

**FELLSMERE WATER CONTROL DISTRICT  
ANNUAL ENGINEER'S REPORT  
MAY 2020**

We are pleased to submit this annual engineer's report as a yearly summary of the engineering related activities involved in the operations and functions of the Fellsmere Water Control District (F.W.C.D.), as required under Chapter 298 of the Florida Statutes.

**CLIMATOLOGICAL REVIEW**

For the fifth consecutive year, hurricane activity began prior to the official June 1<sup>st</sup> start of the season, with Subtropical Storm Andrea forming on May 20. Andrea was a short-lived storm that never made landfall and dissipated over the Atlantic one day after it formed. For the second consecutive year, no storms formed during the month of June. The 2019 hurricane season became the fourth consecutive season to feature at least one Category 5 hurricane (Dorian and Lorenzo) and one of seven seasons to feature multiple Category 5 hurricanes.

Overall activity in the Atlantic basin in 2019 was above average, with 18 named storms, six hurricanes, three major hurricanes and at least \$8.38 billion in damages. This compares to the long-term averages of 12 named storms, six hurricanes, and three major hurricanes. The initial NOAA forecast outlook for the 2019 season called for 9-15 named storms, 4-8 hurricanes and 2-4 major hurricanes. Two unnamed tropical depression also formed in 2019.

In terms of Accumulated Cyclone Energy (ACE), which measures the combined strength and duration of tropical storms and hurricanes, preliminary data indicate that the 2019 season was above normal. As a comparison, the 2019 season's ACE was nearly identical to that of the 2018 season.

Storm Name	Dates	Storm Category at Peak Intensity	Max Wind [mph]	Min. Pressure [mbar]
Andrea	May 20 – 21	Tropical storm	40	1006
Barry	July 11 – 15	Category 1 hurricane	75	993
Three	July 22 – 23	Tropical Depression	35	1013
Chantal	August 20 – 23	Tropical storm	40	1007



Storm Name	Dates	Storm Category at Peak Intensity	Max Wind [mph]	Min. Pressure [mbar]
Dorian	August 24 – Sept. 7	Category 5 hurricane	185	910
Erin	August 26 – 29	Tropical storm	40	1002
Fernand	September 3 – 5	Tropical storm	50	1000
Gabrielle	September 3 – 10	Tropical storm	65	995
Humberto	September 13 – 20	Category 3 hurricane	125	951
Jerry	September 17 – 25	Category 2 hurricane	105	976
Imelda	September 17 – 19	Tropical storm	40	1005
Karen	September 22 – 27	Tropical storm	45	1002
Lorenzo	September 23 – October 2	Category 5 hurricane	160	925
Melissa	October 11 – 14	Tropical storm	65	995
Fifteen	October 14 – 16	Tropical depression	35	1006
Nestor	October 18 – 19	Tropical storm	60	996
Olga	October 25 – 26	Tropical storm	40	998
Pablo	October 25 – 28	Category 1 hurricane	80	977
Rebekah	October 30 – Nov. 1	Subtropical storm	45	987
Sebastien	November 19 – 25	Tropical storm	65	994

See attached U.S. National Weather Service 2019 North Atlantic Hurricane Tracking Chart.

In late August and early September, Tropical Storm Dorian (a Category 5 hurricane) stalled over Grand Bahamas with sustained winds of 185 M.P.H. and everyone along the Central East Coast of Florida was anticipating and preparing for Dorian to make landfall locally. Fortunately for us,



after total devastation of Northern Grand Bahamas, Hurricane Dorian shifted to a northerly course, just off shore of Florida's coast line, and made landfall on Cape Hatteras, N.C. as a Category 1 hurricane on September 6, 2019. The near miss of Hurricane Dorian presented the only threat of a tropical storm to this area for the entire 2019 Hurricane Season.

Fortunately, the F.W.C.D. and the East Coast of Florida did not suffer any destructive forces of a hurricane during the 2019 hurricane season.

The 2019 total yearly rainfall observed and recorded at the Vero Beach Municipal Airport was 49.76 inches. According to the National Weather Service records, this amounts to 2.11" below the normal average rainfall of 51.87" for the Vero Beach area.

A below average rainfall during the past summer and fall wet season has continued through the current "dry" season.

Measured monthly rainfall, at the FWCD office, during 2019 is as follows:

January	- 4.23"
February	- 1.56"
March	- 1.67"
April	- 2.15"
May	- 2.49"
June	- 5.41"
July	- 2.60"
August	- 10.84"
September	- 4.08"
October	- 0.87"
November	- 0.0"
December	- 4.08"

Total annual rainfall measured at the District office is estimated to be 39.98 inches for 2019. This amounts to approximately 12" +/- below the long term annual average rainfall (52") for the area.

Observed rainfall during the current dry season through the first four months of 2020 are: January - 0.0"; February - 2.79", March - 0.0", April - 2.25".

During this past winter, F.W.C.D. had a couple of mornings with scattered light frost but did not suffer any freeze warnings or freeze events.

### **MAY 9, 2019 – ANNUAL LANDOWNERS AND BOARD OF SUPERVISORS MEETING**

At the May 9, 2019. Annual Landowners Meeting, Richard Carnell was nominated and re-elected to the Board of Supervisors for a three year term.



At the following Board of Supervisors Organizational Meeting, the following officials were elected/appointed to serve for the following year:

President	Richard Carnell
Vice-President	Mike Monroe, note Mike resigned 11/14/2019, and Greg Nelson replaced Mike per vote
Secretary	Joyce Hertel
Treasurer	Rodney Tillman
Deputy Secretary	Dawn Cosner
Deputy Treasurer	Judy Warga

### **FELLSMERE WATER CONTROL DISTRICT ANNUAL PERMIT SUMMARY**

Nine (9) permit applications (Numbers 203-19 through 211-20) have been submitted since last year's annual engineer's report.

One (1) of the permit applications is for a City of Fellsmere project, known as the Meadowfield Athletic Field Phase 2. The permit was issued January 23, 2020; the balance of the permit applications are for new culvert driveway crossings, or for outfall/discharge culverts into district canals.

The South Regional Lake, a City of Fellsmere Project permitted on October 23, 2018 is currently under construction. This project will provide water quality improvements and additional flood storage for the FWCD system during large storm events. A structure located in Ditch 18 will divert water flow into the South Regional Lake where it will be cleaned up. The lake is designed to overflow back into the FWCD Ditch 18 at the downstream end during normal flows. During large storm events the water can short circuit by overflowing the diversion structure in Ditch 18 and/or an emergency overflow weir designed into the lake system. The bypass conveyances ensure that the upstream flood elevations are not increased during large storm events after the lake system is placed into service.

The Boys and Girls Club project permitted November 8, 2018 was completed October 24, 2019. This project is part of the City Complex Master Plan which includes a stormwater lake for treatment. The lake located on the south west corner of the City Complex was also completed on October 24, 2019. Stormwater is directed into the lake for treatment then overflows to the CR 512 drainage pipe system.

The 100<sup>th</sup> Lane Paving Project was permitted May 31, 2019. This project includes the cleaning and regrading of the FWCD Sub-lateral Ditch No PL-12 from the pipe at Willow to the east 680+/- feet. It has come to our attention that the City is set to go out for bids for the project. A request for a permit extension was submitted and the permit has been extended to December 31, 2021.

The permit process for the modification of the Florida Organic Aquaculture site plan has been on-going since 2013. The original permit was issued in 2013 and the site work was started. The F.O.A. applicant/developer submitted a permit modification request with plans and calculations





prepared by a new Engineer, The Milcor Group, Inc. Multiple submittals and review comments from the F.W.C.D. occurred over several years. The control of the development has changed hands several times over the years and that has contributed to the delay in addressing the permit process issues. The FWCD adopted a policy of requiring a land owner approval letter before the issuance of a FWCD permit. To date the FWCD has not received the approval letter. Some progress has been made in the last year with a resubmittal in February and review comments provided to the applicant's engineer on April 24, 2020.

Parabel obtained a permit to construct the site plan improvements on June 8, 2016. They completed the first phase of their duck weed production facility just south of Ditch 23 and west of Park Lateral in the spring of 2018 and started the permit closeout process. Based on the review of the as-built survey the site work was not completed as per the approved permit plans. Parabel indicated during 2018 and 2019 that the non-compliances would be addressed. The most recent update from Parabel indicated that the subject Fellsmere site would be shut down and operations will be consolidated into their facility located on 154<sup>th</sup> avenue south of SR 60.

A permit application dated 2012 from the F.D.O.T., pertaining to replacement of the I-95 Bridge over the Main Canal continues to remain open pending resolution of disputed design and construction issues. The F.W.C.D. requires additional fill and rock rip rap slope stabilization treatment for the transition sections of the realigned F.W.C.D. maintenance road. This requirement is to maintain a safe maintenance road under the bridge for F.W.C.D. The contractor has demobilized without constructing the required rip rap. Therefore, the as-built condition is not acceptable and through the F.W.C.D. Attorney, the matter continues through a legal process.

The FWCD staff held a pre-application meeting with representatives from the Green Carbon Solutions Company. Carter Associates attending the meeting as representatives of the FWCD and provided permit requirements regarding drainage connections to the District system.

### **CITY OF FELLSMERE (C.O.F.)**

The City of Fellsmere continues to develop strategies and implement improvements to its street and drainage infrastructure, including paving and drainage, flood mitigation grants, and developing a city-wide drainage swale plan for driveway culverts. The City has established a Stormwater Utility to aid in funding the projects.

The C.O.F. Stormwater Management Utility Program primarily addresses the secondary drainage system within the City and water quality issues mandated by other jurisdictional agencies, but does not overlap or duplicate the responsibilities of the F.W.C.D. in the maintenance and operations of the District's primary Lateral and Sub-lateral drainage ditches, and flood protection functions.

The City of Fellsmere is currently implementing parts of the Fellsmere Master Stormwater Plan, which was adopted in 2012. The Master Plan includes building regional lakes to provide flood storage and water quality treatment. The City of Fellsmere has obtained grant funding to construct the South Regional Lake. This project is currently in the construction phase. As noted in the Annual Permit Summary above.



The City has obtained grant funds to construct a section of the Rails to Trails Project. This section is located along the North Bypass Canal from Babcock Street on the east to a bridge across the Park Lateral Canal. The preliminary design was presented in the spring of 2018 and FWCD provided review comments. The final design and permitting has not been completed.

The City has obtained grant funds for paving and drainage improvements to the 100<sup>th</sup> Lane and 100<sup>th</sup> Place Project as noted in the Annual Permit Summary above.

### **ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (S.J.R.W.M.D.)**

The construction of the new levee along the eastern boundary of S.J.R.W.M.D. property acquired from Fellsmere Joint Venture (FJV) was completed in 2017. The levee is part of the “Fellsmere Water Management Area” which also is now completed. This levee will be the east levee of the newly created stormwater management area and will serve as the new western levee of the F.W.C.D. The S.J.R.W.M.D. has agreed to provide a levee certification for the completed section of the levee. To date, the levee certification has not been provided.

The S.J.R.W.M.D. Governing Board has budgeted monies for a dispersed water storage pilot project within the F.W.C.D. The land owner, FJV, and the S.J.R.W.M.D. staff have completed contract negotiations and the dispersed water storage project is currently in the permitting phase. When constructed a pump will redirect water from flowing east in the FWCD Main Canal to the Indian River Lagoon and discharge it into an above ground impoundment located west of Lateral U. The goal is to provide significant reductions in the volume of water being discharged to the Indian River Lagoon. This results in two benefits, improvement to the water quality of the Lagoon, and secondly additional fresh water is introduced into the St Johns River.

### **WATER QUALITY IN MAIN CANAL**

Representative Water Quality sampling for the F.W.C.D. are taken from the Main Canal quarterly (approximately every three months) at the County Road 507 (Babcock Road) bridge.

Currently, and for some time now, the sampling, field analyses, and laboratory analyses are conducted by Pace Analytical Services, Inc. out of Pompano Beach, Florida. The discussion of water quality for this report is based on samples taken during: the 2nd quarter of 2019 through the 1<sup>st</sup> quarter of 2020.

The F.W.C.D. water quality results for phosphorus, from the August 2019 (0.72 mg/l) sample exceed the acceptable Florida Nutrient Numeric Threshold Limits (0.12 mg/L). The May 2019 (0.062 mg/l), November 2019 (0.12 mg/l), and the February 2020 (0.065 mg/l) samples, however, indicate the results are within the limit.

The Nutrient Numeric Threshold Limit for Total Nitrogen in the Florida Peninsula region is a maximum concentration of 1.54 mg/l. This past year, the August 2019 (1.96 mg/l) sample was the only sample above the Threshold Limit. The other samples and results as follows, May 2019 (0.32 mg/l), November 2019 (0.94 mg/l), and February 2020 (0.714 mg/l)



## **ANNUAL ENGINEERING RELATED ACTIVITIES**

Engineering and Survey time during this past year continues to be expended on the non-compliance design and construction issues of the F.D.O.T. Interstate 95 Bridge across the F.W.C.D. Main Canal. This matter currently remains unresolved and Carter Associates, Inc. continues to assist F.W.C.D. and legal counsel in on-going litigation.

Attendance at the public/stakeholders forums, conference calls conducted by the F.D.E.P, or by watching the webinar recordings to represent and assist the F.W.C.D. in addressing Basin Management Action Plan (BMAP) mandates to reduce the pollution currently being discharged into the Indian River Lagoon. The FDEP has determined that pollution reduction allocations to the F.W.C.D. will not be assigned. Instead the FWCD will be required to report maintenance efforts and support the implementation of water quality improvement projects as may be proposed by other BMAP stakeholders.

On-going annual engineering activities include the following:

- 1) Attend all regularly scheduled meetings of the Board of Supervisors and maintain a District Engineering file.
- 2) Remain on daily call to provide technical assistance and information to District personnel, supervisors, landowners and other governmental and public agencies concerning the operations, functions and regulations of the District.
- 3) Continue to provide technical permit review assistance to the District, and project consultants, in the submission and issuance of all permit applications to assure compliance with F.W.C.D. policies and requirements.
- 4) Attendance at pre-construction meetings for significant site plan or subdivision type projects in the F.W.C.D. Also, provide limited construction inspection to check compliance with F.W.C.D. permit conditions and to minimize the discharge of turbidity from construction sites.
- 5) Review the quarterly stormwater quality analysis from the District.
- 6) Monitor and review the actions and activities of other jurisdictional agencies and related organizations that may affect the operations and functions of the District.
- 7) Review records and files in preparation of the Annual Engineer's Report as required under Florida Statutes – Chapter 298.


Rodney Tillman, the FWCD Superintendent for many years officially retired on January 2019. Rodney remains associated with the FWCD as the Treasurer and attends most Board meetings. The FWCD Board of Supervisors have entered into a contract with Special District Services to provide some of the District's administrative duties along with Joyce Hertel, another long term District employee who continues to manage the daily office duties.



Once again, we are pleased to report that the District staff, under the direction, guidance and support of the District's Board of Supervisors, continues to maintain and protect the works of improvement of the District, and to provide the landowners within the District a cost-effective level of service for flood protection.

Respectfully submitted,

CARTER ASSOCIATES, INC.

By:   
George Simons, P.E. District Engineer  
Fellsmere Water Control District  
May 13, 2020  
Florida Registration #40437  
C.O.A. / L.B. #205

