%	+/-6.5
Mean earnings (dollars)	(X)	(X)	64,088	+/-14,476	(X)	(X)	-	**	(X)	(X)	52,402	+/-8,136	(X)	(X)	51,455	+/-8,989	(X)	(X)
With Social Security	40.3%	+/-7.3	685	+/-107	43.9%	+/-6.2	0	+/-13	-	**	731	+/-117	31.9%	+/-4.6	695	+/-110	40.3%	+/-6.2
Mean Social Security income (dollars)	(X)	(X)	20,277	+/-2,946	(X)	(X)	-	**	(X)	(X)	15,218	+/-1,424	(X)	(X)	18,699	+/-1,629	(X)	(X)
With retirement income	28.2%	+/-6.0	362	+/-96	23.2%	+/-6.1	0	+/-13	-	**	421	+/-108	18.4%	+/-4.6	451	+/-102	26.2%	+/-5.8
Mean retirement income (dollars)	(X)	(X)	23,740	+/-5,833	(X)	(X)	-	**	(X)	(X)	21,182	+/-5,329	(X)	(X)	17,959	+/-3,478	(X)	(X)
With Supplemental Security Income	7.0%	+/-4.6	78	+/-54	5.0%	+/-3.3	0	+/-13	-	**	308	+/-115	13.4%	+/-4.9	242	+/-92	14.0%	+/-5.0
Mean Supplemental Security Income (dollars)	(X)	(X)	9,750	+/-2,664	(X)	(X)	-	**	(X)	(X)	8,984	+/-2,923	(X)	(X)	14,826	+/-5,763	(X)	(X)
With cash public assistance income	2.4%	+/-2.4	32	+/-32	2.1%	+/-2.1	0	+/-13	-	**	65	+/-52	2.8%	+/-2.3	31	+/-31	1.8%	+/-1.8
Mean cash public assistance income (dollars)	(X)	(X)	609	+/-437	(X)	(X)	-	**	(X)	(X)	1,137	+/-463	(X)	(X)	2,097	+/-2,108	(X)	(X)
With Food Stamp/SNAP benefits in the past 12 months	15.5%	+/-6.3	200	+/-83	12.8%	+/-4.9	0	+/-13	-	**	870	+/-156	37.9%	+/-6.0	386	+/-103	22.4%	+/-5.4
Families	1,086	(X)	1,122	+/-153	1,122	(X)	0	+/-13	0	(X)	1,553	+/-196	1,553	(X)	1,320	+/-155	1,320	(X)
Less than \$10,000	2.1%	+/-2.3	78	+/-52	7.0%	+/-4.5	0	+/-13	-	**	251	+/-117	16.2%	+/-7.3	94	+/-50	7.1%	+/-3.5
\$10,000 to \$14,999	4.1%	+/-3.8	43	+/-38	3.8%	+/-3.4	0	+/-13	-	**	4	+/-6	0.3%	+/-0.4	130	+/-68	9.8%	+/-5.0
\$15,000 to \$24,999	12.0%	+/-6.4	116	+/-57	10.3%	+/-5.1	0	+/-13	-	**	164	+/-90	10.6%	+/-5.6	141	+/-61	10.7%	+/-4.6
\$25,000 to \$34,999	15.4%	+/-6.8	103	+/-54	9.2%	+/-4.9	0	+/-13	-	**	147	+/-89	9.5%	+/-5.6	179	+/-84	13.6%	+/-5.5
\$35,000 to \$49,999	19.9%	+/-6.9	171	+/-84	15.2%	+/-6.8	0	+/-13	-	**	244	+/-79	15.7%	+/-4.9	183	+/-70	13.9%	+/-5.2
\$50,000 to \$74,999	21.3%	+/-8.3	229	+/-83	20.4%	+/-7.1	0	+/-13	-	**	383	+/-132	24.7%	+/-7.8	180	+/-86	13.6%	+/-6.6
\$75,000 to \$99,999	11.9%	+/-5.8	183	+/-76	16.3%	+/-5.8	0	+/-13	-	**	154	+/-79	9.9%	+/-5.1	197	+/-81	14.9%	+/-5.9
\$100,000 to \$149,999	10.9%	+/-6.4	93	+/-47	8.3%	+/-4.0	0	+/-13	-	**	140	+/-65	9.0%	+/-4.3	134	+/-78	10.2%	+/-5.7
\$150,000 to \$199,999	1.4%	+/-1.6	37	+/-32	3.3%	+/-2.8	0	+/-13	-	**	63	+/-60	4.1%	+/-3.8	48	+/-52	3.6%	+/-3.9
\$200,000 or more	1.1%	+/-1.6	69	+/-59	6.1%	+/-5.2	0	+/-13	-	**	3	+/-5	0.2%	+/-0.4	34	+/-32	2.6%	+/-2.5
Median family income (dollars)	(X)	(X)	55,577	+/-21,146	(X)	(X)	-	**	(X)	(X)	48,627	+/-5,945	(X)	(X)	41,518	+/-7,932	(X)	(X)
Mean family income (dollars)	(X)	(X)	68,463	+/-11,522	(X)	(X)	-	**	(X)	(X)	54,192	+/-6,512	(X)	(X)	63,851	+/-12,646	(X)	(X)
Per capita income (dollars)	(X)	(X)	25,153	+/-4,043	(X)	(X)	-	**	(X)	(X)	13,216	+/-2,082	(X)	(X)	20,565	+/-3,469	(X)	(X)
Nonfamily households	472	(X)	437	+/-136	437	(X)	0	+/-13	0	(X)	740	+/-154	740	(X)	404	+/-132	404	(X)

APPENDIX B

FLORIDA NATURAL AREAS INVENTORY



1018 Thomasville Road
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www.fnai.org

FLORIDA
Natural Areas
INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Query Results

UNOFFICIAL REPORT

Created 6/12/2017

(Contact the FNAI Data Services Coordinator at 850.224.8207 for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 6 Matrix Units: 7781, 7782, 7880, 7881, 7978, 7979

Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit.

POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.

Matrix Unit ID: 7781

3 Documented Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Euphorbia telephoides</i> Telephus Spurge	G1	S1	LT	E
<i>Phoebanthus tenuifolius</i> Narrow-leaved Phoebanthus	G3	S3	N	T
<i>Scrub</i>	G2	S2	N	N

0 Documented-Historic Elements Found

7 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Acipenser oxyrinchus desotoi</i>	G3T2	S2	LT	FT

Gulf Sturgeon				
Basin swamp	G4	S3	N	N
<u>Caretta caretta</u>				
Loggerhead Sea Turtle	G3	S3	T	FT
<u>Charadrius melodus</u>				
Piping Plover	G3	S2	LT	FT
<u>Chelonia mydas</u>				
Green Sea Turtle	G3	S2S3	LE	FE
Mesic flatwoods	G4	S4	N	N
<u>Ursus americanus floridanus</u>				
Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 7782**5 Documented** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Andropogon arctatus</i>				
Pine-woods Bluestem	G3	S3	N	T
<u>Cuphea aspera</u>				
Florida Waxweed	G2	S2	N	E
<u>Euphorbia telephioides</u>				
Telephus Spurge	G1	S1	LT	E
<i>Phoebanthus tenuifolius</i>				
Narrow-leaved Phoebanthus	G3	S3	N	T
<u>Scutellaria floridana</u>				
Florida Skullcap	G2	S2	LT	E

0 Documented-Historic Elements Found**8 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Acipenser oxyrinchus desotoi</u>				
Gulf Sturgeon	G3T2	S2	LT	FT
Basin swamp	G4	S3	N	N
<u>Chelonia mydas</u>				
Green Sea Turtle	G3	S2S3	LE	FE
Mesic flatwoods	G4	S4	N	N
Sandhill	G3	S2	N	N
Scrub	G2	S2	N	N
<u>Ursus americanus floridanus</u>				
Florida Black Bear	G5T2	S2	N	N
Wet flatwoods	G4	S4	N	N

Matrix Unit ID: 7880**2 Documented** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Beach dune	G3	S2	N	N
Coastal grassland	G3	S2	N	N

0 Documented-Historic Elements Found**7 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Acipenser oxyrinchus desotoi</u>				
Gulf Sturgeon	G3T2	S2	LT	FT

Gulf Sturgeon				
<u>Caretta caretta</u>				
Loggerhead Sea Turtle	G3	S3	T	FT
<u>Charadrius melodus</u>				
Piping Plover	G3	S2	LT	FT
<u>Euphorbia telephioides</u>				
Telephus Spurge	G1	S1	LT	E
Mesic flatwoods	G4	S4	N	N
Scrub	G2	S2	N	N
<u>Ursus americanus floridanus</u>				
Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 7881**5 Documented** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Cuphea aspera</u>				
Florida Waxweed	G2	S2	N	E
Depression marsh	G4	S4	N	N
<u>Euphorbia telephioides</u>				
Telephus Spurge	G1	S1	LT	E
<u>Gopherus polyphemus</u>				
Gopher Tortoise	G3	S3	C	ST
<u>Phoebanthus tenuifolius</u>				
Narrow-leaved Phoebanthus	G3	S3	N	T

0 Documented-Historic Elements Found**9 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Acipenser oxyrinchus desotoi</u>				
Gulf Sturgeon	G3T2	S2	LT	FT
<u>Aster spinulosus</u>				
Pine-woods Aster	G1	S1	N	E
Basin swamp	G4	S3	N	N
Mesic flatwoods	G4	S4	N	N
<u>Pinguicula ionantha</u>				
Godfrey's Butterwort	G2	S2	LT	E
Sandhill	G3	S2	N	N
Scrub	G2	S2	N	N
<u>Scutellaria floridana</u>				
Florida Skullcap	G2	S2	LT	E
<u>Ursus americanus floridanus</u>				
Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 7978**0 Documented** Elements Found**0 Documented-Historic** Elements Found**8 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Acipenser oxyrinchus desotoi</u>				
Gulf Sturgeon	G3T2	S2	LT	FT
<u>Caretta caretta</u>				
Loggerhead Sea Turtle	G3	S3	T	FT

<u>Charadrius melodus</u> Piping Plover	G3	S2	LT	FT
<u>Euphorbia telephioides</u> Telephus Spurge	G1	S1	LT	E
<i>Mesic flatwoods</i>	G4	S4	N	N
<u>Pinguicula ionantha</u> Godfrey's Butterwort	G2	S2	LT	E
<i>Scrub</i>	G2	S2	N	N
<u>Ursus americanus floridanus</u> Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 7979**6 Documented** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Cuphea aspera</u> Florida Waxweed	G2	S2	N	E
<u>Euphorbia telephioides</u> Telephus Spurge	G1	S1	LT	E
<u>Hymenocallis henryae</u> Panhandle Spiderlily	G2	S2	N	E
<i>Nyssa ursina</i> Bog Tupelo	G2	S2	N	N
<u>Pinguicula ionantha</u> Godfrey's Butterwort	G2	S2	LT	E
<u>Rhododendron chapmanii</u> Chapman's Rhododendron	G1	S1	LE	E

0 Documented-Historic Elements Found**6 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Acipenser oxyrinchus desotoi</u> Gulf Sturgeon	G3T2	S2	LT	FT
<u>Aster spinulosus</u> Pine-woods Aster	G1	S1	N	E
<i>Mesic flatwoods</i>	G4	S4	N	N
<i>Scrub</i>	G2	S2	N	N
<u>Scutellaria floridana</u> Florida Skullcap	G2	S2	LT	E
<u>Ursus americanus floridanus</u> Florida Black Bear	G5T2	S2	N	N

Matrix Unit IDs: 7781 , 7782 , 7880 , 7881 , 7978 , 7979**38 Potential** Elements Common to Any of the 6 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Ammodramus maritimus peninsulae</u> Scott's Seaside Sparrow	G4T3Q	S3	N	SSC
<u>Arnoglossum diversifolium</u> Variable-leaved Indian-plantain	G2	S2	N	T
<u>Asclepias viridula</u> Southern Milkweed	G2	S2	N	T
<u>Aster spinulosus</u> Pine-woods Aster	G1	S1	N	E
<u>Calopogon multiflorus</u> Many-flowered Grass-pink	G2G3	S2S3	N	T
<u>Charadrius melodus</u>	G3	S2	LT	FT

Piping Plover				
<u>Chelonia mydas</u>	G3	S2S3	LE	FE
Green Sea Turtle				
<u>Chrysopsis godfreyi</u>	G2	S2	N	E
Godfrey's Goldenaster				
<u>Cistothorus palustris marianae</u>	G5T3	S3	N	SSC
Marian's Marsh Wren				
<u>Crotalus adamanteus</u>	G4	S3	N	N
Eastern Diamondback Rattlesnake				
<u>Cuphea aspera</u>	G2	S2	N	E
Florida Waxweed				
<u>Dermochelys coriacea</u>	G2	S2	LE	FE
Leatherback Sea Turtle				
<u>Egretta caerulea</u>	G5	S4	N	SSC
Little Blue Heron				
<u>Egretta thula</u>	G5	S3	N	SSC
Snowy Egret				
<u>Gopherus polyphemus</u>	G3	S3	C	ST
Gopher Tortoise				
<u>Haematopus palliatus</u>	G5	S2	N	SSC
American Oystercatcher				
<u>Hymenocallis henryae</u>	G2	S2	N	E
Panhandle Spiderlily				
<u>Justicia crassifolia</u>	G3	S3	N	E
Thick-leaved Water-willow				
<u>Leitneria floridana</u>	G3	S3	N	T
Corkwood				
<u>Linum westii</u>	G1	S1	N	E
West's Flax				
<u>Lupinus westianus</u>	G3	S3	N	T
Gulf Coast Lupine				
<u>Macbridea alba</u>	G2	S2	LT	E
White Birds-in-a-nest				
<u>Neovison vison halilimnetes</u>	G5T3	S3	N	N
Gulf Salt Marsh Mink				
<u>Nerodia clarkii clarkii</u>	G4T3	S2	N	N
Gulf Salt Marsh Snake				
<u>Nolina atopocarpa</u>	G3	S3	N	T
Florida Beargrass				
<u>Nyssa ursina</u>	G2	S2	N	N
Bog Tupelo				
<u>Oxypolis greenmanii</u>	G3	S3	N	E
Giant Water-dropwort				
<u>Peromyscus polionotus peninsularis</u>	G5T1	S1	LE	FE
St. Andrews Beach Mouse				
<u>Phoebanthus tenuifolius</u>	G3	S3	N	T
Narrow-leaved Phoebanthus				
<u>Pinguicula ionantha</u>	G2	S2	LT	E
Godfrey's Butterwort				
<u>Rallus longirostris scottii</u>	G5T3?	S3?	N	N
Florida Clapper Rail				
<u>Rhexia parviflora</u>	G2	S2	N	E
Small-flowered Meadowbeauty				
<u>Rhododendron chapmanii</u>	G1	S1	LE	E
Chapman's Rhododendron				
<u>Ruellia noctiflora</u>	G2	S2	N	E
Nightflowering Wild Petunia				
<u>Sarracenia leucophylla</u>	G3	S3	N	E
White-top Pitcherplant				
<u>Scutellaria floridana</u>	G2	S2	LT	E
Florida Skullcap				
<u>Trichechus manatus</u>	G2	S2	LE	FE
West Indian Manatee				
<u>Xyris isoetifolia</u>	G1	S1	N	E
Quillwort Yellow-eyed Grass				

Disclaimer

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Unofficial Report

These results are considered unofficial. FNAI offers a [Standard Data Request](#) option for those needing certifiable data.



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Florida Natural Areas Inventory Biodiversity Matrix Query Results

UNOFFICIAL REPORT

Created 6/12/2017

(Contact the FNAI Data Services Coordinator at 850.224.8207 for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 1 Matrix Unit: 7285

	<p>Descriptions</p> <p>DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.</p> <p>DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.</p> <p>LIKELY - The species or community is <i>known</i> to occur in this vicinity, and is considered likely within this Matrix Unit because:</p> <ol style="list-style-type: none"> 1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; or 2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit. <p>POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.</p>
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Matrix Unit ID: 7285

1 Documented Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Scrub</i>	G2	S2	N	N

0 Documented-Historic Elements Found

8 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Acipenser oxyrinchus desotoi</i> Gulf Sturgeon	G3T2	S2	LT	FT
<i>Caretta caretta</i> Loggerhead Sea Turtle	G3	S3	T	FT
<i>Charadrius melodus</i>	G3	S2	LT	FT

Piping Plover				
<u>Charadrius nivosus</u>				
Snowy Plover	G3	S1	N	ST
<u>Chelonia mydas</u>				
Green Sea Turtle	G3	S2S3	LE	FE
<u>Geopsammodius subpedalis</u>				
Underfoot Tiny Sand-loving Scarab	G2G3	S2	N	N
<u>Mesic flatwoods</u>				
<u>Peromyscus polionotus peninsularis</u>	G4	S4	N	N
St. Andrews Beach Mouse	G5T1	S1	LE	FE

Matrix Unit ID: 7285**21 Potential Elements for Matrix Unit 7285**

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Ammodramus maritimus peninsulae</u>				
Scott's Seaside Sparrow	G4T3Q	S3	N	SSC
<u>Asclepias viridula</u>				
Southern Milkweed	G2	S2	N	T
<u>Chrysopsis godfreyi</u>				
Godfrey's Goldenaster	G2	S2	N	E
<u>Cistothorus palustris marianae</u>				
Marian's Marsh Wren	G5T3	S3	N	SSC
<u>Cuphea aspera</u>				
Florida Waxweed	G2	S2	N	E
<u>Dermochelys coriacea</u>				
Leatherback Sea Turtle	G2	S2	LE	FE
<u>Euphorbia telephioides</u>				
Telephus Spurge	G1	S1	LT	E
<u>Falco columbarius</u>				
Merlin	G5	S2	N	N
<u>Falco peregrinus</u>				
Peregrine Falcon	G4	S2	N	N
<u>Gopherus polyphemus</u>				
Gopher Tortoise	G3	S3	C	ST
<u>Hymenocallis henryae</u>				
Panhandle Spiderlily	G2	S2	N	E
<u>Leitneria floridana</u>				
Corkwood	G3	S3	N	T
<u>Lupinus westianus</u>				
Gulf Coast Lupine	G3	S3	N	T
<u>Nerodia clarkii clarkii</u>				
Gulf Salt Marsh Snake	G4T3	S2	N	N
<u>Panopea bitruncata</u>				
Atlantic Geoduck	G3G4	S2S3	N	N
<u>Rallus longirostris scottii</u>				
Florida Clapper Rail	G5T3?	S3?	N	N
<u>Rhexia parviflora</u>				
Small-flowered Meadowbeauty	G2	S2	N	E
<u>Rhododendron chapmanii</u>				
Chapman's Rhododendron	G1	S1	LE	E
<u>Ruellia noctiflora</u>				
Nightflowering Wild Petunia	G2	S2	N	E
<u>Sarracenia leucophylla</u>				
White-top Pitcherplant	G3	S3	N	E
<u>Ursus americanus floridanus</u>				
Florida Black Bear	G5T2	S2	N	N

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based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. FNAI shall not be held liable for the accuracy and completeness of these data, or opinions or conclusions drawn from these data. FNAI is not inviting reliance on these data. Inventory data are designed for the purposes of conservation planning and scientific research and are not intended for use as the primary criteria for regulatory decisions.

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Florida Natural Areas Inventory

Biodiversity Matrix Query Results

UNOFFICIAL REPORT

Created 6/12/2017

(Contact the FNAI Data Services Coordinator at 850.224.8207 for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 6 Matrix Units: 7884, 7885, 7886, 7982, 7983, 7984

Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit.

POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.

Matrix Unit ID: 7884

10 Documented Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Andropogon arctatus</i> Pine-woods Bluestem	G3	S3	N	T
<i>Asclepias viridula</i> Southern Milkweed	G2	S2	N	T
<i>Cuphea aspera</i> Florida Waxweed	G2	S2	N	E
<i>Euphorbia telephioides</i> Telephus Spurge	G1	S1	LT	E
<i>Gentiana pennelliana</i> Wiregrass Gentian	G3	S3	N	E
<i>Hymenocallis henryae</i> Panhandle Spiderlily	G2	S2	N	E
<i>Justicia crassifolia</i> Thick-leaved Water-willow	G3	S3	N	E

<i>Nyssa ursina</i> Bog Tupelo	G2	S2	N	N
<i>Pinguicula ionantha</i> Godfrey's Butterwort	G2	S2	LT	E
<i>Scutellaria floridana</i> Florida Skullcap	G2	S2	LT	E

0 Documented-Historic Elements Found

4 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Mesic flatwoods</i>	G4	S4	N	N
<i>Rhododendron chapmanii</i> Chapman's Rhododendron	G1	S1	LE	E
<i>Scrub</i>	G2	S2	N	N
<i>Ursus americanus floridanus</i> Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 7885

10 Documented Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Andropogon arctatus</i> Pine-woods Bluestem	G3	S3	N	T
<i>Cuphea aspera</i> Florida Waxweed	G2	S2	N	E
<i>Euphorbia telephioides</i> Telephus Spurge	G1	S1	LT	E
<i>Hymenocallis henryae</i> Panhandle Spiderlily	G2	S2	N	E
<i>Justicia crassifolia</i> Thick-leaved Water-willow	G3	S3	N	E
<i>Nyssa ursina</i> Bog Tupelo	G2	S2	N	N
<i>Physostegia godfreyi</i> Apalachicola Dragon-head	G3	S3	N	T
<i>Pinguicula ionantha</i> Godfrey's Butterwort	G2	S2	LT	E
<i>Rhexia parviflora</i> Small-flowered Meadowbeauty	G2	S2	N	E
<i>Scutellaria floridana</i> Florida Skullcap	G2	S2	LT	E

1 Documented-Historic Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Gentiana pennelliana</i> Wiregrass Gentian	G3	S3	N	E

6 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Aster spinulosus</i> Pine-woods Aster	G1	S1	N	E
<i>Mesic flatwoods</i>	G4	S4	N	N
<i>Rhododendron chapmanii</i> Chapman's Rhododendron	G1	S1	LE	E

<i>Scrub</i>	G2	S2	N	N
<i>Ursus americanus floridanus</i>	G5T2	S2	N	N
Florida Black Bear				
<i>Wet flatwoods</i>	G4	S4	N	N

Matrix Unit ID: 7886**2 Documented** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Cuphea aspera</i> Florida Waxweed	G2	S2	N	E
<i>Euphorbia telephioides</i> Telephus Spurge	G1	S1	LT	E

0 Documented-Historic Elements Found**6 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Aster spinulosus</i> Pine-woods Aster	G1	S1	N	E
<i>Mesic flatwoods</i>	G4	S4	N	N
<i>Mycteria americana</i> Wood Stork	G4	S2	LT	FT
<i>Rhododendron chapmanii</i> Chapman's Rhododendron	G1	S1	LE	E
<i>Scrub</i>	G2	S2	N	N
<i>Ursus americanus floridanus</i> Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 7982**1 Documented** Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Rhododendron chapmanii</i> Chapman's Rhododendron	G1	S1	LE	E

0 Documented-Historic Elements Found**3 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<i>Euphorbia telephioides</i> Telephus Spurge	G1	S1	LT	E
<i>Mesic flatwoods</i>	G4	S4	N	N
<i>Ursus americanus floridanus</i> Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 7983**0 Documented** Elements Found**0 Documented-Historic** Elements Found**6 Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
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<u>Aster spinulosus</u> Pine-woods Aster	G1	S1	N	E
<u>Euphorbia telephioides</u> Telephus Spurge	G1	S1	LT	E
<u>Mesic flatwoods</u>	G4	S4	N	N
<u>Mycteria americana</u> Wood Stork	G4	S2	LT	FT
<u>Rhododendron chapmanii</u> Chapman's Rhododendron	G1	S1	LE	E
<u>Ursus americanus floridanus</u> Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 7984**2 Documented** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Euphorbia telephioides</u> Telephus Spurge	G1	S1	LT	E
<u>Rhododendron chapmanii</u> Chapman's Rhododendron	G1	S1	LE	E

1 Documented-Historic Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Gentiana pennelliana</u> Wiregrass Gentian	G3	S3	N	E

4 Likely Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Aster spinulosus</u> Pine-woods Aster	G1	S1	N	E
<u>Mesic flatwoods</u>	G4	S4	N	N
<u>Mycteria americana</u> Wood Stork	G4	S2	LT	FT
<u>Ursus americanus floridanus</u> Florida Black Bear	G5T2	S2	N	N

Matrix Unit IDs: 7884, 7885, 7886, 7982, 7983, 7984**34 Potential** Elements Common to Any of the 6 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
<u>Andropogon arctatus</u> Pine-woods Bluestem	G3	S3	N	T
<u>Arnoglossum diversifolium</u> Variable-leaved Indian-plantain	G2	S2	N	T
<u>Asclepias viridula</u> Southern Milkweed	G2	S2	N	T
<u>Aster spinulosus</u> Pine-woods Aster	G1	S1	N	E
<u>Calopogon multiflorus</u> Many-flowered Grass-pink	G2G3	S2S3	N	T
<u>Charadrius nivosus</u> Snowy Plover	G3	S1	N	ST
<u>Cistothorus palustris marianae</u> Marian's Marsh Wren	G5T3	S3	N	SSC
<u>Cuphea aspera</u> Florida Waxweed	G2	S2	N	E

<u><i>Drymarchon couperi</i></u> Eastern Indigo Snake	G3	S3	LT	FT
<u><i>Gentiana pennelliana</i></u> Wiregrass Gentian	G3	S3	N	E
<u><i>Gopherus polyphemus</i></u> Gopher Tortoise	G3	S3	C	ST
<u><i>Hymenocallis henryae</i></u> Panhandle Spiderlily	G2	S2	N	E
<i>Justicia crassifolia</i> Thick-leaved Water-willow	G3	S3	N	E
<u><i>Leitneria floridana</i></u> Corkwood	G3	S3	N	T
<u><i>Linum westii</i></u> West's Flax	G1	S1	N	E
<u><i>Lupinus westianus</i></u> Gulf Coast Lupine	G3	S3	N	T
<u><i>Macbridea alba</i></u> White Birds-in-a-nest	G2	S2	LT	E
<u><i>Macranthera flammea</i></u> Hummingbird Flower	G3	S2	N	E
<u><i>Neovison vison halilimnetes</i></u> Gulf Salt Marsh Mink	G5T3	S3	N	N
<i>Nolina atopocarpa</i> Florida Beargrass	G3	S3	N	T
<i>Nyssa ursina</i> Bog Tupelo	G2	S2	N	N
<i>Oxypolis greenmanii</i> Giant Water-dropwort	G3	S3	N	E
<i>Panopea bitruncata</i> Atlantic Geoduck	G3G4	S2S3	N	N
<u><i>Peromyscus polionotus peninsularis</i></u> St. Andrews Beach Mouse	G5T1	S1	LE	FE
<i>Phoebanthus tenuifolius</i> Narrow-leaved Phoebanthus	G3	S3	N	T
<i>Physostegia godfreyi</i> Apalachicola Dragon-head	G3	S3	N	T
<u><i>Pinguicula ionantha</i></u> Godfrey's Butterwort	G2	S2	LT	E
<i>Platanthera integra</i> Yellow Fringeless Orchid	G3G4	S3	N	E
<i>Polygonella macrophylla</i> Large-leaved Jointweed	G3	S3	N	T
<u><i>Rhexia parviflora</i></u> Small-flowered Meadowbeauty	G2	S2	N	E
<u><i>Ruellia noctiflora</i></u> Nightflowering Wild Petunia	G2	S2	N	E
<i>Sarracenia leucophylla</i> White-top Pitcherplant	G3	S3	N	E
<u><i>Scutellaria floridana</i></u> Florida Skullcap	G2	S2	LT	E
<u><i>Xyris isoetifolia</i></u> Quillwort Yellow-eyed Grass	G1	S1	N	E

Disclaimer

The data maintained by the Florida Natural Areas Inventory represent the single most comprehensive source of information available on the locations of rare species and other significant ecological resources statewide. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. FNAI shall not be held liable for the accuracy and completeness of these data, or opinions or conclusions drawn from these data. FNAI is not inviting reliance on these data. Inventory data are designed for the purposes of conservation planning and scientific research and are not intended for use as the primary criteria for regulatory decisions.

Unofficial Report

These results are considered unofficial. FNAI offers a Standard Data Request option for those needing certifiable data.

APPENDIX C

USDA NRCS SOILS SURVEY



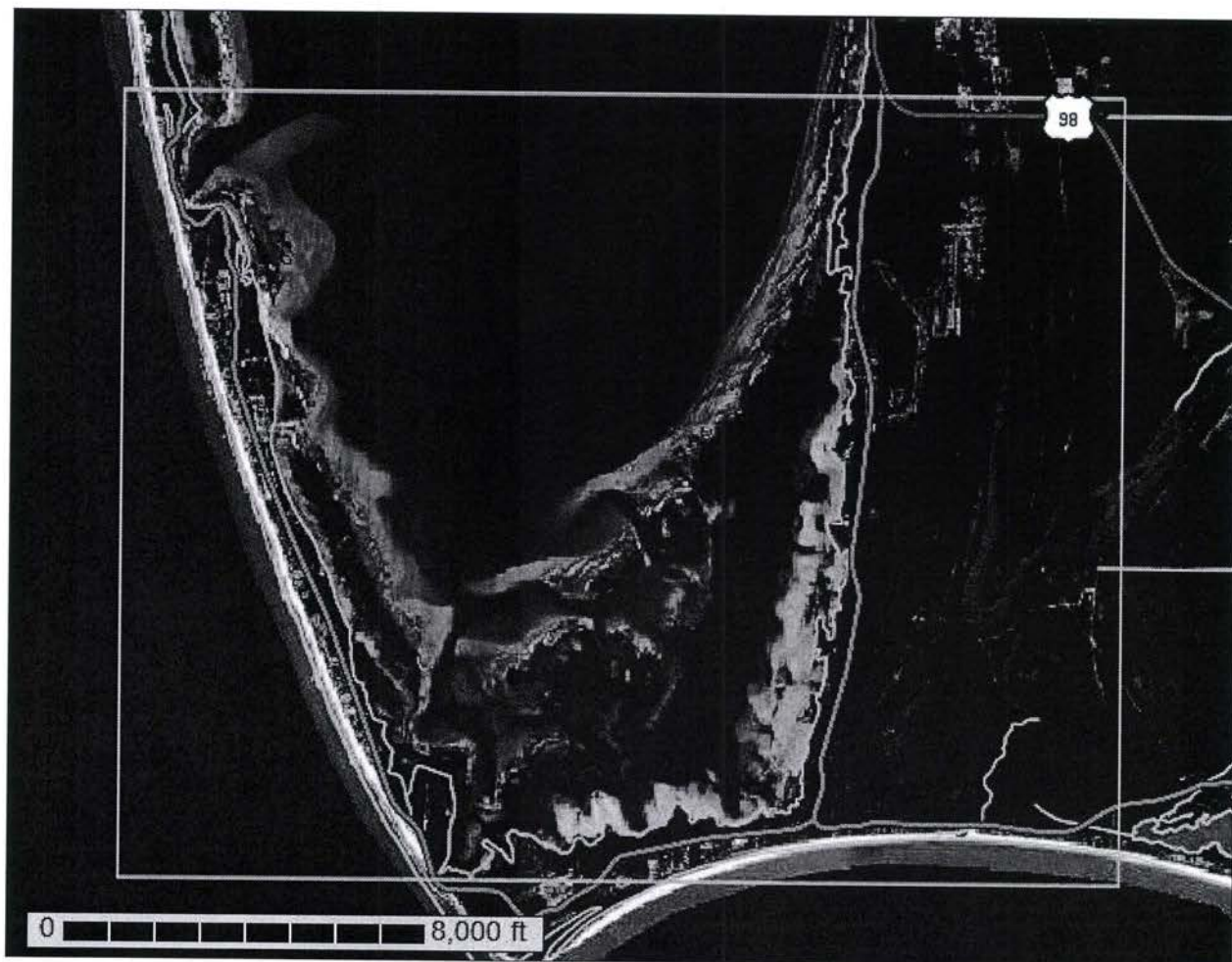
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Gulf County, Florida**



June 12, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

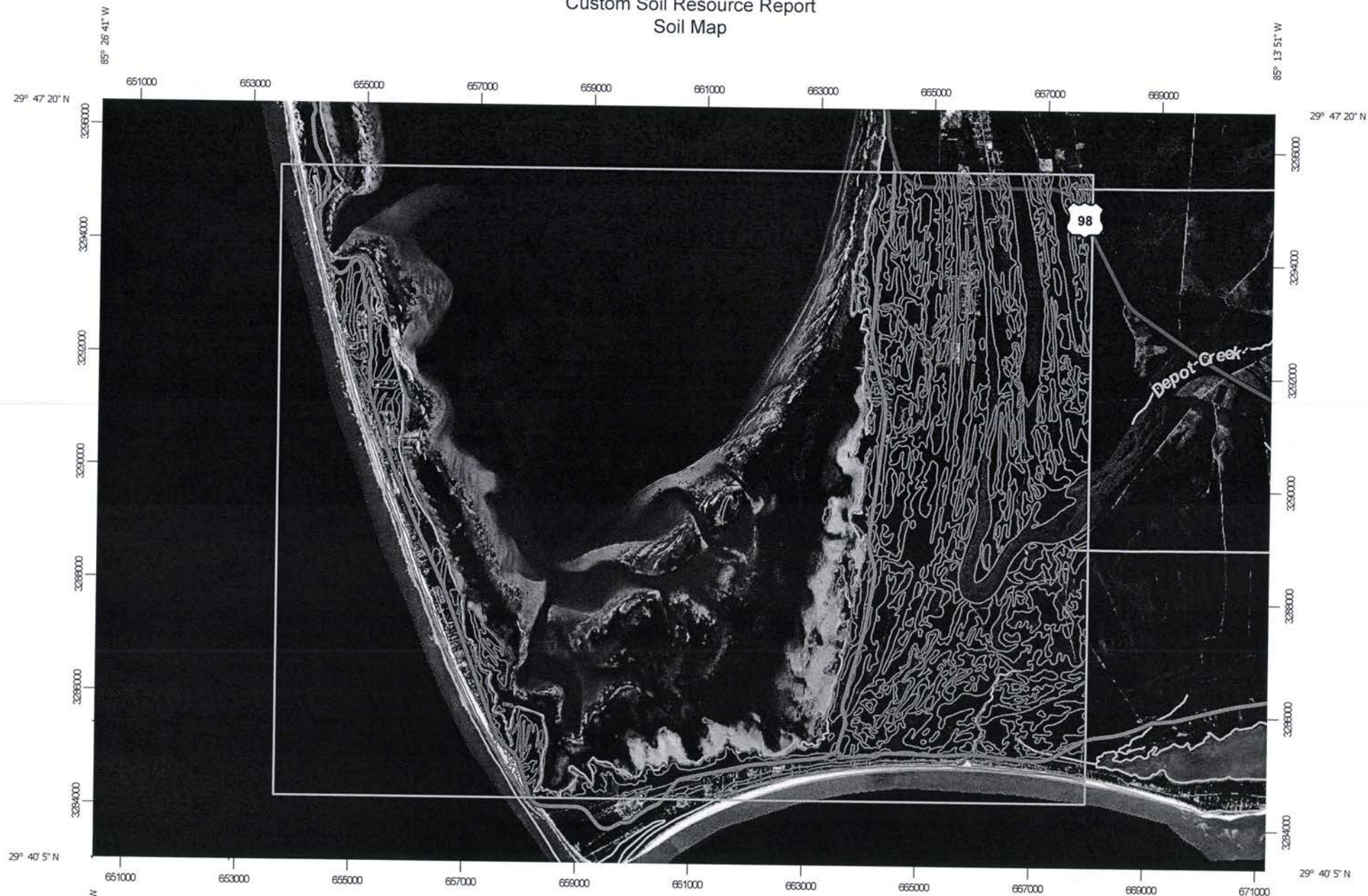
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:94,600 if printed on A landscape (11" x 8.5") sheet.


0 1000 2000 4000 6000 Meters

0 4500 9000 18000 27000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND



















Area of Interest (AOI)

-  Area of Interest (AOI)

Soils

-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Gulf County, Florida

Survey Area Data: Version 13, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 10, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Gulf County, Florida (FL045)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Aquents, gently undulating	78.1	0.2%
7	Bayvi and Dirego soils, frequently flooded	892.7	2.3%
8	Beaches	184.9	0.5%
10	Corolla fine sand, 1 to 5 percent slopes	297.6	0.8%
13	Dorovan-Croatan complex, depressional	314.1	0.8%
14	Duckston-Duckston depressional complex, frequently flooded	219.9	0.6%
20	Lynn Haven fine sand	61.2	0.2%
22	Leon fine sand, 0 to 2 percent slopes	3,841.6	9.7%
23	Maurepas muck, frequently flooded	843.1	2.1%
24	Mandarin fine sand, 0 to 2 percent slopes	541.4	1.4%
27	Pelham loamy fine sand	7.8	0.0%
31	Pickney-Pamlico complex, depressional	352.0	0.9%
33	Resota fine sand, 0 to 5 percent slopes	108.5	0.3%
34	Pickney and Rutlege soils, depressional	2,634.8	6.7%
37	Scranton fine sand, 0 to 2 percent slopes	432.7	1.1%
42	Pottsburg fine sand	545.2	1.4%
44	Pamlico-Pickney complex, 0 to 1 percent slopes, frequently flooded	310.3	0.8%
46	Corolla-Duckston complex, gently undulating, flooded	909.6	2.3%
47	Newhan-Corolla complex, 2 to 30 percent slopes	105.2	0.3%
48	Kureb-Corolla complex, rolling	698.6	1.8%
49	Quartzipsamments, undulating	25.9	0.1%
99	Water	25.6	0.1%
100	Waters of the Gulf of Mexico	20,571.6	52.0%
Totals for Area of Interest		39,527.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas

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shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Gulf County, Florida

4—Aquents, gently undulating

Map Unit Setting

National map unit symbol: 1lfh8
Mean annual precipitation: 59 to 67 inches
Mean annual air temperature: 64 to 72 degrees F
Frost-free period: 265 to 295 days
Farmland classification: Not prime farmland

Map Unit Composition

Aquents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aquents

Setting

Landform: Depressions on marine terraces
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
C - 4 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Other vegetative classification: Forage suitability group not assigned (G152AA999FL)
Hydric soil rating: Yes

7—Bayvi and Dirego soils, frequently flooded

Map Unit Setting

National map unit symbol: 1lfhc
Elevation: 0 to 130 feet
Mean annual precipitation: 59 to 67 inches
Mean annual air temperature: 64 to 72 degrees F
Frost-free period: 265 to 295 days
Farmland classification: Not prime farmland

Map Unit Composition

Bayvi and similar soils: 45 percent
Dirego and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bayvi

Setting

Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 26 inches: fine sand
Cg - 26 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 70.0
Available water storage in profile: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: A/D
Other vegetative classification: Forage suitability group not assigned (G152AA999FL)
Hydric soil rating: Yes

Description of Dirego

Setting

Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa - 0 to 19 inches: muck
Cg - 19 to 36 inches: mucky sand
Cg - 36 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Salinity, maximum in profile: Strongly saline (16.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 55.0
Available water storage in profile: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: A/D
Other vegetative classification: Forage suitability group not assigned (G152AA999FL)
Hydric soil rating: Yes

Minor Components

Duckston

Percent of map unit: 10 percent
Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)
Hydric soil rating: Yes

Leon

Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear

Custom Soil Resource Report

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands
(G152AA141FL)
Hydric soil rating: No

8—Beaches

Map Unit Setting

National map unit symbol: 1lfhd
Elevation: 0 to 20 feet
Mean annual precipitation: 42 to 67 inches
Mean annual air temperature: 52 to 72 degrees F
Frost-free period: 190 to 295 days
Farmland classification: Not prime farmland

Map Unit Composition

Beaches: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beaches

Setting

Landform: Beaches on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear

Properties and qualities

Slope: 0 to 2 percent
Natural drainage class: Poorly drained
Runoff class: Very high
Depth to water table: About 0 to 72 inches
Frequency of flooding: Frequent

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands
(G152AA131FL)
Hydric soil rating: Unranked

Minor Components

Corolla

Percent of map unit: 5 percent
Landform: Rises on dunes on marine terraces on coastal plains
Landform position (three-dimensional): Interfluvium
Down-slope shape: Convex
Across-slope shape: Linear

Custom Soil Resource Report

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G152AA131FL)

Hydric soil rating: No

Duckston

Percent of map unit: 2 percent

Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

10—Corolla fine sand, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1lfhg

Elevation: 0 to 20 feet

Mean annual precipitation: 42 to 67 inches

Mean annual air temperature: 52 to 72 degrees F

Frost-free period: 190 to 295 days

Farmland classification: Not prime farmland

Map Unit Composition

Corolla and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Corolla

Setting

Landform: Rises on dunes on marine terraces on coastal plains

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand

CAb - 4 to 80 inches: fine sand

Properties and qualities

Slope: 1 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)

Depth to water table: About 18 to 36 inches

Custom Soil Resource Report

Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 20.0
Available water storage in profile: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A/D
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G152AA131FL)
Hydric soil rating: No

Minor Components

Newhan

Percent of map unit: 4 percent
Landform: Dunes on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of xeric uplands (G152AA113FL)
Hydric soil rating: No

Kureb

Percent of map unit: 3 percent
Landform: Dunes on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of xeric uplands (G152AA113FL)
Hydric soil rating: No

Resota

Percent of map unit: 3 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G152AA121FL)
Hydric soil rating: No

Duckston

Percent of map unit: 3 percent
Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)
Hydric soil rating: Yes

Beaches

Percent of map unit: 2 percent
Landform: Beaches on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G152AA131FL)
Hydric soil rating: Unranked

13—Dorovan-Croatan complex, depressional

Map Unit Setting

National map unit symbol: 1lfhk
Elevation: 20 to 300 feet
Mean annual precipitation: 59 to 67 inches
Mean annual air temperature: 64 to 72 degrees F
Frost-free period: 265 to 295 days
Farmland classification: Not prime farmland

Map Unit Composition

Dorovan and similar soils: 50 percent
Croatan and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dorovan

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Organic material over sandy marine deposits

Typical profile

Oa - 0 to 54 inches: muck
Cg - 54 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent

Custom Soil Resource Report

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Very high (about 12.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: B/D

Other vegetative classification: Organic soils in depressions and on flood plains (G152AA645FL)

Hydric soil rating: Yes

Description of Croatan

Setting

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Organic material over loamy marine or fluvial deposits

Typical profile

Oa - 0 to 42 inches: muck

Ag - 42 to 46 inches: mucky sandy loam

Cg - 46 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Rare

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Very high (about 19.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A/D

Other vegetative classification: Organic soils in depressions and on flood plains (G152AA645FL)

Hydric soil rating: Yes

Minor Components

Pantego, depressional

Percent of map unit: 5 percent

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Custom Soil Resource Report

Across-slope shape: Concave

Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G152AA345FL)

Hydric soil rating: Yes

Surrency

Percent of map unit: 5 percent

Landform: Flood plains on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

14—Duckston-Duckston depressional complex, frequently flooded

Map Unit Setting

National map unit symbol: 1lfhl

Elevation: 0 to 20 feet

Mean annual precipitation: 59 to 67 inches

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 265 to 295 days

Farmland classification: Not prime farmland

Map Unit Composition

Duckston and similar soils: 60 percent

Duckston, depressional, and similar soils: 35 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Duckston

Setting

Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 2 inches: sand

Cg - 2 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Very high

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Description of Duckston, Depressional

Setting

Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 2 inches: mucky sand

C - 2 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Frequent

Frequency of ponding: Frequent

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Minor Components

Corolla

Percent of map unit: 5 percent

Landform: Rises on dunes on marine terraces on coastal plains

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands
(G152AA131FL)

Hydric soil rating: No

20—Lynn Haven fine sand

Map Unit Setting

National map unit symbol: 1lfhs

Elevation: 0 to 300 feet

Mean annual precipitation: 59 to 67 inches

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 265 to 295 days

Farmland classification: Not prime farmland

Map Unit Composition

Lynn haven and similar soils: 95 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lynn Haven

Setting

Landform: Flats on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 14 inches: fine sand

E - 14 to 25 inches: sand

Bh - 25 to 48 inches: fine sand

E' - 48 to 61 inches: sand

B'h - 61 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: High

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)

Hydric soil rating: Yes

Minor Components

Rutlege, depressional

Percent of map unit: 3 percent

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Pickney, depressional

Percent of map unit: 2 percent

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

22—Leon fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tsy0

Elevation: 0 to 130 feet

Mean annual precipitation: 50 to 67 inches

Mean annual air temperature: 63 to 73 degrees F

Frost-free period: 230 to 300 days

Farmland classification: Not prime farmland

Map Unit Composition

Leon and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Leon

Setting

Landform: — error in exists on —

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand

E - 6 to 25 inches: fine sand

Bh - 25 to 34 inches: fine sand

C - 34 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)

Hydric soil rating: No

Minor Components

Chaires

Percent of map unit: 5 percent

Landform: Flatwoods on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: North Florida Flatwoods (R152AY004FL)

Other vegetative classification: sandy soils on flats of mesic or hydric lowlands (G133AA141FL), Unnamed (G133AP015FL)

Hydric soil rating: No

Mandarin

Percent of map unit: 5 percent
Landform: Ridges on marine terraces, rises on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: North Florida Flatwoods (R152AY004FL)
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G152AA131FL), Unnamed (G152AT077FL)
Hydric soil rating: No

Lynn haven

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: Freshwater Marsh & Pond (R152AY010FL)
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL), Unnamed (G152AT800FL)
Hydric soil rating: Yes

Sapelo, hydric

Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Wetland Hardwood Hammock (R152AY012FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G138XA141FL), Unnamed (G138XP013FL)
Hydric soil rating: Yes

23—Maurepas muck, frequently flooded

Map Unit Setting

National map unit symbol: 1lfhw
Elevation: 20 to 100 feet
Mean annual precipitation: 59 to 67 inches
Mean annual air temperature: 64 to 72 degrees F
Frost-free period: 265 to 295 days
Farmland classification: Not prime farmland

Map Unit Composition

Maurepas and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maurepas

Setting

Landform: Flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Woody organic material

Typical profile

Oa - 0 to 80 inches: muck

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very high (about 20.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: A/D
Other vegetative classification: Organic soils in depressions and on flood plains (G152AA645FL)
Hydric soil rating: Yes

Minor Components

Pickney

Percent of map unit: 5 percent
Landform: Flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)
Hydric soil rating: Yes

Bayvi

Percent of map unit: 5 percent
Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G152AA999FL)
Hydric soil rating: Yes

24—Mandarin fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ttkv
Elevation: 0 to 100 feet
Mean annual precipitation: 59 to 67 inches
Mean annual air temperature: 64 to 72 degrees F
Frost-free period: 223 to 253 days
Farmland classification: Not prime farmland

Map Unit Composition

Mandarin and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mandarin

Setting

Landform: Flats on marine terraces, rises on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 24 inches: fine sand
Bh - 24 to 32 inches: fine sand
C - 32 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A

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Other vegetative classification: Sandy soils on rises and knolls of mesic uplands
(G152AA131FL)

Hydric soil rating: No

Minor Components

Ortega

Percent of map unit: 5 percent

Landform: Knolls, marine terraces, ridges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve, talf

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G152AA121FL)

Hydric soil rating: No

Chaires

Percent of map unit: 3 percent

Landform: Flatwoods on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands
(G152AA141FL)

Hydric soil rating: No

27—Pelham loamy fine sand

Map Unit Setting

National map unit symbol: 1lfj0

Elevation: 20 to 450 feet

Mean annual precipitation: 59 to 67 inches

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 265 to 295 days

Farmland classification: Farmland of local importance

Map Unit Composition

Pelham and similar soils: 88 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pelham

Setting

Landform: Flats on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: loamy fine sand
Eg - 7 to 31 inches: loamy fine sand
Btg1 - 31 to 52 inches: fine sandy loam
Btg2 - 52 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)
Hydric soil rating: Yes

Minor Components

Plummer

Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)
Hydric soil rating: Yes

Leefield

Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy over loamy soils on rises and knolls of mesic uplands (G152AA231FL)
Hydric soil rating: No

Pantego, depressional

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave

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Across-slope shape: Concave

Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G152AA345FL)

Hydric soil rating: Yes

31—Pickney-Pamlico complex, depressional

Map Unit Setting

National map unit symbol: 1lfj4

Elevation: 0 to 450 feet

Mean annual precipitation: 59 to 67 inches

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 265 to 295 days

Farmland classification: Not prime farmland

Map Unit Composition

Pickney, depressional, and similar soils: 50 percent

Pamlico, depressional, and similar soils: 35 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pickney, Depressional

Setting

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 51 inches: fine sand

Cg - 51 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Description of Pamlico, Depressional

Setting

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa - 0 to 22 inches: muck

Cg - 22 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A/D

Other vegetative classification: Organic soils in depressions and on flood plains (G152AA645FL)

Hydric soil rating: Yes

Minor Components

Lynn haven

Percent of map unit: 8 percent

Landform: Flats on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)

Hydric soil rating: Yes

Scranton

Percent of map unit: 7 percent

Landform: Flats on marine terraces

Custom Soil Resource Report

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands
(G152AA141FL)

Hydric soil rating: No

33—Resota fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2ttl8

Elevation: 10 to 40 feet

Mean annual precipitation: 61 to 69 inches

Mean annual air temperature: 63 to 70 degrees F

Frost-free period: 252 to 282 days

Farmland classification: Not prime farmland

Map Unit Composition

Resota and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Resota

Setting

Landform: Knolls on marine terraces, ridges on marine terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand

E - 4 to 19 inches: fine sand

Bw - 19 to 42 inches: fine sand

C - 42 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 to 50.00 in/hr)

Depth to water table: About 42 to 60 inches

Frequency of flooding: None

Frequency of ponding: None

Custom Soil Resource Report

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G152AA121FL)

Hydric soil rating: No

Minor Components

Ortega

Percent of map unit: 4 percent

Landform: Ridges on marine terraces

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G152AA121FL)

Hydric soil rating: No

Mandarin

Percent of map unit: 3 percent

Landform: Flats on marine terraces, rises on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G152AA131FL)

Hydric soil rating: No

Kureb

Percent of map unit: 3 percent

Landform: Dunes on marine terraces, ridges on marine terraces

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands (G152AA111FL)

Hydric soil rating: No

34—Pickney and Rutlege soils, depressional

Map Unit Setting

National map unit symbol: 1lfj7

Elevation: 0 to 450 feet

Mean annual precipitation: 59 to 67 inches

Custom Soil Resource Report

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 265 to 295 days

Farmland classification: Not prime farmland

Map Unit Composition

Pickney, depressional, and similar soils: 40 percent

Rutlege, depressional, and similar soils: 35 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pickney, Depressional

Setting

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 51 inches: fine sand

Cg - 51 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Description of Rutlege, Depressional

Setting

Landform: Depressions on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 19 inches: fine sand

Custom Soil Resource Report

Cg - 19 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Minor Components

Lynn haven

Percent of map unit: 10 percent

Landform: Flats on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)

Hydric soil rating: Yes

Pottsburg

Percent of map unit: 10 percent

Landform: Flats on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)

Hydric soil rating: Yes

Scranton

Percent of map unit: 5 percent

Landform: Flats on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)

Hydric soil rating: No

37—Scranton fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ttkj
Elevation: 0 to 450 feet
Mean annual precipitation: 53 to 61 inches
Mean annual air temperature: 64 to 72 degrees F
Frost-free period: 290 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition

Scranton and similar soils: 84 percent
Minor components: 16 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scranton

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 9 inches: fine sand
Cg - 9 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)

Custom Soil Resource Report

Hydric soil rating: No

Minor Components

Scranton, slough

Percent of map unit: 10 percent

Landform: Sloughs on marine terraces

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Concave

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands
(G152AA141FL), Unnamed (G152AT077FL)

Hydric soil rating: Yes

Leon

Percent of map unit: 3 percent

Landform: Flatwoods on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands
(G152AA141FL), Unnamed (G152AT013FL)

Hydric soil rating: No

Rutlege

Percent of map unit: 3 percent

Landform: Flats on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Ecological site: North Florida Flatwoods (R133AY004FL)

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands
(G152AA141FL), Unnamed (G152AT002FL)

Hydric soil rating: Yes

42—Pottsburg fine sand

Map Unit Setting

National map unit symbol: 1lfjh

Elevation: 0 to 300 feet

Mean annual precipitation: 59 to 67 inches

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 265 to 295 days

Farmland classification: Not prime farmland

Map Unit Composition

Pottsburg and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pottsburg

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 53 inches: fine sand
Bh - 53 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G152AA141FL)
Hydric soil rating: Yes

Minor Components

Rutlege, depressional

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)
Hydric soil rating: Yes

Pickney, depressional

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave

Custom Soil Resource Report

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

44—Pamlico-Pickney complex, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2ttlq

Elevation: 0 to 100 feet

Mean annual precipitation: 53 to 61 inches

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 290 to 320 days

Farmland classification: Not prime farmland

Map Unit Composition

Pamlico and similar soils: 50 percent

Pickney and similar soils: 35 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pamlico

Setting

Landform: Flood plains, marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa - 0 to 46 inches: muck

Cg - 46 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Frequent

Frequency of ponding: Frequent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Very high (about 22.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Custom Soil Resource Report

Hydrologic Soil Group: A/D

Other vegetative classification: Organic soils in depressions and on flood plains
(G152AA645FL)

Hydric soil rating: Yes

Description of Pickney

Setting

Landform: Flood plains, marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy marine deposits and/or fluviomarine deposits

Typical profile

A - 0 to 35 inches: sand

Cg - 35 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Frequent

Frequency of ponding: Frequent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Minor Components

Dorovan

Percent of map unit: 8 percent

Landform: Depressions on marine terraces, flood plains on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Concave

Other vegetative classification: Organic soils in depressions and on flood plains
(G152AA645FL)

Hydric soil rating: Yes

Rutlege

Percent of map unit: 7 percent

Landform: Flood plains, marine terraces

Landform position (three-dimensional): Dip

Custom Soil Resource Report

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

46—Corolla-Duckston complex, gently undulating, flooded

Map Unit Setting

National map unit symbol: 1lfj

Elevation: 0 to 20 feet

Mean annual precipitation: 59 to 67 inches

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 265 to 295 days

Farmland classification: Not prime farmland

Map Unit Composition

Corolla and similar soils: 50 percent

Duckston and similar soils: 40 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Corolla

Setting

Landform: Rises on dunes on marine terraces on coastal plains

Landform position (three-dimensional): Interfluvium

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: sand

CAb - 4 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 6 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: Rare

Frequency of ponding: None

Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Very low (about 1.2 inches)

Custom Soil Resource Report

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G152AA131FL)

Hydric soil rating: No

Description of Duckston

Setting

Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 2 inches: sand

Cg - 2 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Minor Components

Bayvi

Percent of map unit: 5 percent

Landform: Tidal marshes on marine terraces

Landform position (three-dimensional): Talf

Down-slope shape: Concave

Across-slope shape: Linear

Other vegetative classification: Forage suitability group not assigned (G152AA999FL)

Custom Soil Resource Report

Hydric soil rating: Yes

Kureb

Percent of map unit: 5 percent

Landform: Dunes on marine terraces, ridges on marine terraces

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of xeric uplands (G152AA113FL)

Hydric soil rating: No

47—Newhan-Corolla complex, 2 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2w4gq

Elevation: 0 to 20 feet

Mean annual precipitation: 60 to 73 inches

Mean annual air temperature: 63 to 72 degrees F

Frost-free period: 236 to 306 days

Farmland classification: Not prime farmland

Map Unit Composition

Newhan and similar soils: 60 percent

Corolla and similar soils: 30 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newhan

Setting

Landform: Dunes on marine terraces

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy eolian deposits

Typical profile

C - 0 to 80 inches: sand

Properties and qualities

Slope: 2 to 30 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: None

Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A

Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands (G152AA111FL)

Hydric soil rating: No

Description of Corolla

Setting

Landform: Rises on dunes on marine terraces

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 3 inches: sand

C - 3 to 80 inches: sand

Properties and qualities

Slope: 2 to 30 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: Rare

Frequency of ponding: None

Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands (G152AA111FL)

Hydric soil rating: No

Minor Components

Duckston

Percent of map unit: 10 percent

Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces

Custom Soil Resource Report

Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands
(G152AA111FL)
Hydric soil rating: Yes

48—Kureb-Corolla complex, rolling

Map Unit Setting

National map unit symbol: 1lfjn
Elevation: 0 to 20 feet
Mean annual precipitation: 59 to 67 inches
Mean annual air temperature: 64 to 72 degrees F
Frost-free period: 265 to 295 days
Farmland classification: Not prime farmland

Map Unit Composition

Kureb and similar soils: 65 percent
Corolla and similar soils: 30 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kureb

Setting

Landform: Dunes on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Eolian deposits or sandy fluvial or marine deposits

Typical profile

A - 0 to 2 inches: fine sand
E/B - 2 to 35 inches: fine sand
C - 35 to 80 inches: fine sand

Properties and qualities

Slope: 2 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Custom Soil Resource Report

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A

Other vegetative classification: Sandy soils on strongly sloping to steep side slopes of xeric uplands (G152AA113FL)

Hydric soil rating: No

Description of Corolla

Setting

Landform: Rises on dunes on marine terraces on coastal plains

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand

CAb - 4 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 6 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: Rare

Frequency of ponding: None

Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A/D

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G152AA131FL)

Hydric soil rating: No

Minor Components

Duckston

Percent of map unit: 3 percent

Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Custom Soil Resource Report

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

Duckston, depressional

Percent of map unit: 2 percent

Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

49—Quartzipsamments, undulating

Map Unit Setting

National map unit symbol: 1lfjp

Elevation: 0 to 10 feet

Mean annual precipitation: 59 to 67 inches

Mean annual air temperature: 64 to 72 degrees F

Frost-free period: 265 to 295 days

Farmland classification: Not prime farmland

Map Unit Composition

Quartzipsamments and similar soils: 95 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Quartzipsamments

Setting

Landform: Rises on marine terraces

Landform position (three-dimensional): Rise

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Sandy marine deposits

Typical profile

C - 0 to 4 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Excessively drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)

Depth to water table: More than 80 inches

Custom Soil Resource Report

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0

Available water storage in profile: Very low (about 0.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Other vegetative classification: Forage suitability group not assigned (G152AA999FL)

Hydric soil rating: No

Minor Components

Duckston

Percent of map unit: 5 percent

Landform: Depressions on marine terraces, swales on marine terraces, flats on marine terraces

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G152AA145FL)

Hydric soil rating: Yes

99—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G152AA131FL)

Hydric soil rating: Unranked

100—Waters of the Gulf of Mexico

Map Unit Composition

Waters of the gulf of mexico: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waters Of The Gulf Of Mexico

Interpretive groups

Land capability classification (irrigated): None specified

Other vegetative classification: Sandy soils on rises and knolls of mesic uplands
(G152AA131FL)

Hydric soil rating: Unranked

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Building Site Development

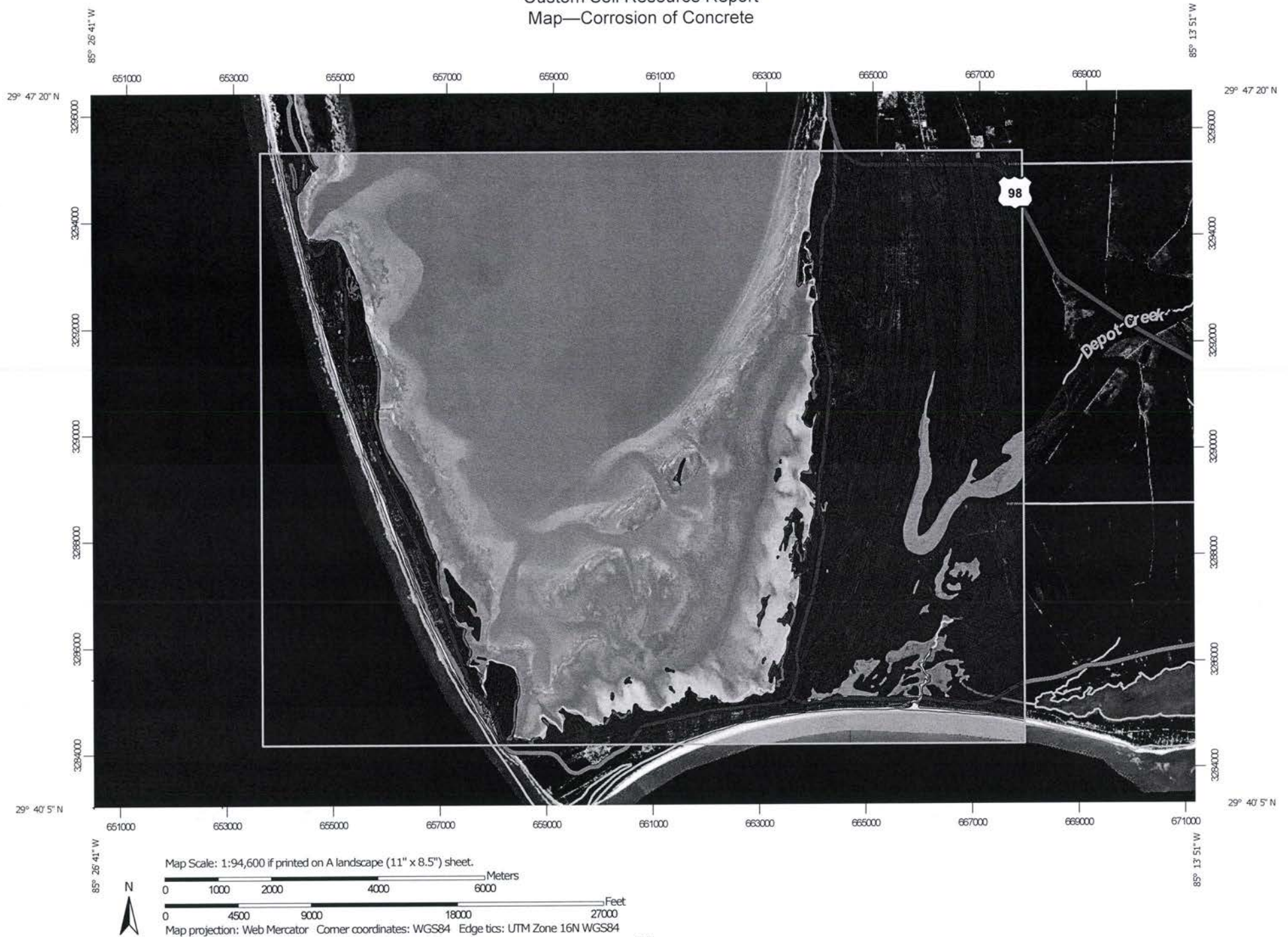
Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Corrosion of Concrete

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens concrete. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the concrete in installations that are entirely within one kind of soil or within one soil layer.


The risk of corrosion is expressed as "low," "moderate," or "high."

Custom Soil Resource Report Map—Corrosion of Concrete



MAP LEGEND

Area of Interest (AOI)





 Area of Interest (AOI)

Background





 Aerial Photography

Soils





Soil Rating Polygons

 High
 Moderate
 Low
 Not rated or not available


Soil Rating Lines

 High
 Moderate
 Low
 Not rated or not available

Soil Rating Points

 High
 Moderate
 Low
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Gulf County, Florida
 Survey Area Data: Version 13, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 10, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Corrosion of Concrete

Corrosion of Concrete— Summary by Map Unit — Gulf County, Florida (FL045)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
4	Aquents, gently undulating	High	78.1	0.2%
7	Bayvi and Dirego soils, frequently flooded	High	892.7	2.3%
8	Beaches		184.9	0.5%
10	Corolla fine sand, 1 to 5 percent slopes	High	297.6	0.8%
13	Dorovan-Croatan complex, depressional	High	314.1	0.8%
14	Duckston-Duckston depressional complex, frequently flooded	High	219.9	0.6%
20	Lynn Haven fine sand	High	61.2	0.2%
22	Leon fine sand, 0 to 2 percent slopes	High	3,841.6	9.7%
23	Maurepas muck, frequently flooded		843.1	2.1%
24	Mandarin fine sand, 0 to 2 percent slopes	High	541.4	1.4%
27	Pelham loamy fine sand	High	7.8	0.0%
31	Pickney-Pamlico complex, depressional	High	352.0	0.9%
33	Resota fine sand, 0 to 5 percent slopes	High	108.5	0.3%
34	Pickney and Rutlege soils, depressional	High	2,634.8	6.7%
37	Scranton fine sand, 0 to 2 percent slopes	High	432.7	1.1%
42	Pottsburg fine sand	High	545.2	1.4%
44	Pamlico-Pickney complex, 0 to 1 percent slopes, frequently flooded	High	310.3	0.8%
46	Corolla-Duckston complex, gently undulating, flooded	High	909.6	2.3%
47	Newhan-Corolla complex, 2 to 30 percent slopes	High	105.2	0.3%
48	Kureb-Corolla complex, rolling	High	698.6	1.8%
49	Quartzipsamments, undulating	High	25.9	0.1%
99	Water		25.6	0.1%

Custom Soil Resource Report

Corrosion of Concrete— Summary by Map Unit — Gulf County, Florida (FL045)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
100	Waters of the Gulf of Mexico		20,571.6	52.0%
Totals for Area of Interest			39,527.4	100.0%

Rating Options—Corrosion of Concrete

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

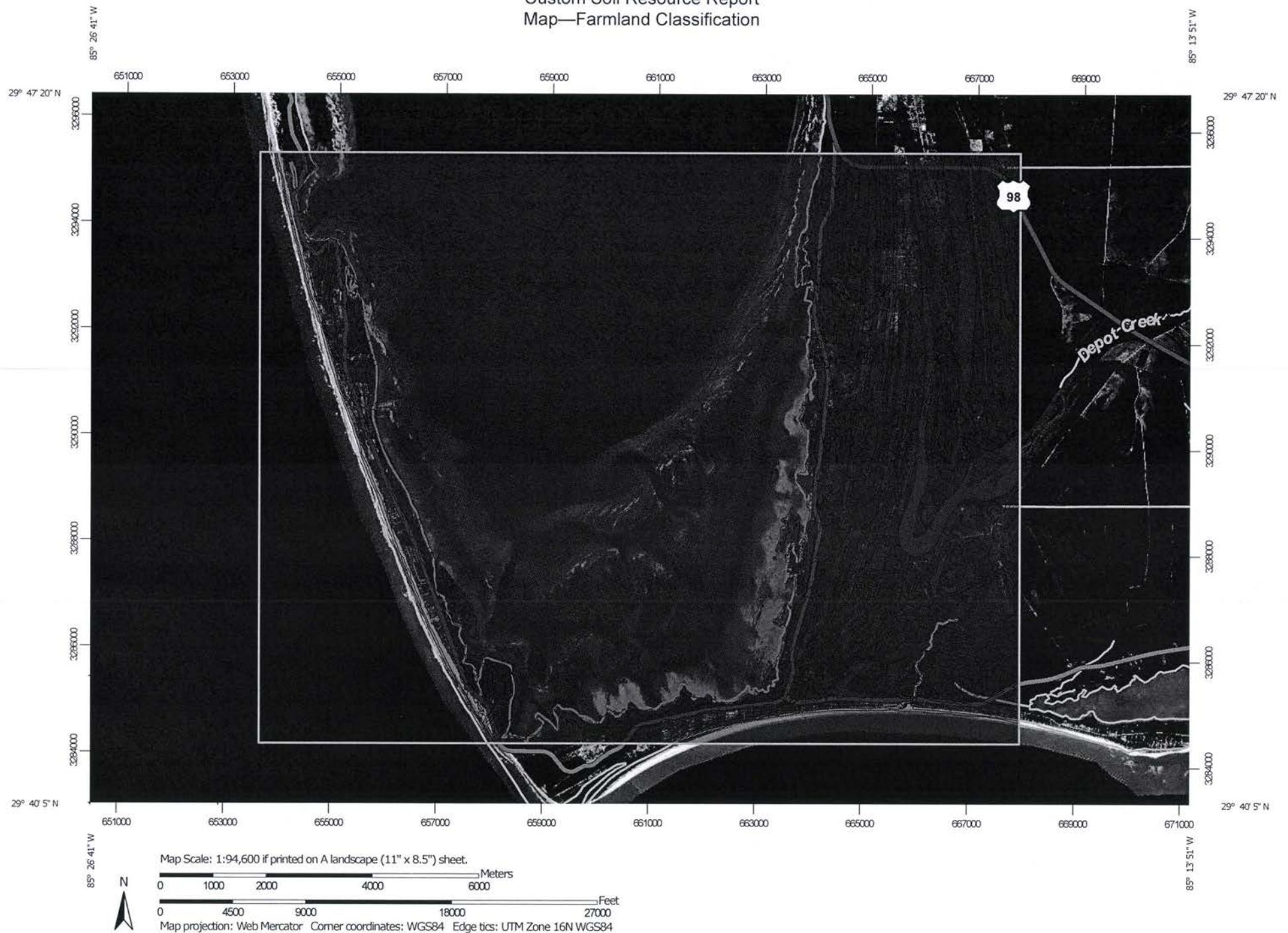
Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Farmland Classification

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.


Custom Soil Resource Report Map—Farmland Classification



Custom Soil Resource Report









MAP LEGEND








Area of Interest (AOI)

-  Area of Interest (AOI)

Soils

Soil Rating Polygons






-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Soil Rating Lines










-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained

-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Soil Rating Points

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Water Features

MAP INFORMATION

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Gulf County, Florida

Survey Area Data: Version 13, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 10, 2010

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Table—Farmland Classification

Farmland Classification— Summary by Map Unit — Gulf County, Florida (FL045)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
4	Aquents, gently undulating	Not prime farmland	78.1	0.2%
7	Bayvi and Dirego soils, frequently flooded	Not prime farmland	892.7	2.3%
8	Beaches	Not prime farmland	184.9	0.5%
10	Corolla fine sand, 1 to 5 percent slopes	Not prime farmland	297.6	0.8%
13	Dorovan-Croatan complex, depressional	Not prime farmland	314.1	0.8%
14	Duckston-Duckston depressional complex, frequently flooded	Not prime farmland	219.9	0.6%
20	Lynn Haven fine sand	Not prime farmland	61.2	0.2%
22	Leon fine sand, 0 to 2 percent slopes	Not prime farmland	3,841.6	9.7%
23	Maurepas muck, frequently flooded	Not prime farmland	843.1	2.1%
24	Mandarin fine sand, 0 to 2 percent slopes	Not prime farmland	541.4	1.4%
27	Pelham loamy fine sand	Farmland of local importance	7.8	0.0%
31	Pickney-Pamlico complex, depressional	Not prime farmland	352.0	0.9%
33	Resota fine sand, 0 to 5 percent slopes	Not prime farmland	108.5	0.3%
34	Pickney and Rutlege soils, depressional	Not prime farmland	2,634.8	6.7%
37	Scranton fine sand, 0 to 2 percent slopes	Not prime farmland	432.7	1.1%
42	Pottsburg fine sand	Not prime farmland	545.2	1.4%
44	Pamlico-Pickney complex, 0 to 1 percent slopes, frequently flooded	Not prime farmland	310.3	0.8%
46	Corolla-Duckston complex, gently undulating, flooded	Not prime farmland	909.6	2.3%
47	Newhan-Corolla complex, 2 to 30 percent slopes	Not prime farmland	105.2	0.3%
48	Kureb-Corolla complex, rolling	Not prime farmland	698.6	1.8%
49	Quartzipsamments, undulating	Not prime farmland	25.9	0.1%
99	Water	Not prime farmland	25.6	0.1%

Custom Soil Resource Report

Farmland Classification— Summary by Map Unit — Gulf County, Florida (FL045)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
100	Waters of the Gulf of Mexico	Not prime farmland	20,571.6	52.0%
Totals for Area of Interest			39,527.4	100.0%

Rating Options—Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

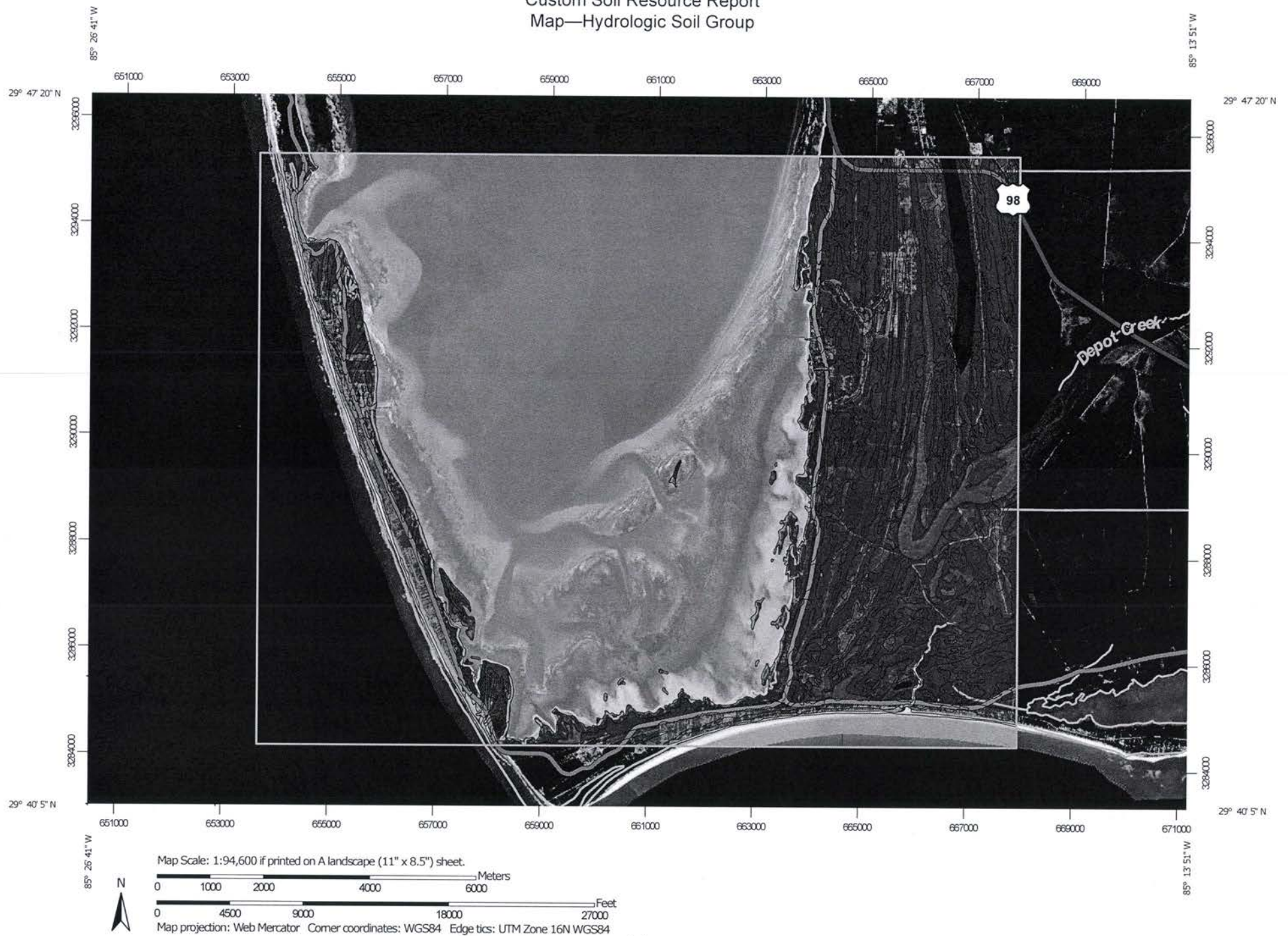
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at

Custom Soil Resource Report

or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.


If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report Map—Hydrologic Soil Group











MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

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Table—Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Gulf County, Florida (FL045)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
4	Aquents, gently undulating	A/D	78.1	0.2%
7	Bayvi and Dirego soils, frequently flooded	A/D	892.7	2.3%
8	Beaches		184.9	0.5%
10	Corolla fine sand, 1 to 5 percent slopes	A/D	297.6	0.8%
13	Dorovan-Croatan complex, depressional	B/D	314.1	0.8%
14	Duckston-Duckston depressional complex, frequently flooded	A/D	219.9	0.6%
20	Lynn Haven fine sand	A/D	61.2	0.2%
22	Leon fine sand, 0 to 2 percent slopes	A/D	3,841.6	9.7%
23	Maurepas muck, frequently flooded	A/D	843.1	2.1%
24	Mandarin fine sand, 0 to 2 percent slopes	A	541.4	1.4%
27	Pelham loamy fine sand	B/D	7.8	0.0%
31	Pickney-Pamlico complex, depressional	A/D	352.0	0.9%
33	Resota fine sand, 0 to 5 percent slopes	A	108.5	0.3%
34	Pickney and Rutlege soils, depressional	A/D	2,634.8	6.7%
37	Scranton fine sand, 0 to 2 percent slopes	A/D	432.7	1.1%
42	Pottsburg fine sand	A/D	545.2	1.4%
44	Pamlico-Pickney complex, 0 to 1 percent slopes, frequently flooded	A/D	310.3	0.8%
46	Corolla-Duckston complex, gently undulating, flooded	A/D	909.6	2.3%
47	Newhan-Corolla complex, 2 to 30 percent slopes	A	105.2	0.3%
48	Kureb-Corolla complex, rolling	A	698.6	1.8%
49	Quartzipsamments, undulating	A	25.9	0.1%
99	Water		25.6	0.1%

Custom Soil Resource Report

Hydrologic Soil Group— Summary by Map Unit — Gulf County, Florida (FL045)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
100	Waters of the Gulf of Mexico		20,571.6	52.0%
Totals for Area of Interest			39,527.4	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.


If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report Map—Hydrologic Soil Group











MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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Survey Area Data: Version 13, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

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Table—Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Gulf County, Florida (FL045)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
4	Aquents, gently undulating	A/D	78.1	0.2%
7	Bayvi and Dirego soils, frequently flooded	A/D	892.7	2.3%
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46	Corolla-Duckston complex, gently undulating, flooded	A/D	909.6	2.3%
47	Newhan-Corolla complex, 2 to 30 percent slopes	A	105.2	0.3%
48	Kureb-Corolla complex, rolling	A	698.6	1.8%
49	Quartzipsamments, undulating	A	25.9	0.1%
99	Water		25.6	0.1%

Custom Soil Resource Report

Hydrologic Soil Group— Summary by Map Unit — Gulf County, Florida (FL045)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
100	Waters of the Gulf of Mexico		20,571.6	52.0%
Totals for Area of Interest			39,527.4	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

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Custom Soil Resource Report

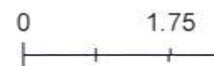
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APPENDIX D

GULF COUNTY 303(d) LISTED WATERS



APPENDIX E

BUSINESS PLAN

A copy of the Business Plan with Attachments was provided as a separate submission to the FDEP State Revolving Fund for this Facilities Plan on April 12th, 2018.

APPENDIX F

2016 FDEP SANITARY SURVEY



Florida Department of Environmental Protection

Northwest District
160 W. Government Street, Suite 308
Pensacola, Florida 32502-5794

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

September 26, 2016

Mr. William J. Rish, Jr., President
Lighthouse Utilities Company, Inc.
Post Office Box 428
Port St. Joe, Florida 32457
jay@floridagulfcoast.com

Re: Compliance Assistance Offer
Lighthouse Utilities Company, Inc. Water System
PWS ID No. 1230848
Gulf County

Dear Mr. Rish:

A sanitary survey of Lighthouse Utilities Water System was conducted on August 17, 2016. During this inspection, potential non-compliance was noted. The purpose of this letter is to offer compliance assistance as a means of resolving these matters.

Specifically, potential non-compliance with the requirements of Chapter 403, Florida Statutes and Chapter 62-555, Florida Administrative Code, was observed. Please see the attached inspection report for a full account of Department observations and recommendations.

We request you review the items of concern noted and respond in writing within 15 days of receipt of this Compliance Assistance Offer. Your written response should include one of the following:

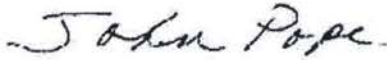
1. Describe what has been done to resolve the non-compliance issues or provide a schedule describing how/when the issues will be addressed
2. Provide the requested information, or information that mitigates the concerns or demonstrates them to be invalid, or
3. Arrange for the case manager to visit your facility to discuss the items of concern.

It is the Department's desire that you are able to adequately address the aforementioned issues so that this matter can be closed. Your failure to respond promptly may result in the initiation of formal enforcement proceedings.

Mr. William J. Rish
Lighthouse Utilities Company, Inc.
PWS ID No. 1230848
Compliance Assistance Offer
Page 2

Please address your response and any questions to me at 850-595-0633 or via email at john.pope@dep.state.fl.us. We look forward to your cooperation with this matter.

Sincerely,

A handwritten signature in cursive script that reads "John Pope".

John Pope
Potable Water Supervisor

Cc: Mr. Larry McArdle, Utilities Manager (lmcardle@mchsi.com)
Ms. Angela Chelette, NFWFMD (Angela.Chelette@nwfwater.com)



STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SANITARY SURVEY REPORT
GROUND WATER COMMUNITY SYSTEMS

SYSTEM AND OWNER INFORMATION

System Lighthouse Utilities County Gulf PWS ID # 1230848
Address 2010 Highway 30A City Port St. Joe
Phone 850-227-7427 Fax 850-227-2115 E-mail luci@gtcom.net
Owner Lighthouse Utilities; William J. Rish, Jr., President Phone 850-227-7427
Address Post Office Box 428, Port St. Joe, Florida 32456

INSPECTION AND CONTACT INFORMATION

Date of this survey August 17, 2016 Date of last survey September 12, 2013
DEP Representative(s) Elizabeth Willard
Person(s) Contacted Larry McArdle - Operator / Mathew Pope - Trainee
Emergency Number 850-227-5349 Cell 850-227-5349 Other 850-227-3501 (office at Well 2)

CERTIFIED OPERATORS AND CERTIFICATION NUMBER

Larry McArdle "A" 589

DIRECTIONS TO PLANT OR OFFICE (provide general directions to the office and/or plant)

From Port St. Joe take Hwy 98 east, turn right onto Hwy 30, Office is located in Century 21, building (2010 Hwy 30C)

SERVICE AREA

Service Area Characteristics Residential/Commercial
Population Served 4433 Basis 2.5
Service Connections 1773 % Metered 100%
Design Capacity (gallons) 1,224,000
Design Capacity without best well 576,000
Storage Capacity 224,000 Avg. Day 403,017
Max. Day (GPD) 1,059,200 % Design Capacity 87%
25% Max. Day 264,800 % Storage Capacity 118%

PERMANENT SOURCES OF RAW WATER:

☒ Ground How Many Wells 2
☐ Purchased PWS #'s. NA
Purchase Limit (GPD) NA
Avg Purchased (GPD) NA

EMERGENCY MEDIA CONTACT NUMBERS

	NAME	PHONE NUMBER
Television	WMBB Channel 13	850-763-6000
	WJHG Channel 7	850-233-1977
Radio FM	Magic Broadcasting	850-230-5855
Radio AM	Magic Broadcasting	850-230-5855
Newspaper	The Star	850-227-1278

EMERGENCY PREPAREDNESS/STANDBY POWER

Emergency Preparedness Plan On file: ☐ Yes ☒ No/See AOC ☐ Not Required
The plan includes the following:
☐ Communication Chart ☐ Written Agreements ☐ Disaster Plan
☐ Standby Power Info ☐ Inventories ☐ Other
Avg. Day Percentage of Auxiliary Supply 62.2%
Standby Equipment Operated ☒ Yes Not recorded. See Remarks.
At Least Monthly? ☐ No
Any Interconnects? ☒ Yes ☐ No
If yes, which systems: City of Port St. Joe
Comments: _____

TREATMENT IN USE AT THIS PLANT: (CHECK ALL THAT APPLY)

Number of Plants 2
☒ Aeration ☐ E.D. ☐ Iron Removal ☐ Ph Adjustment ☒ Chlorination
☐ Filtration ☐ Lime Softening ☐ T&O Control ☐ Chlorination-Pre ☐ Filt. Hi-Rate
☐ Recarbonation ☐ Settling ☐ Chlorination-Post ☐ Fluoridation ☐ Reverse Osmosis
☐ Zeolite Softener ☐ Coagulation ☐ Orthophosphate ☐ Aqua Mag ☐ Other-Specify

Any additional treatment is needed? No For control of what deficiencies? _____

OPERATOR STAFFING REQUIREMENTS

Number of Licensed Operators 1 Plant Cat/Class 5C Staffing compliant? ☒ Yes ☐ No Actual visits / wk: 6 req'd. (See AOC)

SOURCE

Well Name or Source		1	2	*1 (AKA 3)	Comment
W E L L D E P T H A N D O N E D I N	Street name of well	A B A N D O N E D I N	LUCI #2 (office)	*LUCI #1 (aka Well 3)	Note: Well Nos. reversed on some prior reports.
	Year Drilled		1985	2002	
	Depth Drilled (feet)		700	706	
	Drilling Method		Rotary	Rotary	
	Length, Outside Casing (feet)		286	437	
	Diameter, Outside Casing (inches)		16	6	
	Material, Outside Casing		Steel	Steel	
	Type of Strainer		Galvanized	Unknown	
	Depth to Top of Strainer		Unknown	Unknown	
	Type of Grout		Cement	Cement	
P U M P	Depth to Static Water Level (feet)	2 0 0 3	24.5	14.5	
	Normal Suction Lift (working level-ft)		239 (Historic)	Unknown	
	Pump Type		TURBINE	SUBMERSIBLE	
	Horse Power		40	40	
M P	Normal Yield (GPM/GPD if purchased)	0 3	650	Unknown**	**Lightning strike/broken. See AOC
	Capacity(GPM / GPD if purchased)		450	400*	(*Note: Last report was marked as 350)
R O U T I N E	Protection From Surface Water		Yes	Yes	
	Is Inundation of Well Possible?		No	No	
	Well Ever Been Contaminated?		No	No	
	Check Valve Present in Line?		Yes	Yes	
	Proper Venting?		No	Yes	See AOC
	Meter Accuracy and Year of Test		5.5%/2014	1.8%/2014	
	Date of Last Servicing?		2009	2016*	*Replaced motor/hit by lightning
	Auxiliary Capability (if yes, list type)		Right angle	No	
U X	Manual or Automatic?		Manual		
	Capacity (GPM)		450		
	Florida Unique ID# (GPS well tag)		AAA7521	AAG9116	

Comments: Old Well 1 abandoned in 2003. System numbered new well on north Hwy 30A as the new Well 1. The Department labels it as Well 3.

TREATMENT

• **CHLORINATOR**

PLANT NUMBER (OR NAME)→	1	Plant 2 At Office	Plant 1 (AKA Plant 3)	Comment
Type of chlorination (if hypo list strength)	OUT OF SERVICE - REPLACED WITH PLANT 3 (aka Plant 1)	Gas	Gas	
Condition of Chlorination Equipment		Good	Good	
Capacity (PPD, GPD)		22 ppd	25 ppd	
Chlorine Feed Rate (PPD, GPD)		10 ppd	17 ppd	
Adequate Housing and Security?		Yes	Yes	Old housing
Associated Well(s) (if any)		Well 2	Well 1 (AKA Well 3)	
Auxiliary Power Capability?		No	No	
O & M Log/Manual Onsite?		Yes/No	Yes/No	
Operator Staffing Requirements Minimum Class C operator		5 visits/wk & 1 visit ea. weekend = 0.6 hr/wk	5 visits/wk & 1 visit ea. weekend = 0.6 hr/wk	
Chlorine Residual (mg/L) / pH		2.42/7.9	2.0/7.7	
G Chlorine Alarms Functional?		Yes	No (per system)	Neither tested
Auto Switchover		Yes	No	
Dual System		Yes	No	
Evidence of Leaks		No	No	
A Air-Pack Respirator Adequate?		No - uses Fire Department unit which is 2 minutes away. See AOC.		
Ammonia Smells Fresh		Yes	Yes	
Chained Cylinders		Yes	Yes	
S Fitted Wrench		Yes	Yes	
Proper Ventilation		No	No - Fan not working	Pre- 2003 installation
Scale Condition		Fair	Fair	

Spare Parts/Backups Operative? ☒ Yes ☐ No ☐ Spare Parts Not Retained More capacity needed? ☐ Yes ☒ No

Comments: System has no portable generators to run high-service pumps or chlorinators, but local electric company has agreed to provide generators when needed. See AOCs.

AERATORType of Aerator Tray at 12,000 gal and 315,000 gal tanksTray Area or Weir Length unkCondition of Screens Screens cleaned & replaced in 2012; Need attention again, however. See photos and AOC.Bloodworms unk Aerator condition Poor - needs cleaningAdequate for Fe, H2S control See AOCs**COAGULATION**Chemical used NA

Purpose _____

Blanket visible _____ Flocculation good or poor _____

Settling good? _____ Carryover _____

LIME SOFTENINGQuicklime or hydrated NA

Name of unit _____

Size and type _____

Any auxiliary chemicals used _____

Points of application (in unit) _____

Nature and abundance of flux _____

Appearance of sludge blanket _____

Is settling good? _____ Excessive carryover _____

Any filter cementation _____

Effluent stability _____

Turbidity in clearwell _____ Secondary precipitation _____

Recarbonation type _____

Sludge recirculation Used _____

FLUORIDATIONChemical Used Is Dilution NA

Strength if Acid _____ Used (acid) _____

Corrosion Noted Feeder _____

Gelling or Plugging _____

Make and Model _____

Split Sample Agreement _____

Sufficient Analysis _____

Feeder Condition _____

STABILIZATIONIs pH control Practiced? NAIs an index computed? ☐ Yes ☐ No (if so, check below below)☐ Langeller ☐ Ryznar ☐ Puckorius ☐ Larson☐ Stiff ☐ Odde ☐ Other _____

Results of index _____

Chemical(s) used _____

FILTERS & FILTRATIONType of filters NA

Size and number _____

Length of filter runs _____

Can you see filter media? _____ Clean after backwash? _____

Are mudballs visible? _____ Binding? _____

What is the normal filter rate _____

What is the usual backwash rate _____

Capacity of filters _____ Filters overloaded? _____

Loss in head gauge present? _____

At what head loss is BW done? _____

Cracks and channeling? _____ Cementation ever occurred? _____

Where in relation to filtration is stabilization done? _____

If high rate, what is turbidity at interface Range of turbidity in effluent _____

Can you observe algae in filters? _____

Distance from top of media to trough overflow _____

REVERSE OSMOSISMake and type of units NA

Pressure required _____

Auxiliary chemicals _____

Proportion of waste used to product streams _____

Quality of effluent _____ Stabilization _____

Type of Pre-treatment _____ Booster pump _____

Type of membranes _____

ZEOLITE SOFTENINGUnit mfg. & model NA

Resin capacity _____ Disinfection of beds _____

Grade of salt for regen. _____

Stability of effluent _____ Resin prevented from escaping? _____

PUMPS AND PUMP CONTROLS

PUMP CATEGORY	High Service Pumps					
PUMP NUMBER→	Booster 1	Booster 2	LUCI 1 (3)	LUCI 1 (3)	LUCI 2	LUCI 2
PUMP TYPE	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
MOTOR HP	40	40	15	15	15	15
DATE INSTALLED	2001	2001	1985	1985	1985	1985
CAPACITY (GPM)	500	500	150	150	150	150
AUXILIARY CAPACITY?	No	No	No	No	No	No
PROPER SECURITY?	Yes	Yes	Yes	Yes	Yes	Yes
CONDITION OF PUMP	Good	Good	Good	Good	Fair	Fair
MAINT. SCHEDULE	Daily	Daily	Daily	Daily	Daily	Daily
DATE LAST SERVICED	Routine	Routine	Routine	Routine	Routine	Routine

STORAGE FACILITIES:

TANK NUMBER→	**LUCI 1 (3) Tank #1	**LUCI 1 (3) Tank #2	**LUCI 2 Tank #1	LUCI 2 Tank #2	Booster Tank #1	Booster Tank #2
TYPE (GROUND, ELEVATED, HYPO)	Ground	Ground w/ aerator	Ground w/ aerator	Hydro	Ground	Hydro
YEAR OF CONSTRUCTION	1984	1984	2/27/2006	2001	2002	2002
CAPACITY (GALLONS)	12,000	12,000	316,000	5,000	209,000	10,000
MATERIAL	Aluminum	Aluminum	Steel	Steel	Steel	Steel
GRAVITY DRAIN CAPACITY/DIAMETER	Yes/2"	Yes/2"	Yes/6"		Yes/6"	
OVERFLOW STRUCTURES PROPER?	Yes	Yes	Yes	NA	Yes	NA
BYPASS CAPACITY	Yes	Yes	Yes	Yes	Yes	Yes
COVERED/SCREENED OPENINGS	Yes	Yes	No	No	No	NA
PRESSURE GAUGE	Yes	Yes	No	Yes	Yes	Yes
ON/OFF PRESSURE (PSI)	50/70	50/70	50/70	50/70	50/70	50/70
ALTITUDE VALVE UTILIZED?	No	No	No	No	Yes	No
HGT. TO BOTTOM OF EL. TANK (FT)	NA	NA	NA	NA	NA	NA
HGT. TO MAX. WTR. LEVEL (FT)	NA	NA	22'	NA	36'	NA
DATE OF LAST ANNUAL INSPECTION	Utility personnel conduct visual inspections on an ongoing basis but have not been recording - See AOCs					
YEAR OF LAST 5-YEAR INSPECTION	2014	Not inspected*	2014	2014	2014	2014
YEAR OF LAST WASHOUT	2009	Not inspected*	2009	2014	2009	2014

Does system provide fire protection? ☒ Yes ☐ No Security Adequate? ☒ Yes ☐ No Low Level Alarm? ☒ Yes ☐ No
Does current storage capacity comply with requirements in FAC 62-555? ☒ Yes ☐ No

COMMENTS: * System says tank has no opening and cannot be inspected.

** Not finished-drinking-water storage tanks.

DISTRIBUTION SYSTEM

Material of mains? PVC System looped? No How many hydrants? Unk
 Any fire hydrants < 6" lines? ☐ Yes ☒ No ☐ Unknown Max. pipe diameter 12 Min. pipe diameter 2
 General operation pressure 60 Lowest pressures 35 Location of low pressure Homestead
 Number of dead ends Unk How many without flush hydrants? Unk Flushing program? No
 Number of line valves Unk How often exercised As needed Properly Mapped? No Properly Marked? Some
 System Maps Adequate? No Any uncleared permits? Yes Any uncleared and in use? See Remarks
 Percent water loss 1.9% in 2015 Does the system have reuse? No Comments See AOCs

CROSS CONNECTION CONTROL

Cross Connection Control Program Meet Requirements? ☐ Yes ☒ No Comment: Working on new CCC Plan- See AOC
 Testing Frequency? Not done Tracking: ☒ Hard Copy ☐ CPU # of BFDs: Unk Hydrant Meters ☐ Lift Stations ☐ WWTP ☐
 Date of Last Audit (commercial or residential): 2012-Date from last report Name of Certified BFD Tester: Various

Chlorine & pH	Remote 1	Remote 2	Remote 3	Remote 4	Remote 5
Chlorine Residual	0.16-0.17	0.15	+2.2 (2.9)	0.04	0.98-1.85
pH	7.5	7.5	7.5	Not recorded	7.6-7.7
Location	Booster and Starboard St. on Cape San Blas	Hydrant on north Hwy 30-A after day-long flushing	Indian Pass Raw Bar (head of Indian Pass Rd.)	Hwy 30-A (near county line)	Indian Pass Road (Hwy 30-B) (end and midway, respectively)

COMPLIANCE MONITORING

Compliance Schedule: The following parameters are due during the year shown.

Inorganics	2017	SOCs	2017	Stage 2	3 rd Qtr. 2016	Asbestos	2020
VOCs	2017	Radiologicals	2017-2023	Secondaries	2017	Pb & Cu	2017
Nitrate/Nitrite	2017	UOCs	susp				

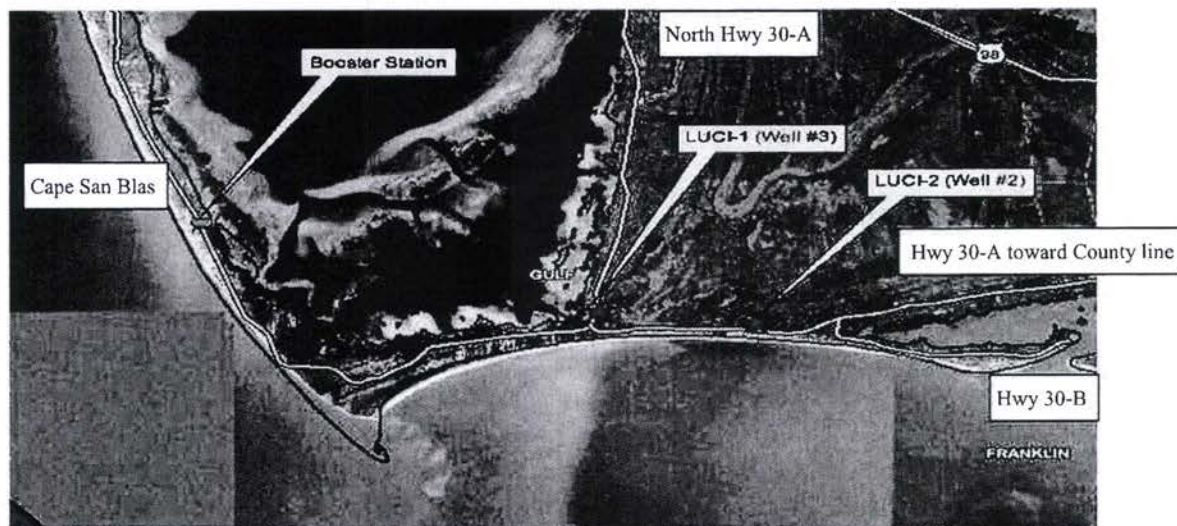
System out of compliance with any of the above parameters? No

Testing Equipment & Reagents ☒ Adequate ☐ Inadequate Comment: _____
 Bacteriological Sampling Plan: ☒ Adequate ☐ Inadequate Comment: Updated, Approved by David Hines
 Disinfection Byproducts Plan: ☒ Adequate ☐ Inadequate Comment: _____

MANAGERIAL/FINANCIAL

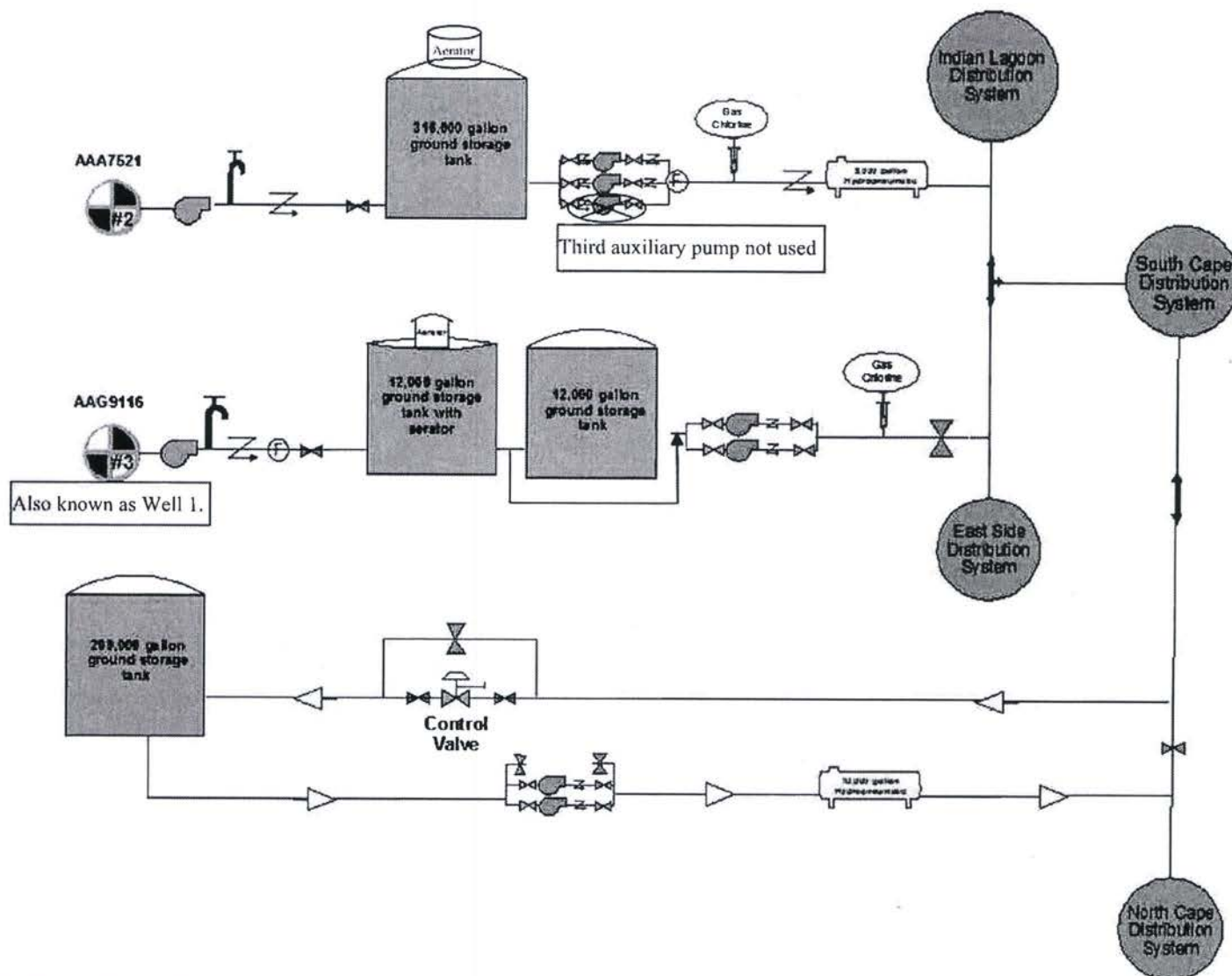
How is the system structured? ☒ Investor ☐ Municipal ☒ Private ☐ Cooperative ☐ Other Does the system follow a budget? ☒ Yes ☐ No
 Preventative Maintenance Program in place? ☐ Yes ☒ No See Remarks Is adequate training provided to water system personnel? ☒ Yes ☐ No
 Comment: _____

AERIAL MAP

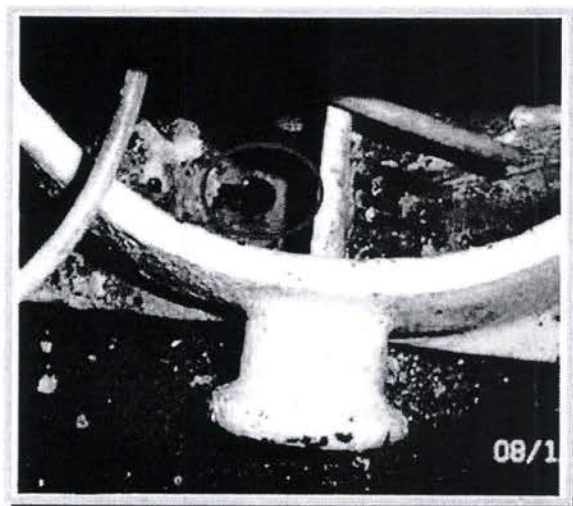


Well 2 is at the office on the east/west part of Hwy. 30-A. Well 3 (aka Well 1) is on the north/south part of Hwy 30-A.

SYSTEM FLOW DIAGRAM

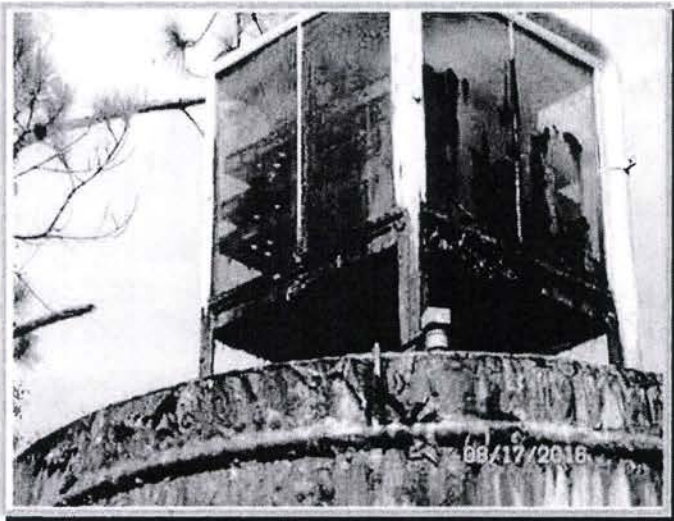


DIGITAL IMAGES

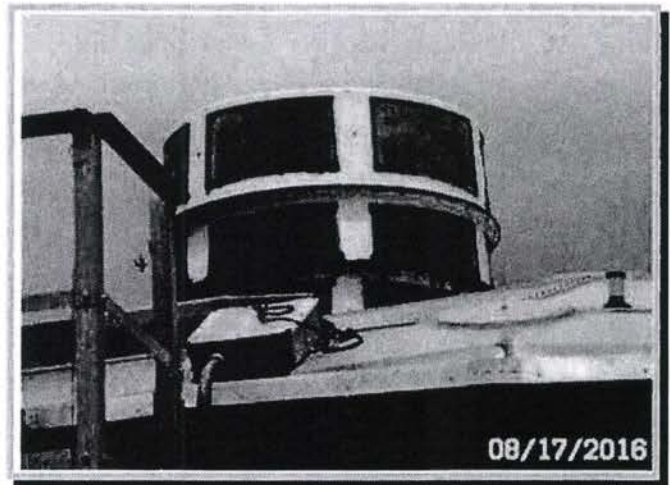


Well 2 at office. Improper well casing vent.

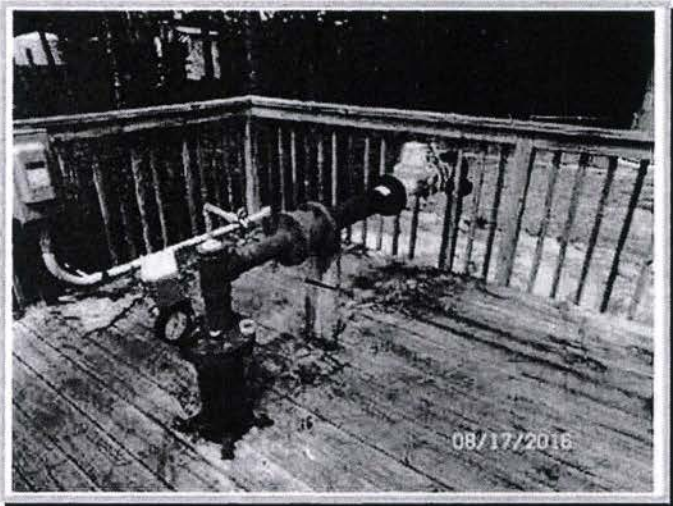
DIGITAL IMAGES (cont'd)



Aerator at Tank 2 at Well 1 (aka 3) -
12,000 gal tank



Aerator at Tank 1 Well 2 -
316,000 gal tank.



Well 1 (aka Well 3)



Well 2 at the office

DIGITAL IMAGES (cont'd)

SUMMARY

The **INTERIOR** of the tank appears to be in Good condition overall. Recommendations include:

- Each of the six cathodic anodes appears close to depletion. They should all be replaced to maintain the interior condition of the reservoir.
- Due to the location, the corrosion on the bottom of the overflow penetration should be monitored for pitting and / or leaking.

The tank **EXTERIOR** appears to be in Good condition. Recommendations follow:

- Installation of a Vent Security Shroud is recommended. See "Security" section above for details.
- A proper screen and gasket should be installed on the exterior portion of the overflow to eliminate it as a point of ingress for insects, birds or other contaminants.
- In accordance with AWWA standards, the hatch lip height should be increased to at least 4" and the overlap to a minimum of 2".

At a minimum, the utility should continue to clean and inspect this tank every three years. Preventive maintenance of this nature will ensure that the identified discrepancies in this tank are closely monitored and will provide a record of care in the future.

Summary from 5- year report of Booster station 209,000 tank.

SUMMARY

The **INTERIOR** of the tank appears to be in Good condition overall. Recommendations include:

- The delaminated hardware at the roof to wall seam should be closely reviewed during upcoming inspections. If further delamination occurs, the hardware should be replaced.
- The algae at the aeration unit should be removed, and the accumulated sediment on the floor should be cleared to allow for a full evaluation of the slabs.
- If the utility plans to use the floating water level indicator, the center cable must be reattached.

The tank **EXTERIOR** appears to be in Good condition. Recommendations follow:

- Installation of a Vent Security Shroud is recommended. See "Security" section above for details.
- A proper screen and gasket should be installed on the exterior portion of the overflow to eliminate it as a point of ingress for insects, birds or other contaminants.

At a minimum, the utility should continue to clean and inspect this tank every three years. Preventive maintenance of this nature will ensure that the identified discrepancies in this tank are closely monitored and will provide a record of care in the future.

Summary from 5- year report of 316,000 gallon tank at Well 2.

SUMMARY

The overall **INTERIOR** condition of Aluminum #1 is rated as Fair. In addition to continued monitoring the following recommendations should be considered:

- The accumulated sediment should be removed to allow for a full evaluation of the floor areas.
- The isolated areas of incomplete fusion reported at the roof to wall weld should be frequently monitored for any signs of pitting or leaking.

The overall **EXTERIOR** condition of the Hill Tank also is rated as Good. Recommendations follow:

- To prevent the entry of amphibians, insects and other contaminants from entering the tank, the air gap in the hatch which acts as a vent should be properly screened.
- In accordance with AWWA recommendations, the hatch lip should be increased to a minimum of 4" and the hatch lid overlap should be increased to at least 2".
- The missing anchor bolts should be replaced.
- In an effort to improve aesthetics and extend the life of the exterior, the tank should be power-washed.

Summary from 5- year report of 12,000-gallon tank without aerator at Well 1 (AKA 3).

AREAS OF CONCERN (AOC)

1. Operation and Maintenance (O & M) log at the treatment plant(s) not in compliance with rules and certified operator not checking plants. Trainees are being allowed to perform plant checks without the certified operator present. *FAC 62-699.311 and 62-699.310(2)*

Recommended Action: Plant checks must be performed by licensed operator on-site at each water treatment plant to fulfill the time and visit requirements. For each of the two plants: 5 visits per week and 1 visit on the weekend for a total of 0.6 hr/wk per plant. Time in and out must be recorded in Plant O & M log and entries must be signed by the certified operator in charge.

Expected Time for Correction: Immediately.

2. Chlorine residual too low within the distribution system. Even with flushing from 7:30 am the morning of the inspection until 5pm, chlorine was too low at north Hwy 30-A hydrant. Chlorine was too low on Cape San Blas at two sites. Chlorine was too low near end of system on Hwy 30-A east toward county line. See page 6 of the report for sites and residuals. A Precautionary Boil Water Notice was issued to customers in the affected areas and was lifted the next day when the required minimum chlorine residuals were reached. The system indicated that the lack of chlorine is a common occurrence, especially in warmer months, and believes high hydrogen sulfide is partially to blame. *FAC 62-555.350 (6)*

Recommended Action: Maintain a minimum free chlorine residual of 0.2 milligram per liter throughout the water distribution system at all times. Provide an engineering analysis to determine the best way forward to control hydrogen sulfide and maintain adequate chlorine residuals throughout the year at all sites within distribution.

Expected Time for Correction: For maintaining adequate chlorine residuals: Immediately. For the requested engineering analysis: have the analysis complete by December 31, 2016.

3. Inadequate chlorine residual distribution sampling. System only sampling distribution once per week. *FAC 62-555.320 (12), 62-555.350(6), and 62-555.518(4)*

Recommended Action: Monitor and record the residual disinfectant concentration in the distribution system, taking at least one grab sample each day water is served to the public or at least five days per week, whichever is less, at a point in the water distribution system reflecting maximum residence time after disinfectant addition. Measure the residual disinfectant concentration and record the values obtained in the logs and reports. Any authorized representative may perform the residual disinfectant measurements (licensed operator not required), but must follow the appropriate procedures listed in the Department of Environmental Protection Standard Operating Procedures for Field Activities, DEP-SOP-001/01, as incorporated into Rule 62-160.800, F.A.C.; other measurements shall be performed using an appropriate method referenced in subsection 62-550.550(1), F.A.C.

Expected Time for Correction: Immediately.

AREAS OF CONCERN (AOC) (cont'd)

4. Dead-end flushing events not recorded / No written flushing plan on file. The system has been flushing the distribution lines on an as-needed basis, but not recording the events. *FAC 62-555.350(2)*

Recommended Action: Dead-end water mains conveying finished drinking water (that are 6-inches or larger in diameter) shall be flushed quarterly or in accordance with a written flushing program established by the supplier of water; additionally, dead-end or other water mains conveying finished water shall be flushed as necessary whenever legitimate water quality complaints are received.

Please write a brief description of the flushing plan and develop a method to record the events. This plan should be followed and modified as needed to maintain water quality.

Expected Time for Correction: Develop a written plan and implement by October 31, 2016. This will be reviewed at your next inspection.

5. Valves not exercised in accordance with written plan. The system has not been exercising valves as required and no plan is written. While system personnel know where many valves are located, it is not documented on a plan as required and no map of the valves is available. *FAC 62-555.350 (2) and (12)(c)*

Recommended Action: The rule states that the valves should be exercised in accordance with manufacturer's recommendations or in accordance with a written plan. A valve maintenance program must be implemented per *FAC 62-555.350(2)* so mains can be repaired expediently. An adequate valve maintenance program should include the following:

- valve locating (physically locating the valves);
- valve marking (once the valve is located, providing reliable physical markers for future reference);
- valve exercising (opening and closing the valve to ensure and maintain valve integrity);
- valve plotting (plotting the valves on a map to serve as a geographical record); and
- logging the event (keeping a record of the event so that the valve can be revisited within the appropriate time-frames).

Expected Time for Correction: A system must exercise their valves in accordance with a written plan that is maintainable and reasonable but addresses the objective. With your response to this report, please provide a date by which the valve maintenance program can be thoroughly reviewed, revised and implemented, with a written plan/schedule for completion of the valve location and for exercising the valves in the entire system. The plan/schedule should also take into account the availability of your staff for proper adherence to this program. Additional personnel may be needed to accomplish this task and maintain the commitment.

6. Inadequate Distribution Maps – Current maps only show line sizes and locations. Even the sizes of some sites are in question, as was made evident by the line break that occurred during the Survey. *FAC 62-555.350 (14)*

Recommended Action: Develop an up-to-date map of the distribution system, showing location and size of water mains; location of valves & fire hydrants; and location of any pressure zone boundaries, pumping facilities, storage tanks, and interconnections with other public water systems.

Expected Time for Correction: Complete the updated map no later than December 31, 2017.

AREAS OF CONCERN (AOC) (cont'd)

7. No Cross-Connection Control (CCC) Plan on File and Annual Testing of Devices Not Up-to-date. *FAC 62-555.360 & .330*

Recommended Action: During the inspection, a newly revised CCC plan was on hand but had not been approved or implemented by the system. The new plan must be fully developed and implemented. Please note that Rule 62-555.360 has been updated to include residential properties with auxiliary water systems on site. The new plan must address residential customers with auxiliary water systems on site as well as annual testing of devices/assemblies on commercial accounts.

Expected Time for Correction: Implement and update the plan by December 31, 2016. The testing of the annual devices shall be completed by March 31, 2017. Residential customers will be addressed as approved in plan.

8. Improper casing vent at Well 2 (Office). *FAC 62-555.320 (8)(c)*

Recommended Action: Provide a proper casing vent that is at least 12 inches above well pad in a downturned position above the top of the casing and covered by a 24 mesh, corrosion resistant screen to prevent suction of insects, rodents, or debris.

Expected Time for Correction: Have this completed by October 31, 2016.

9. Flow meter has not been installed at Well 1 (aka Well 3). The well was struck by lightning and the flow meter does not work properly. *FAC 62-555.320 (16)*

Recommended Action: Install a new flow meter at the well.

Expected Time for Correction: Have this completed by October 31, 2016.

10. No Air-Pack Respirator for Chlorine Rooms. *FAC 62-555.350 (13)(a)(10)*

Recommended action: At each treatment plant with gas chlorination facilities, the supplier of water shall provide in a convenient location, but not inside any room where chlorine is stored or handled, a self-contained breathing apparatus (SCBA) meeting the requirements of the National Institute for Occupational Safety and Health. However, for water systems that have multiple interconnected plants withdrawing chlorine from only 150-pound or smaller cylinders, the supplier of water may provide an SCBA in each vehicle used by plant operators instead of providing an SCBA at each plant withdrawing chlorine from only 150-pound or smaller cylinders.

Expected Time for Correction: By October 31, 2016, provide a self-contained breathing apparatus for each plant or one for the vehicle used by plant operators(s) as described by rule.

AREAS OF CONCERN (AOC) (cont'd)

11. No operation and maintenance manual at the water treatment plants. FAC 62-555.350 (13)

Recommended Action: Suppliers of water shall provide an operation and maintenance manual for each of their drinking water treatment plants, and shall update the manual thereafter as necessary to reflect plant alterations and additions. The manual shall contain operation and control procedures, and preventive maintenance and repair procedures, for all plant equipment and shall be made available for reference at the plant or at a convenient location near the plant. Bound and indexed equipment manufacturer manuals shall be considered sufficient to meet the requirements of this subsection.

Expected Time for Correction: By no later than December 31, 2016, provide operation and maintenance manuals for each plant. The manuals may be maintained at the office instead of the plants to provide better care of the documents.

12. Total maximum day finished water exceeded 75% of the total permitted capacity in July 2015, August 2015 and July 2016. FAC 62-555.348

Recommended Action: Investigate the cause of the exceedance of the plant's permitted design capacity and provide a written response. If the data can not be explained as outlying data, you will need to have a Florida-registered engineer complete a capacity analysis report and follow the requirement of FAC 62-555.348 (See information below).

Per paragraph 62-555.348(3)(a), Florida Administrative Code (F.A.C.), for community water systems with 3,300 or greater population, an initial capacity analysis report must be submitted to the Department (FDEP) within six months after the month in which the total maximum-day quantity of finished water produced by a public water system's (PWS's) treatment plant(s) first exceeds 75 percent of the total permitted maximum-day operating capacity of the plant(s). The report must be prepared by a Professional Engineer (PE) registered in the State of Florida.

Per paragraph 62-555.348(3)(b), F.A.C., updated capacity analysis reports must be submitted as follows: If the Initial or Latest Updated Capacity Analysis Report Indicates...	Due Date for Next Updated Capacity Analysis Report
total maximum-day demand <u>at build-out</u> will be \leq current total permitted maximum-day operating capacity of treatment plant(s) & total finished-water storage need <u>at build-out</u> will be \leq existing total useful finished-water storage capacity	no additional capacity analysis report is required
total maximum-day demand will be \leq current total permitted maximum-day operating capacity of treatment plant(s) for ≥ 10 years & total finished-water storage need will be \leq existing total useful finished-water storage capacity for ≥ 10 years	5 years after submittal of previous capacity analysis report
total maximum-day demand will be $>$ current total permitted maximum-day operating capacity of treatment plant(s) in < 10 years but ≥ 5 years or total finished-water storage need will be $>$ existing total useful finished-water storage capacity in < 10 years but ≥ 5 years	2 years after submittal of previous capacity analysis report
total maximum-day demand will be $>$ current total permitted maximum-day operating capacity of treatment plant(s) in < 5 years or total finished-water storage need will be $>$ existing total useful finished-water storage capacity in < 5 years	1 year after submittal of previous capacity analysis report

Expected Time for Correction: Provide a written explanation of the three high instances mentioned above by October 31, 2016. If the dates were true exceedances, provide a capacity analysis report by a Florida-registered engineer within 6 months of the July 2016 date.

13. Finished Water Storage Tank at Booster Station Due For 5 year washout. 5-year tank inspection report issues not addressed. FAC 62-555.350 (2)

Recommended Action: Note: Tank 1 at Well 2 (316,000 gal), Tank 1 (12,000 gal without aerator) and Tank 2 (12,000 gal with aerator) at Well 1 (aka Well 3) are not finished water storage tanks. Tank 2 at Well 2 (hydro), and both tanks at the Booster Station on the Cape are finished water storage tanks.

Finished-drinking-water storage tanks shall be checked at least annually to ensure that hatches are closed and screens are in place. Tank 2 at Well 2 (hydro), and both tanks at the Booster station must be inspected annually to ensure all screens are intact and hatches locked. The inspections should be documented in writing with the person conducting inspection, date of inspection and pictures of locked hatches and intact screens.

All finished water tanks have received their 5-year inspections as required. However, the inspection report for Booster Station 209,000 gal tank had comments that needed to be addressed. Please address within 30 days.

Expected Time for Correction: By March 31, 2017, provide documentation that ensures the Booster Station 209,000 gal tank has been washed out. By October 31, 2016, address issues remaining on the 5-year inspection reports.

14. Annual washout of accumulated sludge and biogrowth needed at treatment tanks. Tank 1 at Well 2 (316,000 gal), Tank 1 (12,000 gal without aerator) and Tank 2 (12,000 gal with aerator) at Well 1 (aka 3) have not been washed out annually. Further, the system indicated that Tank 2 at Well 1 has never been inspected or cleaned out, due to lack of access to the interior. FAC 62-555.350 (2)

Recommended Action: Routinely clean (i.e., at least annually) accumulated sludge and biogrowths from all treatment facilities that are in contact with raw, partially treated, or finished drinking water and that are not specifically designed to collect sludge or support a biogrowth. Additionally, address the accumulation on the aerators (see photos). The Department strongly recommends that the system investigate ways to gain access to Tank 2 at Well 1 for cleaning.

Expected Time for Correction: By March 31, 2017, provide documentation that these tanks have been washed out. If this is not possible, have them done as soon as possible and give the Department the timelines for compliance.

15. Inadequate finished water storage capacity. The total useful finished-water storage capacity (excluding any storage capacity for fire protection) connected to a water system shall at least equal 25 percent of the system's maximum-day water demand, excluding any design fire-flow demand. The maximum day is 1,059,200 gallons; 25% of which is 264,800. The current total useful finished-water storage capacity is approximately 224,000 gallons (i.e. Tank 2 at Well 2 (hydro), and both tanks at the Booster Station). FAC 62-555.320 (19) ✓

Recommended Action: A total useful finished-water storage capacity less than that specified above is acceptable if the supplier of water or construction permit applicant makes one of the following demonstrations:

1. A demonstration consistent with Section 10.6.3 in *Water Distribution Systems Handbook* as incorporated into Rule 62-555.330, F.A.C., showing that the water system's total useful finished-water storage capacity (excluding any storage capacity for fire protection) is sufficient for operational equalization.
2. A demonstration showing that, in conjunction with the capacity of the water system's source, treatment, and finished-water pumping facilities, the water system's total useful finished-water storage capacity (excluding any storage capacity for fire protection) is sufficient to meet the water system's peak-hour water demand for at least four consecutive hours. Provide adequate finished water storage capacity or a demonstration as described by rule.

Expected Time for Correction: By December 31, 2016, provide a demonstration or provide plans to meet capacity.

AREAS OF CONCERN (AOC) (cont'd)

16. No written emergency preparedness/response plan. FAC 62-555.350 (15)

Recommended Action: Suppliers of water who own or operate a community water system serving, or designed to serve, 350 or more persons or 150 or more service connections shall develop a written emergency preparedness/response plan in accordance with *Emergency Planning for Water Utilities*, AWWA Manual M19, as adopted in Rule 62-555.335, F.A.C., and shall update and implement the plan as necessary thereafter. Said suppliers of water shall coordinate with their Local Emergency Planning Committee and their Florida Department of Law Enforcement Regional Security Task Force when developing their emergency plan and shall include in their plan all of the information specified in 62-555.350 (15).

Expected Time for Correction: Find the plan if one exists and update it accordingly. If none exists, develop one by November 30, 2016.

17. Inadequate standby power for high service pumps or chlorinators. The system states that the local electric company will provide generators, if needed, but no written agreement exists granting the system first priority. FAC 62-555.320(14)

Recommended Action: Each community water system (CWS) serving 350 or more persons or 150 or more service connections shall provide standby power for operation of that portion of the system's water source, treatment, and pumping facilities necessary to deliver drinking water meeting all applicable primary or secondary standards at a rate at least equal to the average daily water demand for the system. From FAC Rule 62-555.320(14):

A portable auxiliary power source may be provided only if all of the following conditions are met:

- 1. A system to automatically start up the auxiliary power source and transfer electrical loads is not required under paragraph (e) below.*
 - 2. The supplier of water demonstrates that the water system has first priority for use of the portable auxiliary power source.*
 - 3. The supplier of water demonstrates that the portable auxiliary power source will at all times be in reasonably close proximity to (i.e., within 25 miles of) the water system components for which standby power is required.*
- (e) Where standby power is required and the time delay required to manually transfer electrical loads from one power source to another could result in failure to maintain the minimum water distribution system pressure required under subsection 62-555.350(7), the supplier of water shall provide a system to automatically start up the auxiliary power source if an auxiliary power source is provided and to automatically transfer electrical loads.*

The system must demonstrate that they have first priority for the generators promised by the local provider.

Expected Time for Correction: Please demonstrate the above in writing by October 31, 2016.

To see any of the above referenced rules, visit <http://www.dep.state.fl.us/legal/Rules/rulelistpro.htm#dw>

REMARKS AND RECOMMENDATIONS

Additional Issues to be Addressed:

1. System says stand-by right angle drive at Well 2 is run monthly, but events are not recorded. Begin documenting events.
2. Fan at gas chlorine room at Well 1 (aka 3) must be repaired or replaced with a working fan.
3. Ground Tank at Booster Station needs locking ladder and screen on overflow pipe.
4. Repair chlorine alarm at Plant 1 (aka 3).

Outstanding Permits as of July 22, 2016 - Response Requested

Our records indicate that the following permits have not been cleared by this office. Please submit a Project Status report for the permits listed with your response to this report. The 'Project Status' would fall into one of the following categories, A, B, C, D, or E:

- | | |
|------------------------------|------------------------------------------|
| A. not started | D. complete, and in use |
| B. started, but not complete | E. project abandoned (will not be built) |
| C. complete, but not in use | |

PERMIT NO.	PROJECT NAME	DATE RECEIVED	DATE ISSUED	STATUS
0080041-017-DS/C	LUCI II Emergency Ground Storage Tank Fill	Jan 16, 2009	February 11, 2009	*
0318119-001-WC/M1	LUCI Chlorine to Hypochlorite	April 15, 2013	June 3, 2013 (?)	
0332604-001-DS/C	FDOT - SR 30E from SR 30A to St. Joe Bay Buffer Preserve	February 16, 2015	February 18, 2015	

*PREVIOUS STATUS= Constructed but not yet cleared - not in use per email 8/1/11. Please update.

Well Head Protection Plan

For most water systems, the original Well Head Protection Plans were developed with the aid of Florida Rural Water Association (FRWA) some years ago. The Plan could not be located at the time of this visit. The Plan must be located and reviewed and updated to reflect any changes in the system. FRWA may be contacted for assistance in updating this plan (www.frwa.net). The Plan will be reviewed at the next inspection.

Preventative Maintenance Program

Improper maintenance can lead to system failures and sanitary deficiencies. A written PM should be established and followed for each piece of equipment in the pumping facility. The programs should be based on manufacturers' recommended maintenance tasks, and records should be kept of maintenance as it is performed. In general, smaller water systems need much less sophisticated PM programs; however, all water systems should have a written program in place, even if it is very basic.

Critical components of a PM program include:

- | | |
|---------------------------------------|-------------------------------|
| • Equipment Inventory | • List of Technical Resources |
| • Manufacturers' Technical Literature | • Tools |
| • Written PM Tasks and Schedule | • Spare Parts Inventory |
| • Records of Maintenance Performed | |

The Department recommends that a PM program be established and implemented to prevent system failures and sanitary deficiencies.

REMARKS AND RECOMMENDATIONS (CONTINUED)

Flow Meters

Paperwork indicated that the last accuracy checks were performed on both plants' flow meters in 2014 by FRWA. The meter at Well 2 read at 5.5% accuracy. If the accuracy is greater than 5%, the meters must be repaired or replaced or verified with another source. Also, flow meter checks should be conducted every three years. Please have the meter at Well 2 repaired or replaced or verified with another source.

Gas Chlorination Rooms

The 2003 rule revisions have not been implemented in the designs for the existing chlorine rooms as they pertain to chlorine safety. Consideration should be given to modernizing these facilities. The following design elements from Recommended Standards For Water Works (RSWW), Part 5, should be included in any future modification of the chlorine rooms to provide the best level of safety and to comply with the updated rule:

Where chlorine gas is used, the room shall be constructed to provide the following:

- a. Each room shall have a ventilating fan with a capacity which provides one complete air change per minute when the room is occupied,
- b. The ventilating fan shall take suction near the floor as far as practical from the door and air inlet, with the point of discharge so located as not to contaminate air inlets to any rooms or structures,
- c. Air inlets should be through louvers near the ceiling,
- d. Louvers for chlorine room air intake and exhaust shall facilitate airtight closure,
- e. Separate switches for the fan and lights shall be located outside of the chlorine room and at the inspection window. Outside switches shall be protected from vandalism. A signal light indicating fan operation shall be provided at each entrance when the fan can be controlled from more than one point,
- f. Vents from feeders and storage shall discharge to the outside atmosphere, above grade,
- g. The room location should be on the prevailing downwind side of the building away from entrances, windows, louvers, walkways, etc.,
- h. Floor drains are discouraged. Where provided, the floor drains shall discharge to the outside of the building and shall not be connected to the other internal or external drainage systems.
- i. Where deemed necessary, provision shall be made to chemically neutralize chlorine gas before discharge from the water treatment plant building into the environment. Such equipment shall be designed as part of the chlorine gas storage and feed areas to automatically engage in the event of any measured chlorine release. The equipment shall be sized to treat the entire contents of the largest storage container on site.
- j. Chlorinator rooms should be heated to 60F, and be protected from excessive heat. Cylinders and gas lines should be protected from temperatures above that of the feed equipment.
- k. Pressurized chlorine feed lines shall not carry chlorine gas beyond the chlorine room.

When upgrades are made to the rooms, they must follow the design indicated above.

Oculus System For Public Access To FDEP Records

The NW District is going paperless with the new OCULUS electronic document management system. OCULUS may be accessed by the public at: <http://wrmedms.dep.state.fl.us/Oculus/>. All documents (including sampling results, permitting, enforcement, etc.) will eventually be accessible through this site. Until document conversion is complete, older documents may still be obtained in hard copy. For questions on OCULUS, please contact Ms. Toni Touart at (850)595-0658 or toni.touart-rohlke@dep.state.fl.us, or Ms. Rebecca Wilson at (850)595-0668 or rebecca.a.wilson@dep.state.fl.us.

REMARKS AND RECOMMENDATIONS (CONTINUED)

StormTracker Website

The Storm Tracker website is operational for online reporting of post-storm drinking water (and wastewater) system status. It is important to visit/update this site whenever the status of your facility has changed, or if you have other information that needs to be updated (before, during, or after a storm). Our state staff and emergency operators will be using this data to better assist you during storms and recovery. To enter the status and other important information regarding your system, or for more information now, please go to the following site:

<http://waterwebprod.dep.state.fl.us/stormtracker/login.asp>

Username: **florida**

Password: **storm**

Should your facility ever require immediate assistance to ensure public health & safety, please contact your County Emergency Operation Center (EOC) (info at http://www.floridadisaster.org/County_EM/county_list.htm) or the State Watch Office (formerly State Warning Point) at (800) 320-0519. StormTracker entry does not replace required Watch Office reporting; any normally-reportable emergencies, storm-related or not, still need to go through the Watch Office.

- End of Report -

INSPECTOR'S SIGNATURE

Elizabeth Willard

DATE: September 9, 2016

REVIEWED BY

Darrel Hines

DATE: September 23, 2016

**COMPOSITE
EXHIBIT G**

Illustration - Planned State Revolving Fund (SRF) Financing

Lighthouse Utilities Company, Inc.
 Water Limited Proceeding
 Schedule of Present and Proposed Rates

Exhibit G

Water

Line No.	Account Description and Service Type	(a) Present Rates	(b) Proposed Phase I rates	(c) Proposed Phase II rates
1	Residential, General Service and Multi-Family			
2	5/8" X 3/4"	14.72	15.52	24.40
3	1"	22.09	23.29	36.61
4	1 1/2"	36.82	38.82	61.03
5	2"	73.62	77.62	122.02
6	3"	117.80	124.21	195.25
7	4"	235.60	248.41	390.49
8	6"	368.12	388.14	610.14
9	8"	1,325.24	1,397.31	2,196.51
10	10"	2,135.10	2,251.21	3,538.80
11	Residential, General Service and Multi-Family Gallonage Charge			
12	Every 1,000 gallons	3.60	3.80	5.97

percent increase from previous rate

5%

57%

Illustration - Alternative Private Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Present and Proposed Rates

Exhibit G

Water

Line No.	Account Description and Service Type	(a) Present Rates	(b) Proposed Phase I rates	(c) Proposed Phase II rates
1	Residential, General Service and Multi-Family			
2	5/8" X 3/4"	14.72	16.18	32.17
3	1"	22.09	24.28	48.27
4	1 1/2"	36.82	40.47	80.46
5	2"	73.62	80.91	160.88
6	3"	117.80	129.47	257.43
7	4"	235.60	258.93	514.85
8	6"	368.12	404.58	804.44
9	8"	1,325.24	1,456.49	2,896.02
10	10"	2,135.10	2,346.55	4,665.79
11	Residential, General Service and Multi-Family Gallonage Charge			
12	Every 1,000 gallons	3.60	3.96	7.87

percent increase from previous rate

10%

99%

COMPOSITE
EXHIBIT H

Illustration - Planned State Revolving Fund (SRF) Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Rate Base Increase Components, Rate of Return, and Revenue Requirement

Exhibit H
Schedule 1

Water

Line No.	Increase in Rate Base and Rate of Return-Phase I	(a) Cost	Reference
1	Utility Plant in Service	570,786	Exhibit J (1/5)
2	Retirements	-	Exhibit J (1/5)
3	Accumulated Depreciation	(19,026)	Exhibit J (1/5)
4	Contributions in Aid of Construction	-	Exhibit J (1/5)
5	Accumulated Amortization of CIAC	-	Exhibit J (1/5)
6	Cash Working Capital	-	Exhibit J (1/5)
7	Total Increase in Rate Base	551,760	Lines 1 through 6
8	Weighted Cost of Capital	2.13%	Exhibit J (4/5)
9	Return Required	11,749	Line 7 * line 8
10	Increase in Depreciation Expense Due to UPIS Increase	19,026	Exhibit J (2/5)
11	Decrease in Depreciation Expense Due to Retirements	-	Exhibit J (2/5)
12	Increase in CIAC Amortization	-	Exhibit J (2/5)
13	Increase in Rate Case Expense	-	Exhibit J (2/5)
14	Increase in Rent Expense	-	Exhibit J (2/5)
15	Increase in Maintenance Expense	-	Exhibit J (2/5)
16	Increase in Salaries Expense	-	Exhibit J (2/5)
17	Increase in Taxes Other Than Income Taxes	8,174	Exhibit H, Sch 3 (6/6)
18	Total Increase in Operating Expenses	27,200	Lines 10 through 17
19	Total Revenue Increase before RAF	38,949	Line 9 + line 18
20	Multiply by RAF (4.5%)	1,753	
21	Total Revenue Increase Requested - Phase I	40,702	Line 19 + line 20
22	Increase in Rate Base and Rate of Return-Phase II		
23	Utility Plant in Service	6,797,528	Exhibit J (1/5)
24	Retirements	(599,877)	Exhibit J (1/5)
25	Accumulated Depreciation	(228,356)	Exhibit J (1/5)
26	Contributions in Aid of Construction	-	Exhibit J (1/5)
27	Accumulated Amortization of CIAC	-	Exhibit J (1/5)
28	Cash Working Capital	1,305	Exhibit J (1/5)
29	Total Increase in Rate Base	5,970,600	Lines 1 through 6
30	Weighted Cost of Capital	2.13%	Exhibit J (4/5)
31	Return Required	127,139	Line 7 * line 8
32	Increase in Depreciation Expense Due to UPIS Increase	228,356	Exhibit J (2/5)
33	Decrease in Depreciation Expense Due to Retirements	(20,383)	Exhibit J (2/5)
34	Increase in CIAC Amortization	-	Exhibit J (2/5)
35	Increase in Rate Case Expense	10,438	Exhibit J (2/5)
36	Increase in Rent Expense	-	Exhibit J (2/5)
37	Increase in Maintenance Expense	-	Exhibit J (2/5)
38	Increase in Salaries Expense	-	Exhibit J (2/5)
39	Increase in Taxes Other Than Income Taxes	86,359	Exhibit H, Sch 3 (6/6)
40	Total Increase in Operating Expenses	304,770	Lines 32 through 39
41	Total Revenue Increase before RAF	431,909	Line 31 + line 40
42	Multiply by RAF (4.5%)	19,436	
43	Total Revenue Increase Requested - Phase II	451,344	Line 41 + line 42

Illustration - Planned State Revolving Fund (SRF) Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Historic and Annualized Revenue

Exhibit H
Schedule 2

Water

Line No.	Account Description and Service Type	(a) No. of Bills/ Gallons	(b) Current Rates	(c) Annualized Revenues
1	Residential, General Service and Multi-Family - current rates			
2	5/8" X 3/4"	22,184	14.72	326,548
3	1"	120	22.09	2,651
4	1 1/2"	72	36.82	2,651
5	2"	36	73.62	2,650
6	3"	-	117.80	-
7	4"	12	235.60	2,827
8	6"	-	368.12	-
9	8"	-	1,325.24	-
10	10"	-	2,135.10	-
11	Residential, General Service and Multi-Family Gallonage Charge			
12	Every 1,000 gallons	114,194	3.60	411,099
13	Total Historic Revenue, 12/31/2017			748,427
14	Residential, General Service and Multi-Family - Phase I			
15	5/8" X 3/4"	22,184	15.52	344,307
16	1"	120	23.29	2,795
17	1 1/2"	72	38.82	2,795
18	2"	36	77.62	2,794
19	3"	-	124.21	-
20	4"	12	248.41	2,981
21	6"	-	388.14	-
22	8"	-	1,397.31	-
23	10"	-	2,251.21	-
24	Residential, General Service and Multi-Family Gallonage Charge			
25	Every 1,000 gallons	114,194	3.80	433,456
26	Total Annualized Revenue-Phase I			789,129
27	Residential, General Service and Multi-Family - Phase II			
28	5/8" X 3/4"	22,184	24.40	541,235
29	1"	120	36.61	4,394
30	1 1/2"	72	61.03	4,394
31	2"	36	122.02	4,393
32	3"	-	195.25	-
33	4"	12	390.49	4,686
34	6"	-	610.14	-
35	8"	-	2,196.51	-
36	10"	-	3,538.80	-
37	Residential, General Service and Multi-Family Gallonage Charge			
38	Every 1,000 gallons	114,194	5.97	681,372
39	Total Annualized Revenue-Phase II			1,240,473

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Calculation of Percentage Rate Increase and Increase to the Gallonage Charges

Exhibit H
Schedule 3
Page 1 of 6

Water

<u>Line No.</u>		<u>Reference</u>
1	Calculation of Increase Percentage - Phase I	
2	Total Proposed Phase I Increase	40,702 Exhibit J (2/5)
3	Historic Revenue, 12/31/2017	748,427 Exhibit H, Sch 2
4	Percentage Increase in Rates-Phase I	5% line 2 divided by line 3
5	Calculation of Increase Percentage - Phase II	
6	Total Proposed Phase II Increase	451,344 Exhibit J (2/5)
7	Annualized Revenue, post Phase I	789,129 Exhibit H, Sch 2
8	Percentage Increase in Rates-Phase II	57% line 2 divided by line 3

Illustration - Planned State Revolving Fund (SRF) Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Plant Increases

Exhibit H
Schedule 3
Page 2 of 6

Water

Line No.	NARUC A/C	Description	(a) Date in Service	(b) Costs	Project
1		Phase I UPIS	12/31/2019	570,786	Phase I
2		Phase II UPIS	12/31/2023	<u>6,857,528</u>	Phase II
3		Total		<u><u>7,428,314</u></u>	

Illustration - Planned State Revolving Fund (SRF) Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Retirements by Primary Plant Account

Exhibit H
Schedule 3
Page 3 of 6

Water

Line No.	NARUC A/C	Description	(a)	(b)	(c)
			Retirement	Depreciation Rate	Depreciation Expense
1		304 Structures/Improvements	(386,596)	3.03%	(11,715)
2		309 Supply Mains	(84,091)	2.86%	(2,403)
3		311 Pumping Equipment	(86,540)	5.00%	(4,327)
4		320 Water Treatment Equip	(42,650)	4.55%	(1,939)
5		Total Phase II Retirements	(599,877)		(20,383)

Illustration - Planned State Revolving Fund (SRF) Financing

Lighthouse Utilities Company, Inc.
 Water Limited Proceeding
 Schedule of Depreciation Expense & Accumulated Depreciation

Exhibit H
 Schedule 3
 Page 4 of 6

Water

Line No.	NA Description	Phase	UPIS	Depreciation Rate	Annual Expense	First Half Year Accumulated Depreciation
1	UPIS	Phase I	570,786	3.33%	19,026	(9,513)
2						
3	UPIS	Phase II	6,857,528	3.33%	228,356	(114,178)
4						
5	Total		<u>7,428,314 *</u>		<u>247,382</u>	<u>(123,691)</u>
6		Phase I		Annualized		(19,026)
7		Phase II		Annualized		(228,356)
8						<u>(247,382)</u>
9	* Represented by:					
	DEP Planning Phase loan, repayment to begin Feb. 2019					72,000
	DEP Design/Permitting, approved April 2018					498,786
	DEP Construction Loan Estimate (Phase II Portion)					<u>6,857,528</u>
	Total Additions to Utility Plant in Service					<u>7,428,314</u>

Lighthouse Utilities Company, Inc.
 Water Limited Proceeding
 Schedule of Increase in Taxes Other Than Income

Exhibit H
 Schedule 3
 Page 5 of 6

Water

Line No.	NARUC A/C	Description	(a) Net Increase	Reference
1	408.1	Regulatory Assessment Fee		
2		Annualized Revenue for the 12 months ended 12/31/2017	789,129	Exhibit H, Sch 2
3		Historic Revenue at 12/31/2017	748,427	Exhibit J (2/5)
4		Net Increase in Annualized Revenue	40,702	Line 2 - line 3
5		RAF	4.50%	Per PSC
6		Increase in RAF - Phase I	<u>1,832</u>	Line 4 * line 5
7	408.1	Regulatory Assessment Fee		
8		Annualized Revenue for the 12 months ended 12/31/2017	1,240,473	Exhibit H, Sch 2
9		Annualized Revenue for Phase I	789,129	Exhibit J (2/5)
10		Net Increase in Annualized Revenue	451,344	Line 2 - line 3
11		RAF	4.50%	Per PSC
12		Increase in RAF - Phase II	<u>20,310</u>	Line 4 * line 5
13	402.11	Property Taxes		
14		Increased Utility Plant in Service	570,786	Exhibit H, Sch 3 (2/6)
15		Retirements	-	Exhibit H, Sch 3 (3/6)
16		Accumulated Depreciation	-	Exhibit H, Sch 3 (3-4/6)
17		Net Taxable Increase	570,786	Per PSC
18		Gulf County Millage Rate	0.014320	Per County
19		Net Increase in Property Taxes - Phase I	<u>8,174</u>	Line 17 * line 18
20	402.11	Property Taxes		
21		Increased Utility Plant in Service	6,857,528	Exhibit H, Sch 3 (2/6)
22		Retirements	(599,877)	Exhibit H, Sch 3 (3/6)
23		Accumulated Depreciation	(226,999)	Exhibit H, Sch 3 (3-4/6)
24		Net Taxable Increase	6,030,652	Per PSC
25		Gulf County Millage Rate	0.014320	Per County
26		Net Increase in Property Taxes - Phase II	<u>86,359</u>	Line 24 * line 25

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Rate Case Expense

Exhibit H
Schedule 3
Page 6 of 6

Water

Line No.	Firm	Person	(a) Hourly Rate/ Person	(b) Hours	(c) Total	Description
1	Public Service Commission		n/a	n/a	1,000	filing fees
2	Holland & Knight	Bruce May	415	60.25	25,004	legal fees
3	Roberson & Associates	Michael McKenzie	150	100	15,000	accounting fees
4	USPS		n/a	n/a	750	customer notices/postage
5					<u>41,754</u>	Lines 1 through 4
7	Phase II Annual Total		4 year amortization		10,438	Line 5 divided by 4

Illustration - Alternative Private Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Rate Base Increase Components, Rate of Return, and Revenue Requirement

Exhibit H
Schedule 1

Water

Line No.	Increase in Rate Base and Rate of Return-Phase I	(a) Cost	Reference
1	Utility Plant in Service	570,786	Exhibit J (1/5)
2	Retirements	-	Exhibit J (1/5)
3	Accumulated Depreciation	(19,026)	Exhibit J (1/5)
4	Contributions in Aid of Construction	-	Exhibit J (1/5)
5	Accumulated Amortization of CIAC	-	Exhibit J (1/5)
6	Cash Working Capital	-	Exhibit J (1/5)
7	Total Increase in Rate Base	551,760	Lines 1 through 6
8	Weighted Cost of Capital	7.93%	Exhibit J (4/5)
9	Return Required	43,729	Line 7 * line 8
10	Increase in Depreciation Expense Due to UPIS Increase	19,026	Exhibit J (2/5)
11	Decrease in Depreciation Expense Due to Retirements	-	Exhibit J (2/5)
12	Increase in CIAC Amortization	-	Exhibit J (2/5)
13	Increase in Rate Case Expense	-	Exhibit J (2/5)
14	Increase in Rent Expense	-	Exhibit J (2/5)
15	Increase in Maintenance Expense	-	Exhibit J (2/5)
16	Increase in Salaries Expense	-	Exhibit J (2/5)
17	Increase in Taxes Other Than Income Taxes	8,174	Exhibit H, Sch 3 (6/6)
18	Total Increase in Operating Expenses	27,200	Lines 10 through 17
19	Total Revenue Increase before RAF	70,929	Line 9 + line 18
20	Multiply by RAF (4.5%)	3,192	
21	Total Revenue Increase Requested - Phase I	74,121	Line 19 + line 20
22	Increase in Rate Base and Rate of Return-Phase II		
23	Utility Plant in Service	6,797,528	Exhibit J (1/5)
24	Retirements	(599,877)	Exhibit J (1/5)
25	Accumulated Depreciation	(228,356)	Exhibit J (1/5)
26	Contributions in Aid of Construction	-	Exhibit J (1/5)
27	Accumulated Amortization of CIAC	-	Exhibit J (1/5)
28	Cash Working Capital	1,305	Exhibit J (1/5)
29	Total Increase in Rate Base	5,970,600	Lines 1 through 6
30	Weighted Cost of Capital	7.93%	Exhibit J (4/5)
31	Return Required	473,195	Line 7 * line 8
32	Increase in Depreciation Expense Due to UPIS Increase	228,356	Exhibit J (2/5)
33	Decrease in Depreciation Expense Due to Retirements	(20,383)	Exhibit J (2/5)
34	Increase in CIAC Amortization	-	Exhibit J (2/5)
35	Increase in Rate Case Expense	10,438	Exhibit J (2/5)
36	Increase in Rent Expense	-	Exhibit J (2/5)
37	Increase in Maintenance Expense	-	Exhibit J (2/5)
38	Increase in Salaries Expense	-	Exhibit J (2/5)
39	Increase in Taxes Other Than Income Taxes	86,359	Exhibit H, Sch 3 (6/6)
40	Total Increase in Operating Expenses	304,770	Lines 32 through 39
41	Total Revenue Increase before RAF	777,964	Line 31 + line 40
42	Multiply by RAF (4.5%)	35,008	
43	Total Revenue Increase Requested - Phase II	812,973	Line 41 + line 42

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Historic and Annualized Revenue

Exhibit H
Schedule 2

Water

Line No.	Account Description and Service Type	(a) No. of Bills/ Gallons	(b) Current Rates	(c) Annualized Revenues
1	Residential, General Service and Multi-Family - current rates			
2	5/8" X 3/4"	22,184	14.72	326,548
3	1"	120	22.09	2,651
4	1 1/2"	72	36.82	2,651
5	2"	36	73.62	2,650
6	3"	-	117.80	-
7	4"	12	235.60	2,827
8	6"	-	368.12	-
9	8"	-	1,325.24	-
10	10"	-	2,135.10	-
11	Residential, General Service and Multi-Family Gallonage Charge			
12	Every 1,000 gallons	114,194	3.60	411,099
13	Total Historic Revenue, 12/31/2017			748,427
14	Residential, General Service and Multi-Family - Phase I			
15	5/8" X 3/4"	22,184	16.18	358,888
16	1"	120	24.28	2,913
17	1 1/2"	72	40.47	2,914
18	2"	36	80.91	2,913
19	3"	-	129.47	-
20	4"	12	258.93	3,107
21	6"	-	404.58	-
22	8"	-	1,456.49	-
23	10"	-	2,346.55	-
24	Residential, General Service and Multi-Family Gallonage Charge			
25	Every 1,000 gallons	114,194	3.96	451,813
26	Total Annualized Revenue-Phase I			822,548
27	Residential, General Service and Multi-Family - Phase II			
28	5/8" X 3/4"	22,184	32.17	713,599
29	1"	120	48.27	5,793
30	1 1/2"	72	80.46	5,793
31	2"	36	160.88	5,792
32	3"	-	257.43	-
33	4"	12	514.85	6,178
34	6"	-	804.44	-
35	8"	-	2,896.02	-
36	10"	-	4,665.79	-
37	Residential, General Service and Multi-Family Gallonage Charge			
38	Every 1,000 gallons	114,194	7.87	898,366
39	Total Annualized Revenue-Phase II			1,635,521

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Calculation of Percentage Rate Increase and Increase to the Gallonage Charges

Exhibit H
Schedule 3
Page 1 of 6

Water

<u>Line No.</u>		<u>Reference</u>
1	Calculation of Increase Percentage - Phase I	
2	Total Proposed Phase I Increase	74,121 Exhibit J (2/5)
3	Historic Revenue, 12/31/2017	748,427 Exhibit H, Sch 2
4	Percentage Increase in Rates-Phase I	10% line 2 divided by line 3
5	Calculation of Increase Percentage - Phase II	
6	Total Proposed Phase II Increase	812,973 Exhibit J (2/5)
7	Annualized Revenue, post Phase I	822,548 Exhibit H, Sch 2
8	Percentage Increase in Rates-Phase II	99% line 2 divided by line 3

Illustration - Alternative Private Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Plant Increases

Exhibit H
Schedule 3
Page 2 of 6

Water

Line No.	NARUC A/C	Description	(a) Date in Service	(b) Costs	Project
1		Phase I UPIS	12/31/2019	570,786	Phase I
2		Phase II UPIS	12/31/2023	<u>6,857,528</u>	Phase II
3		Total		<u><u>7,428,314</u></u>	

Illustration - Alternative Private Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Retirements by Primary Plant Account

Exhibit H
Schedule 3
Page 3 of 6

Water

Line No.	NARUC A/C	Description	(a) Retirement	(b) Depreciation Rate	(c) Depreciation Expense
1		304 Structures/Improvements	(386,596)	3.03%	(11,715)
2		309 Supply Mains	(84,091)	2.86%	(2,403)
3		311 Pumping Equipment	(86,540)	5.00%	(4,327)
4		320 Water Treatment Equip	(42,650)	4.55%	(1,939)
5		Total Phase II Retirements	(599,877)		(20,383)

Illustration - Alternative Private Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Depreciation Expense & Accumulated Depreciation

Exhibit H
Schedule 3
Page 4 of 6

Water

Line No.	NA Description	Phase	UPIS	Depreciation Rate	Annual Expense	First Half Year Accumulated Depreciation
1	UPIS	Phase I	570,786	3.33%	19,026	(9,513)
2						
3	UPIS	Phase II	6,857,528	3.33%	228,356	(114,178)
4						
5	Total		<u>7,428,314</u> *		<u>247,382</u>	<u>(123,691)</u>
6		Phase I		Annualized		(19,026)
7		Phase II		Annualized		(228,356)
8						<u>(247,382)</u>
9	* Represented by:					
	DEP Planning Phase loan, repayment to begin Feb. 2019					72,000
	DEP Design/Permitting, approved April 2018					498,786
	DEP Construction Loan Estimate (Phase II Portion)					<u>6,857,528</u>
	Total Additions to Utility Plant in Service					<u>7,428,314</u>

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Increase in Taxes Other Than Income

Exhibit H
Schedule 3
Page 5 of 6

Water

Line No.	NARUC A/C	Description	(a) Net Increase	Reference
1	408.1	Regulatory Assessment Fee		
2		Annualized Revenue for the 12 months ended 12/31/2017	822,548	Exhibit H, Sch 2
3		Historic Revenue at 12/31/2017	748,427	Exhibit J (2/5)
4		Net Increase in Annualized Revenue	74,121	Line 2 - line 3
5		RAF	4.50%	Per PSC
6		Increase in RAF - Phase I	<u>3,335</u>	Line 4 * line 5
7	408.1	Regulatory Assessment Fee		
8		Annualized Revenue for the 12 months ended 12/31/2017	1,635,521	Exhibit H, Sch 2
9		Annualized Revenue for Phase I	822,548	Exhibit J (2/5)
10		Net Increase in Annualized Revenue	812,973	Line 2 - line 3
11		RAF	4.50%	Per PSC
12		Increase in RAF - Phase II	<u>36,584</u>	Line 4 * line 5
13	402.11	Property Taxes		
14		Increased Utility Plant in Service	570,786	Exhibit H, Sch 3 (2/6)
15		Retirements	-	Exhibit H, Sch 3 (3/6)
16		Accumulated Depreciation	-	Exhibit H, Sch 3 (3-4/6)
17		Net Taxable Increase	570,786	Per PSC
18		Gulf County Millage Rate	0.014320	Per County
19		Net Increase in Property Taxes - Phase I	<u>8,174</u>	Line 17 * line 18
20	402.11	Property Taxes		
21		Increased Utility Plant in Service	6,857,528	Exhibit H, Sch 3 (2/6)
22		Retirements	(599,877)	Exhibit H, Sch 3 (3/6)
23		Accumulated Depreciation	(226,999)	Exhibit H, Sch 3 (3-4/6)
24		Net Taxable Increase	6,030,652	Per PSC
25		Gulf County Millage Rate	0.014320	Per County
26		Net Increase in Property Taxes - Phase II	<u>86,359</u>	Line 24 * line 25

Lighthouse Utilities Company, Inc.
 Water Limited Proceeding
 Schedule of Rate Case Expense

Exhibit H
 Schedule 3
 Page 6 of 6

Water

Line No.	Firm	Person	(a) Hourly Rate/ Person	(b) Hours	(c) Total	Description
1	Public Service Commission		n/a	n/a	1,000	filing fees
2	Holland & Knight	Bruce May	415	60.25	25,004	legal fees
3	Roberson & Associates	Michael McKenzie	150	100	15,000	accounting fees
4	USPS		n/a	n/a	750	customer notices/postage
5					<u>41,754</u>	Lines 1 through 4
7	Phase II Annual Total		4 year amortization		10,438	Line 5 divided by 4

EXHIBIT I

Lighthouse Utilities Company, Inc.
Exhibit I - Historical Financial Information

WATER RATE REVENUE SUMMARY

		<i>2016</i>	<i>2017</i>
1.	Number of Residential Customers	1,886	1,865
2.	Number of New Residential Service Connections	83	65
3.	Annual Residential Water Sales (Gallons)	102,293,427	100,405,281
4.	Avg Daily Residential Usage (Gal/day) (Line 3 divided by line 1 divided by 365)	54,238	53,837
5.	Annual Residential Water Sales (\$)	\$ 690,352	\$ 700,981
6.	Average Annual Residential Bill (line 5 divided by line 1)	\$ 366	\$ 376
7.	Annual Residential Bill Amount Uncollected	0	0
8.	Total Residential Rates Collected (Line 5 minus line 7)	\$ 690,352	\$ 700,981
9.	Impact and Connection Fees per Residential Service	\$35	\$35
10.	Total Residential Impact and Connection Fees (Line 2 times line 9)	\$ 2,905	\$ 2,275
11.	Number of Commercial Customers	14	19
12.	Number of New Commercial Service Connections	0	5
13.	Annual Commercial Water Sales (Gallons)	8,766,202	10,172,473
14.	Annual Commercial Water Sales (\$)	\$ 40,573	\$ 45,171
15.	Annual Commercial Bill Amount Uncollected	-	-
16.	Total Commercial/Industrial Bills Collected (Line 14 minus line 15)	\$ 40,573	\$ 45,171
17.	Impact and Connection Fees for Commercial Service	0	0
18.	Total Commercial Impact and Connection Fees (Line 12 times line 17)	0	0
19.	Bulk Water Sales	0	0
20.	Total Projected Water Revenue (Line 8+10+16+18+19)	\$ 733,830	\$ 748,427

* Large meters should be checked annually for accuracy.

TABLE 2
INCOME, EXPENSES, AND CASH FLOW STATEMENT

Income,		2016	2017
Expense			
	OPERATING REVENUES		
1	Water Rates	733,830	748,427
2	Fire Protection	-	-
3	Fees and Services	127,471	137,950
4	Interest Income	-	-
5a	Other – City of Port St Joe Billing Revenue	16,395	18,096
5b	Other –	-	-
6	Total (Lines 1 - 5)	877,696	904,473
	NON-OPERATING REVENUES		
7	Interest Income	-	-
8	Interfund Transfer	-	-
9	Proceeds from the Sale of Assets	1,500	-
10	Leases and Extraction Fees	10,800	10,800
11	Construction Grants	-	-
12	Proceeds from Borrowing	-	28,132
13	Equity Contribution	-	-
14	Other - BP Settlement	102,322	-
15	Total (Lines 7 - 14)	114,622	38,932
	OPERATING EXPENSES		
	OPERATION AND MAINTENANCE		
16	Salaries (Operators)	155,795	165,197
17	Benefits	24,392	21,896
18	Utilities	50,126	54,126
19	Chemicals & Treatment	7,506	8,529
20	Monitoring	4,685	5,755
21	Materials, Supplies & Parts	88,419	89,551
22	Transportation	16,844	22,327
23	Purchased Water Costs	-	-
24	Outside Services –	172,840	172,175
25	Other –	-	-
26	Total (Lines 16 – 25)	520,607	539,556
	ADMINISTRATIVE		
27	Salaries and Benefits	123,121	129,618
28	Building Overhead	14,312	16,020
29	Office Supplies & Postage	8,759	10,177
30	Insurance	29,332	25,712
31	Customer Billing & Collection	17,429	17,954
32	Accounting and Legal	49,019	45,269
33	A/E & Professional Services	7,513	1,665
34	Other -	-	-
35	TOTAL (Lines 27 – 34)	249,485	246,415
36	Net Operating Income (Line 6 minus 26 minus 35)	107,604	118,502
	NON-OPERATING EXPENSES		

37	Debt-Repayment – Principal and Interest	69,070	69,307
38	Capital Improvements Acquisition of Plant Equipment	48,186	119,151
39	Interfund Transfers		
40	To General Fund		
41	To Replacement Fund		
42	To Emergency Fund		
43	Depreciation Expenses (If money is set aside)		
44	Other -		
45	TOTAL (Lines 37 + 44)	117,256	188,458
46	Net Non-Operating Income (Line 15 minus Line 45)	(2,634)	(149,526)
47	Net Income Before Taxes (Lines 36 + 46)	104,970	(31,024)
	TAXES (N/A for publicly owned systems)		
48	Income Taxes	-	-
49	Other Taxes	70,353	68,281
50	TOTAL (Lines 48 + 49)	70,353	68,281
51	Net Income After Taxes (Line 47 minus 50)	34,617	(99,305)

COMPOSITE
EXHIBIT J

Lighthouse Utilities Company, Inc.
 Water Limited Proceeding
 Rate Base and Rate of Return After Limited Proceeding Rate Increase

Exhibit J
 page 1 of 5

Water		(a)	(b)	(c)	(d)	
		12/31/2017	Phase I	Phase II	Balance After	
Line No.		Balance	Changes	Changes	Limited Proceeding (a+b+c)	Reference
1	Utility Plant in Service	3,602,459	570,786	6,797,528	10,970,773	Exhibit H, Sch 3 (2/6)
2	Land	26,000	-	60,000	86,000	Exhibit H, Sch 3 (2/6)
3	Retirements	-	-	(599,877)	(599,877)	Exhibit H, Sch 3 (3/6)
4	Subtotal: Utility Plant in Service	3,628,459	570,786	6,257,651	10,456,896	
5	Accumulated Depreciation	(1,827,883)	(19,026)	(228,356)	(2,075,265)	Exhibit H, Sch 3 (3/6)
6	Contributions in Aid of Construction (CIAC)	(2,413,633)	-	-	(2,413,633)	Exhibit J (3/5)
7	Advances for Construction	-	-	-	-	
8	Accumulated Amortization of CIAC	1,206,253	-	-	1,206,253	Exhibit H, Sch 3 (4/6)
9	Working Capital Allowance	89,909	-	1,305	91,214	Exhibit J (5/5)
10	Rate Base	683,105	551,760	6,030,600	7,265,465	Lines 4 through 9
11	Operating Income	(81,191)			35,555	Exhibit J (2/5)
12	Rate of Return	-11.89%			0.49%	Line 11 divided by line 10

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Statement of Operations After Limited Proceeding Rate Increase

Exhibit J
page 2 of 5

Water		(a)	(b)	(c)	(d)	
Line No.		12/31/2017	Phase I	Phase II	Balance After	Reference
		Balance	Changes	Changes	Limited Proceeding (a+b+c)	
1	Operating Revenue (from Consumption)	748,427	40,702	451,344	1,240,473	(A)
2	Operating Revenue (from Misc Charges and Oth Income)	-	-	-	-	
3	Operating Expenses	-	-	-	-	
4	Operation and Maintenance	719,272	-	10,438	729,710	(D), (E), (F), (G)
5	Depreciation	114,556	19,026	207,972	341,555	(B)
6	Amortization	(70,431)	-	-	(70,431)	(C)
7	Taxes Other Than Income	66,221	11,758	126,105	204,084	(H)
8	Income Taxes	-	-	-	-	(I)
9	Operating Income	(81,191)	9,918	106,828	35,555	Lines 3 through 8
10	Adjustments					
11	(A) Operating Revenue (from Consumption)					
12	Limited Proceeding Revenue Increase		40,702	451,344	492,046	Exhibit H, Sch 1
13	Increase in Annualized Revenue		-	-	-	Exhibit H, Sch 3 (6/6)
14	Total		40,702	451,344	492,046	
15	(B) Depreciation Expense					
16	Increase in Depreciation Expense for New Plant		19,026	228,356	247,382	Exhibit H, Sch 3 (4/6)
17	Decrease in Depreciation Expense for Retired Plant		-	(20,383)	(20,383)	Exhibit H, Sch 3 (3/6)
18	Total		19,026	207,972	226,999	
19	(C) Amortization Expense					
20	Increase in Amortization Expense of CIAC		-	-	-	Exhibit H, Sch 3 (4/6)
21	Total		-	-	-	
22	(D) Rate Case Expense					
23	Increase in Amortization of Rate Case Expense		-	10,438	10,438	Exhibit H, Sch 3 (6/6)
24	Total		-	10,438	10,438	
25	(E) Rent Expense					
26	Increase in Rent Expense		-	-	-	Exhibit J (5/5)
27	Total		-	-	-	
28	(F) Maintenance Expense					
29	Increase in Maintenance Expense		-	-	-	Exhibit J (5/5)
30	Total		-	-	-	
31	(G) Salaries Expense					
32	Increase in Salaries Expense for additional staff		-	-	-	Exhibit J (5/5)
33	Total		-	-	-	
34	(H) Taxes Other Than Income					
35	Increase in Property Taxes		8,174	86,359	94,533	Exhibit H, Sch 3 (5/6)
36	Increase in RAF for Annualized Revenue		1,832	20,310	22,142	Exhibit H, Sch 3 (5/6)
37	Increase in RAF for Limited Proceeding Increase		1,753	19,436	21,189	Exhibit H, Sch 1
38	Total		11,758	126,105	137,863	

Illustration - Planned State Revolving Fund (SRF) Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Contributed Property / Cash

Exhibit J
page 3 of 5

Water

Line No.	NARUC A/C	Description	(a)
			Contributed Property/Cash
1			
2			
3		None	
4			
5			
6		Total	<u>-</u>

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Capital Structure and Weighted Cost of Capital

Exhibit J
page 4 of 5

Water

Line No.	Description	(a) 12/31/2017	(b) Phase I	(c) Phase II	(d) After Limited Proceeding	(e) Interest Rate	(f) Capital Structure
1	Common Shareholders Equity						
2	Common Stock Issued	224	-	-	224		
3	Paid In Capital	223,761	-	-	223,761		
4	Retained Earnings	(376,941)	-	-	(376,941)		
5	Total Common Shareholders Equity	(152,956)	-	-	(152,956)		-1.884%
6	Long Term Debt						
7	Shareholder Loans	845,040			845,040	8.000%	
8	Phase I debt		570,786		570,786	1.664%	
9	Phase II debt			6,857,528	6,857,528	1.664%	
10	Total Long Term Debt	845,040	570,786	6,857,528	8,273,354	2.311%	101.884%
11	Capitalization				8,120,398		
					Ratio	Cost	Weighted Cost
12	Long Term Debt				101.88%	2.311%	2.355%
13	Common Equity				-1.88%	11.960%	-0.225%
14					100.00%		2.129%

Illustration - Planned State Revolving Fund (SRF) Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Increase in Cash Working Capital

Exhibit J
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Water

(a)

Line No.	Description	Amount	Reference
1	Increase in O&M Due to Rate Case Expense	-	Exhibit H, Sch 3 (6/6)
2	Increase in O&M Due to Rent Expense	-	Exhibit J (2/5)
3	Increase in O&M Due to Maintenance Costs	-	Exhibit J (2/5)
4	Increase in O&M Due to Salaries Expense	-	Exhibit J (2/5)
5	Total	-	Lines 1 through 4
6	1/8 of Total Increase - Phase I	-	Line 5 divided by 8
7	Increase in O&M Due to Rate Case Expense	10,438	Exhibit H, Sch 3 (6/6)
8	Increase in O&M Due to Rent Expense	-	Exhibit J (2/5)
9	Increase in O&M Due to Maintenance Costs	-	Exhibit J (2/5)
10	Increase in O&M Due to Salaries Expense	-	Exhibit J (2/5)
11	Total	10,438	Lines 7 through 10
12	1/8 of Total Increase - Phase II	1,305	Line 5 divided by 8

Lighthouse Utilities Company, Inc.
 Water Limited Proceeding
 Rate Base and Rate of Return After Limited Proceeding Rate Increase

Exhibit J
 page 1 of 5

Water		(a)	(b)	(c)	(d)	
		12/31/2017	Phase I	Phase II	Balance After Limited Proceeding (a+b+c)	Reference
Line No.		Balance	Changes	Changes		
1	Utility Plant in Service	3,602,459	570,786	6,797,528	10,970,773	Exhibit H, Sch 3 (2/6)
2	Land	26,000	-	60,000	86,000	Exhibit H, Sch 3 (2/6)
3	Retirements	-	-	(599,877)	(599,877)	Exhibit H, Sch 3 (3/6)
4	Subtotal: Utility Plant in Service	3,628,459	570,786	6,257,651	10,456,896	
					-	
5	Accumulated Depreciation	(1,827,883)	(19,026)	(228,356)	(2,075,265)	Exhibit H, Sch 3 (3/6)
6	Contributions in Aid of Construction (CIAC)	(2,413,633)	-	-	(2,413,633)	Exhibit J (3/5)
7	Advances for Construction	-	-	-	-	
8	Accumulated Amortization of CIAC	1,206,253	-	-	1,206,253	Exhibit H, Sch 3 (4/6)
9	Working Capital Allowance	89,909	-	1,305	91,214	Exhibit J (5/5)
10	Rate Base	683,105	551,760	6,030,600	7,265,465	Lines 4 through 9
11	Operating Income	(81,191)			395,814	Exhibit J (2/5)
12	Rate of Return	-11.89%			5.45%	Line 11 divided by line 10

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Statement of Operations After Limited Proceeding Rate Increase

Exhibit J
page 2 of 5

Line No.	Water	(a)	(b)	(c)	(d)	Reference
		12/31/2017 Balance	Phase I Changes	Phase II Changes	Balance After Limited Proceeding (a+b+c)	
1	Operating Revenue (from Consumption)	748,427	74,121	812,973	1,635,521	(A)
2	Operating Revenue (from Misc Charges and Oth Income)	-	-	-	-	
3	Operating Expenses	-	-	-	-	
4	Operation and Maintenance	719,272	-	10,438	729,710	(D), (E), (F), (G)
5	Depreciation	114,556	19,026	207,972	341,555	(B)
6	Amortization	(70,431)	-	-	(70,431)	(C)
7	Taxes Other Than Income	66,221	14,701	157,951	238,873	(H)
8	Income Taxes	-	-	-	-	(I)
9	Operating Income	(81,191)	40,394	436,611	395,814	Lines 3 through 8
10	Adjustments					
11	(A) Operating Revenue (from Consumption)					
12	Limited Proceeding Revenue Increase		74,121	812,973	887,094	Exhibit H, Sch 1
13	Increase in Annualized Revenue		-	-	-	Exhibit H, Sch 3 (6/6)
14	Total		74,121	812,973	887,094	
15	(B) Depreciation Expense					
16	Increase in Depreciation Expense for New Plant		19,026	228,356	247,382	Exhibit H, Sch 3 (4/6)
17	Decrease in Depreciation Expense for Retired Plant		-	(20,383)	(20,383)	Exhibit H, Sch 3 (3/6)
18	Total		19,026	207,972	226,999	
19	(C) Amortization Expense					
20	Increase in Amortization Expense of CIAC		-	-	-	Exhibit H, Sch 3 (4/6)
21	Total		-	-	-	
22	(D) Rate Case Expense					
23	Increase in Amortization of Rate Case Expense		-	10,438	10,438	Exhibit H, Sch 3 (6/6)
24	Total		-	10,438	10,438	
25	(E) Rent Expense					
26	Increase in Rent Expense		-	-	-	Exhibit J (5/5)
27	Total		-	-	-	
28	(F) Maintenance Expense					
29	Increase in Maintenance Expense		-	-	-	Exhibit J (5/5)
30	Total		-	-	-	
31	(G) Salaries Expense					
32	Increase in Salaries Expense for additional staff		-	-	-	Exhibit J (5/5)
33	Total		-	-	-	
34	(H) Taxes Other Than Income					
35	Increase in Property Taxes		8,174	86,359	94,533	Exhibit H, Sch 3 (5/6)
36	Increase in RAF for Annualized Revenue		3,335	36,584	39,919	Exhibit H, Sch 3 (5/6)
37	Increase in RAF for Limited Proceeding Increase		3,192	35,008	38,200	Exhibit H, Sch 1
38	Total		14,701	157,951	172,652	

Illustration - Alternative Private Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Contributed Property / Cash

Exhibit J
page 3 of 5

Water

			(a)
			Contributed
Line No.	NARUC A/C	Description	Property/Cash
1			
2			
3		None	
4			
5			
6		Total	<u>-</u>

Lighthouse Utilities Company, Inc.
 Water Limited Proceeding
 Schedule of Capital Structure and Weighted Cost of Capital

Exhibit J
 page 4 of 5

Water

Line No.	Description	(a) 12/31/2017	(b) Phase I	(c) Phase II	(d) After Limited Proceeding	(e) Interest Rate	(f) Capital Structure
1	Common Shareholders Equity						
2	Common Stock Issued	224	-	-	224		
3	Paid In Capital	223,761	-	-	223,761		
4	Retained Earnings	(376,941)	-	-	(376,941)		
5	Total Common Shareholders Equity	(152,956)	-	-	(152,956)		-1.884%
6	Long Term Debt						
7	Shareholder Loans	845,040			845,040	8.000%	
8	Phase I debt		570,786		570,786	8.000%	
9	Phase II debt			6,857,528	6,857,528	8.000%	
10	Total Long Term Debt	845,040	570,786	6,857,528	8,273,354	8.000%	101.884%
11	Capitalization				8,120,398		
					Ratio	Cost	Weighted Cost
12	Long Term Debt				101.88%	8.000%	8.151%
13	Common Equity				-1.88%	11.960%	-0.225%
14					100.00%		7.925%

Illustration - Alternative Private Financing

Lighthouse Utilities Company, Inc.
Water Limited Proceeding
Schedule of Increase in Cash Working Capital

Exhibit J
page 5 of 5

Water

(a)

Line No.	Description	Amount	Reference
1	Increase in O&M Due to Rate Case Expense	-	Exhibit H, Sch 3 (6/6)
2	Increase in O&M Due to Rent Expense	-	Exhibit J (2/5)
3	Increase in O&M Due to Maintenance Costs	-	Exhibit J (2/5)
4	Increase in O&M Due to Salaries Expense	-	Exhibit J (2/5)
5	Total	-	Lines 1 through 4
6	1/8 of Total Increase - Phase I	-	Line 5 divided by 8
7	Increase in O&M Due to Rate Case Expense	10,438	Exhibit H, Sch 3 (6/6)
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9	Increase in O&M Due to Maintenance Costs	-	Exhibit J (2/5)
10	Increase in O&M Due to Salaries Expense	-	Exhibit J (2/5)
11	Total	10,438	Lines 7 through 10
12	1/8 of Total Increase - Phase II	1,305	Line 5 divided by 8