



**AGENDA
HARBOR AND WATERWAYS BOARD MEETING
THURSDAY, AUGUST 27, 2026
5:30 PM
DESTIN CITY HALL ANNEX CHAMBERS**

- 1. CALL TO ORDER/ROLL CALL/PLEDGE OF ALLEGIANCE**
- 2. AGENDA APPROVAL**
- 3. APPROVAL OF MINUTES**
- 4. CURRENT BUSINESS**
 - A) Navigational Improvements Update**
 - B) Water quality standards - Mr. Alan Osborne**
- 5. PUBLIC COMMENTS**
- 6. NEXT MEETING DATE: September 24, 2026**

Any person requiring a special accommodation at this hearing because of a disability or physical impairment should contact the City Clerk at (850) 837-4242 at least 48 hours prior to the hearing. If a person decides to appeal any decision made with respect to any matter considered at such meeting, such person will need a record of the proceeding and for such purpose may need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence upon which the appeal is to be based. (Sec. 286.0105, Florida Statutes)

CITY OF DESTIN – COMMUNITY DEVELOPMENT



AGENDA ITEM

MEETING DATE: August 27, 2026

BOARD/COMMITTEE: Harbor & Waterways Board

TYPE OF AGENDA ITEM: Announcement

OUTLINE NUMBER: 4.A.

TO: Harbor & Waterways Board

THRU: Kimberly Kopp, City Attorney
Tina Deater, Community Development Director

FROM: Daniel Butler, Principal Planner

DATE: August 18, 2026

SUBJECT: Navigational Improvements Update

I. BACKGROUND: In October 2025, City Staff sent a letter to Senator Scott and Representative Patronis requesting consideration of various navigational improvements near the East Pass.

II. DISCUSSION: On August 3, 2026, Staff was forwarded a letter from the Coast Guard Senate Liaison Office to Senator Scott, providing a status of the pending improvements at East Pass.

III. RECOMMENDATIONS: Staff has provided the letter of navigational improvements as an informational item to keep the HWB informed, and will provide further updates as applicable.

IV. RECOMMENDED MOTION: There is no recommended motion at this time, as this item is informational.

Attachments:

1. Navigational Improvements Update
2. City Letter to Jimmy Patronis for Jetty Upgrades



5730
25-0572
August 3, 2026

The Honorable Rick Scott
United States Senate
110 Hart Senate Office Building
Washington, DC 20510

Dear Senator Scott,

This letter is in response to your correspondence dated October 10, 2025, from Mr. Larry Jones, City Manager, regarding Okaloosa County, City of Destin East Pass Navigation Improvements. Here is the current status of pending improvements for the East Pass:

- Repairing and upgrading the East Pass marker: Choctawhatchee Bay Entrance Light 3 (LLNR 4550). The Coast Guard issued the solicitation to contract repairs on July 9, 2026, and pricing proposals are due by August 10, 2026.
- Installing a new day marker at the end of the west jetty: Choctawhatchee Bay Entrance Light 4 (LLNR 4555). The Coast Guard issued the solicitation to contract repairs on July 9, 2026, and pricing proposals are due by August 10, 2026.
- Adding lighting to all existing nun and can buoys: The Coast Guard review is ongoing to determine the feasibility and appropriate course of action with respect to illumination.
- Retaining the newly repositioned buoys #1 and #2, while also illuminating them: Buoys #1 and #2 will retain their newly assigned positions. The Coast Guard review is ongoing to determine the feasibility and appropriate course of action with respect to illumination.

The Coast Guard Senate Liaison Office at (202) 224-2913 would be pleased to respond to any further questions you or your staff may have.

Sincerely,

A handwritten signature in black ink, appearing to be "S. H.", written over a horizontal line.

Coast Guard Senate Liaison Office
183 Russell Office Building
Washington, DC 20510



Office of the City Manager

4200 Indian Bayou Trail | Destin, FL 32541 | Phone: 850-837-4242 | www.cityofdestin.com

October 16, 2025

The Honorable Jimmy Patronis
805 E. James Lee Blvd.
Crestview, FL 32539

SUBJECT: City of Destin East Pass Navigation Improvements

Dear Representative Patronis,

Over the past several years, residents and visitors of the City of Destin have experienced significant navigational challenges near East Pass due to improperly placed channel markers, lack of lighting, and insufficient maintenance. These issues have created serious safety hazards for boaters navigating the area.

Recently, the United States Coast Guard (USCG) made progress by repositioning buoys #1 and #2 to a deeper part of the ebb shoal, thereby improving navigation. However, several hazards remain — including unlit and unmarked areas, as well as the damaged west jetty — that continue to pose risks to public safety.

At this time, the City of Destin respectfully requests the Coast Guard's consideration and action on the following items:

1. Repair and upgrade the East Pass marker;
2. Install a new day marker at the end of the west jetty;
3. Add lighting to all existing nun and can buoys; and
4. Retain the newly repositioned buoys #1 and #2, while also illuminating them.

Destin has long held the title of the "World's Luckiest Fishing Village," renowned for its expert fishing captains, plentiful gamefish, and beautiful emerald waters. Every year, the City welcomes thousands of tourists, many of whom are navigating these waters for the first time. Improving navigational aids in East Pass is not only a matter of enhancing safety for all but also preserving Destin's reputation as a safe and welcoming coastal destination.

Your support in advocating for these safety improvements with the Coast Guard would be greatly appreciated and would go a long way in protecting both locals and visitors alike.

Thank you for your continued support of the City of Destin and its residents.

Should you have any further questions or concerns, please do not hesitate to contact me either via e-mail ljones@cityofdestin.com or phone (850)-837-4242.

Sincerely,

Larry Jones
City Manager

Cc: David Prichard, Community Development Director
Kimberly Kopp, City Attorney (via email)
City of Destin Planning Division (via email)

CITY OF DESTIN – COMMUNITY DEVELOPMENT



AGENDA ITEM

MEETING DATE: August 27, 2026
BOARD/COMMITTEE: Harbor & Waterways Board
TYPE OF AGENDA ITEM: Presentation
OUTLINE NUMBER: 4.B.

TO: Harbor & Waterways Board

THRU: Tina Deater, Community Development Director
Daniel Butler, Principal Planner
Jesse Hernandez, Planner
Kimberly Kopp, City Attorney

FROM: Alan Osborne

DATE: August 12, 2026

SUBJECT: Water quality standards - Mr. Alan Osborne

I. BACKGROUND:

II. DISCUSSION: Mr. Osborne has provided the attached powerpoint and supporting documentation relating to Choctawhatchee Bay water quality standards to present to the HWB, and is seeking a recommendation from HWB to present his information to the City Council.

A. Link to Strategic Goals / Objectives:

B. Effect on Budget (EOB):

C. Level of Service (LOS):

D. Legislative Sponsor:

E. Business Impact Statement:

III. CONCLUSION: Mr. Osborne is seeking a recommendation from HWB to City Council, as will be discussed at the meeting. The recommended motion will be based on the information presented relating to water quality in the Bay, and suggestions for appropriate/responsive Council action.

IV. RECOMMENDED MOTION: I move that the Board recommend the following to the City Council: _____ (recommendation to be presented by Mr. Osborne).

Attachments:

ITEM # 2026-1144

1. Presentation to HWB A_Osborne
2. Miscellaneous Documents
A_Osborne
3. Sandestin stormwater violation -
2025- Gmail Kenneth Dickey

- Florida law defines “retention” & “to retain” to mean the “prevention” of stormwater run-off:

The **prevention of**, or **to prevent** the discharge of a given volume of stormwater run-off into the surface of the state by **complete** on-site storage.

F.A.C.62.25.020(12)

- Florida law requires specific design and performance standards for retention basins:
- Retention basins **shall** again provide the capacity for the given volume of stormwater within 72 hours following the storm event.
- The additional storage volume **must** be provided by a decrease of stored water cause **only by** percolation through soil, evaporation or evapotranspiration. F.A.C.62.25.025(4)

- Sandestin DRI has a stormwater retention standard:
 - Within the lake system a designed, **retention** of stormwater run-off is predicated on a 3-year storm of 24 hours duration for a total of 6.7 inches of rainfall.
 - Storms of greater intensity and rainfall **will discharge the excess volumes** of rainfall into Choctawhatchee Bay at various natural contributories.

1984

- Sandestin DRI added 35.4 acres of lakes to improve the “**retention**” capacity of [Sandestin] with attendant reduction in the potential for negative impacts on surrounding waters.”
(EX. 213, NGN000062.)

2007

- Florida Department of Community Affairs (DCA), agreed that the applicable requirement is for **retention** of 6.7 inches of run-off before any discharge to the Bay.
- System must also meet the Florida (DEP) rules:

- “project is required to provide minimum stormwater standards that are outlined in 19(b)(2)(d) of the Application for Development Approval as incorporated...
- Project is required to provide stormwater treatment to **retain** the run-off. From a 3 year 24 hour event (6.7 inches of rainfall) **and** stormwater facilities **must** be designated consistent with the Department of Environmental Protection rules.

EX. 80

From: David Campbell
To: Greg Graham
CC: 'Brad Herndon'
Sent: 4/10/2012 5:05:17 PM
Subject: FW: Driftwood Volume Checks
Attachments: Driftwood Calcs Checks.pdf; DriftwoodStormwater2-29-12.pdf

Greg,

Please see the email below for the approval from FDEP. I will still need to provide them an as-built. Can you meet me at Driftwood either Thursday or Friday?

David O. Campbell, PE

Campbell Engineering, Inc.
8729 North Lagoon Drive
Panama City Beach, FL 32408
850-685-3603
dcampbell214@comcast.net

From: Shortt, Christopher [<mailto:Christopher.Shortt@dep.state.fl.us>]
Sent: Monday, March 19, 2012 8:53 AM
To: dcampbell214@comcast.net
Subject: Driftwood Volume Checks

David,

Please see the below email summarizing my review of the Driftwood calculations that were submitted to the Department. I also attached a pdf of my calculations spreadsheet. Based on my numbers, the elevations of the weirs will need to be above the stated minimum.

If you have any questions or concerns upon reviewing this information, please do not hesitate to give me a call.

Thanks,

Chris Shortt, E.I.

Stormwater Engineer

Florida Department of Environmental Protection

Panama City Branch Office

2353 Jenks Avenue

Panama City, Florida 32405

(850) 767-0043 Fax (850) 872-7790

christopher.shortt@dep.state.fl.us

Please take a few minutes to share your comments on the service you received from the department by clicking on this link.
[DEP Customer Survey.](#)

From: Shortt, Christopher

Sent: Friday, March 09, 2012 3:14 PM

To: Dickey, Kenneth; Wilson, Cliff

Subject: RE: Driftwood Geotechnical

I've completed my review of the submitted calculations for Driftwood. The only concern I have is with the treatment volume. The results of my calculations (see attached) are slightly different than those of the submitted calculations. Here is a summary of my findings and methodologies:

Treatment Volume:

I recreated the calculations using the areas and elevations shown in the submitted calculations. As an independent means of checking the "in-between" elevations/areas (areas for the as-built condition of the orifice elevations), I interpolated the areas. All of these areas matched up well with the numbers provided in the calculations. The provided calculations used an interpolation of the cumulative volumes to back into a required weir elevation. In my confirmation calculations (see attached), I performed the interpolation on the front end to determine an area for the stated minimum weir elevation. I then calculated the provided volume.

Due to some potential rounding issues and the fact that my interpolation was based on areas rather than volumes (in acre-feet), the treatment volumes resulting from my calculations were slightly lower than the required volumes for Drainage Areas 1 and 3. However, the areas are so large in these calculations that even the slightest upward adjustment from the minimum weir elevations shown in the submitted calculations will meet the required treatment volume. Reasonable assurance will need to be provided showing that the proposed weir elevations will be above the stated minimum (if only slightly) to ensure that the required volume is met. Setting them at the exact elevations shown in the submitted calculations will not leave any room for error in the field and will not, according to my calculations, provide the required volumes.

Permanent Pool:

The permanent pool provided exceeds the required.

Orifice Calculations:

Based on the Florida Development Manual, the orifice diameters should be sized so as to not discharge

more than 1/2 of the treatment volume in 60 hours. Based on the calculations, the proposed orifice pipe diameters appear to be sufficient to meet this requirement.

If you have any questions or would like to discuss my calculations, please feel free to give me a call.

Thank you,

Chris Shortt, E.I.

Stormwater Engineer

Florida Department of Environmental Protection

Panama City Branch Office

2353 Jenks Avenue

Panama City, Florida 32405

(850) 767-0043 Fax (850) 872-7790

christopher.shortt@dep.state.fl.us

DRIFTWOOD ESTATES NCL RESPONSE CALCULATIONS:

Drahdage Area 1

Area (sf)	Area (ac)	Volume (ac-ft)	Cumul. Vol. (ac-ft)
-3 118245	2.714332	0	0
-2 137606	3.158969	2.936765381	2.936765381
-1 163474	3.752847	3.455922885	6.392688266 *Interpolated to account for apparent error in stage/storage table
0 189342	4.348694	4.049770432	10.44245888
1 221940	5.095041	4.720887769	15.16332645
2 251933	5.783588	5.43931359	20.60264004
3 288247	6.648800	6.315197429	26.91783747
4 343943	7.895845	7.371328605	34.28918437
4.15 361432.7	8.267353	1.214489842	35.50366421 *Interpolated area
4.5 402242	9.234208	3.06022785	38.571877
4.92 427872.2	9.815707	4.00048185	42.57218808 *Interpolated area
5 432597	9.929468	0.789887052	43.36184573
5.5 485009	10.8772	5.160918274	48.512764
6 436290	11.18358	5.400221534	53.97268554
6.5 506678	11.63832	6.7	60.67266554

Provided (Interpolated weir elev - Interpolated orifice elev)
Required

Orifice Check:

Volume Required = 7.084 ac-ft
309014.8 cf

Q/2 = 154507.3 cf Q/2 in 60 hrs = 0.715312 cfs

C = 0.6
h = 0.5775 ft
A = 0.19349 sf
So D = 5.88945 in

Using proposed D to solve for Q

D = 6 in
A = 28.2736 in²
Q = CA(2gh)^{1/2}
Q = 0.715312 cfs

Single 6" diameter pipe proposed, so it is good (will draw down 1/2 of volume between 48-60 hours).

D.A. 2

Area (sf)	Area (ac)	Volume (ac-ft)	Cumul. Vol. (ac-ft)
-3 49531	1.137076	0	0
-2 66030	1.289272	1.211673554	1.211673554
-1 62733	1.440152	1.363211662	2.574885216
0 70107	1.608435	1.524783388	4.099668604
1 77408	1.777068	1.693250889	5.792929493
2 84984	1.950984	1.864015152	7.656944644
3 88871	2.299766	2.110369014	9.767308458
4 117828	2.707254	2.488510101	12.25581856
4.2 125238.8	2.888044	0.860528844	13.1163474
4.5 138705	3.184228	0.912340909	14.02868931
5 145818	3.347475	1.632925549	15.66161486
5.17 149588.8	3.440233	0.576995179	16.23861004 *Interpolated area
5.5 167700	3.820284	1.16488897	17.40349901
6 183307	3.749013	1.842328878	19.24582789
6.5 168864	3.87868	1.80697314	21.05280103

Provided (Interpolated weir elev - Interpolated orifice elev)
Required

Orifice Check:

Volume Required = 2.98 ac-ft
128937.6 cf

Q/2 = 64488.8 cf Q/2 in 60 hrs = 0.298487 cfs

C = 0.6
h = 0.7275 ft
A = 0.072815 sf
So D = 3.950357 in

Using proposed D to solve for Q

D = 3 in D = 2 in
A = 7.068375 in² A = 3.1415 in²
Q = CA(2gh)^{1/2} Q = 0.049088 sf
Q = 0.201589 cfs Q = 0.060585 cfs

Proposed 3" and 2" pipes.

D.A. 3

Area (sf)	Area (ac)	Volume (ac-ft)	Cumul. Vol. (ac-ft)
-3 46799	1.074357	0	0
-2 62586	1.439318	1.255337488	1.255337488
-1 75127	1.724079	1.580495183	2.835832671
0 89480	2.054178	1.889428375	4.725261046
1 105801	2.428867	2.241617447	6.966878493
2 120827	2.776102	2.602479339	9.569357832
3 142252	3.265657	3.020879247	12.59023708
4 144728	3.322498	3.284077135	15.87431422
4.4 183372	4.208942	1.508427918	17.38274214 *Interpolated area
4.5 183033	4.21428	0.432053469	17.81479561
5 208401	4.784226	2.303814141	20.11860975
5.21 213888.3	4.9102	1.017914979	21.13652473 *Interpolated area
5.5 221488	5.08416	1.449182128	22.58570686
6 232258	5.331933	2.604023158	25.18973001
6.5 243286	5.585354	2.729321626	27.91905164

Provided (Interpolated weir elev - Interpolated orifice elev)
Required

Orifice Check:

Volume Required = 3.78 ac-ft
165092.4 cf

Q/2 = 82546.2 cf Q/2 in 60 hrs = 0.352158 cfs

C = 0.6
h = 0.8075 ft
A = 0.16183 sf
So D = 4.32095 in

Using proposed D to solve for Q

D = 3 in D = 3 in
A = 7.068375 in² A = 7.068375 in²
Q = CA(2gh)^{1/2} Q = 0.049088 sf
Q = 0.184216 cfs Q = 0.184216 cfs

Proposed (2) 3" pipes.

DRIFTWOOD ESTATES-PHASE II

EVALUATION OF OUTFALL CONTROL STRUCTURES BASED ON AS-BUILT CONDITIONS

WALTON COUNTY, FLORIDA

PREPARED BY DAVID O. CAMPBELL, PE
February 29, 2012

In response to the noncompliance letter dated November 29, 2011 and the subsequent meeting with the FDEP, I have evaluated the as-built data regarding the outfall control structures of Driftwood Estates-Phase II and recommend the following minor modifications based on the attached calculations.

Drainage Area #1 – Outfall structure at Lake #5

1. Because the drawdown orifice was adjusted from the design elevation of 4.5 to the as-built elevation of 4.15 lowering the permanent pool elevation 0.35 ft, the discharge weir elevation shall be adjusted from the as-built elevation of approximately 4.7 to a new elevation of 4.92. This will ensure the 1" retention volume requirement is met.
2. The as-built permanent pool volume remains well above the required volume.
3. The drawdown orifice as-built will function according to design.
4. Adjust each skimmer according to the proposed weir elevation.

Drainage Area #2 – Outfall structure at Lake #9

1. Because the drawdown orifice was adjusted from the design elevation of 4.5 to the as-built elevation of 4.2 lowering the permanent pool elevation 0.30 ft, the discharge weir elevation shall be adjusted from the as-built elevation of approximately 5.0 to a new elevation of 5.17. This will ensure the 1" retention volume requirement is met.
2. The as-built permanent pool volume remains well above the required volume.
3. The drawdown orifice as-built will function according to design.
4. Adjust each skimmer according to the proposed weir elevation.

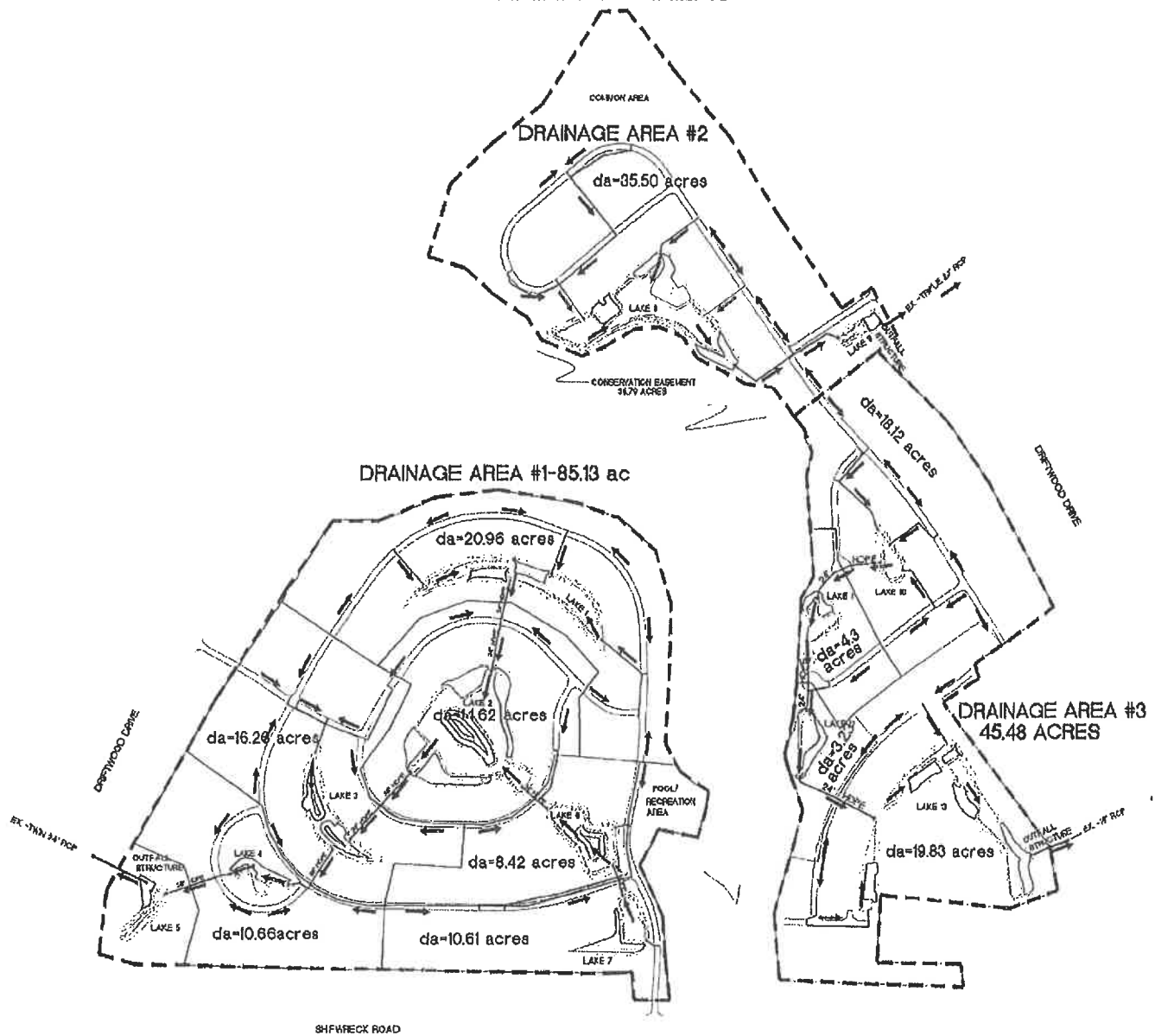
Drainage Area #3 – Outfall structure at Lake #13

1. Because the drawdown orifice was adjusted from the design elevation of 4.5 to the as-built elevation of 4.4 lowering the permanent pool elevation 0.1 ft, the discharge weir elevation shall be adjusted from the as-built elevation of approximately 4.9 to a new elevation of 5.21. This will ensure the 1" retention volume requirement is met.
2. The as-built permanent pool volume remains well above the required volume.
3. The drawdown orifice as-built will function according to design.
4. Adjust each skimmer according to the proposed weir elevation.

As-built drawings shall be submitted to the FDEP and the County after these adjustments are made.

David O. Campbell
2-29-12

DRIFTWOOD ESTATE PHASE II DRAINAGE AREAS



Retention Volumes LAKES #1 THROUGH #7
 Project: DRIFTWOOD ESTATES PHASE II
 Location: Walton County, Florida
 Revised: 29-Feb-12

DRAINAGE AREA #1 - PERMITTED DESIGN

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
-3.00	118245.00	2.71453	0.00000	0.00000	0	
-2.00	137806.00	3.15900	2.93677	2.93677	0	
-1.00	15909.00	0.36522	1.76211	4.69888	0	
0.00	189342.00	4.34669	2.35596	7.05483	0	
1.00	221940.00	5.09504	4.72087	11.77570	0	
2.00	251933.00	5.78359	5.43931	17.21501	0	
3.00	298247.00	6.84881	6.31520	23.53021	0	
4.00	343943.00	7.89584	7.37133	30.90154	0	
4.50	402242.00	9.23421	4.28251	35.18405	0	

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
4.50	402242.00	9.23421	0.00000	0.00000	0	
5.00	432397.00	9.92647	4.79017	4.79017	0	
5.50	465099.00	10.67720	5.15092	9.94109	0	
6.00	486290.00	11.16368	5.46022	15.40131	0	
6.50	506878.00	11.63632	5.70000	21.10131	0	

DRAINAGE AREA #1 - REVISED DESIGN

REVISED 2-29-12

CENTER LINE DRAWDOWN ORIFICE ELEV. = 4.15 (as-built)

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
-3.00	118245.00	2.71453	0.00000	0.00000	0	
-2.00	137806.00	3.15900	2.93677	2.93677	0	
-1.00	15909.00	0.36522	1.76211	4.69888	0	
0.00	189342.00	4.34669	2.35596	7.05483	0	
1.00	221940.00	5.09504	4.72087	11.77570	0	
2.00	251933.00	5.78359	5.43931	17.21501	0	
3.00	298247.00	6.84881	6.31520	23.53021	0	
4.00	343943.00	7.89584	7.37133	30.90154	0	
4.15	361432.00	8.29734	1.21449	32.11603	0	

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
4.15	361432.00	8.29734	0.00000	0.00000	0	
4.50	402242.00	9.23421	3.06802	3.06802	0	
5.00	432397.00	9.92647	4.79017	7.85819	0	
5.50	465099.00	10.67720	5.15092	13.00911	0	
6.00	486290.00	11.16368	5.46022	18.46933	0	
6.50	506878.00	11.63632	5.70000	24.16933	0	

DRAINAGE AREA = 86.126 ACRE DISCHARGE STRUCTURE AT LAKE #5
 FDEP AND COUNTY 1" RETENTION REQUIRED = 7.094 AC-FT
 CENTER LINE 6" DRAWDOWN ORIFICE ELEV. = 4.15 (as-built)
 REQUIRED WEIR ELEVATION = 4.92

$$5.0 - [(7.85819 - 7.094) / (7.85819 - 3.06802) * 0.5] = 4.92$$

AS-BUILT WEIR VARIES FROM ELEVATION = 4.67 TO 4.75
 WEIR ELEVATION TO BE SET AT MINIMUM ELEVATION = 4.92

CALCULATIONS

DRAINAGE AREA #1

TOTAL AREA TO RETENTION POND = 3,708,096 SF = 85.126
IMPERVIOUS AREA = 1,324,421 sf
PERVIOUS AREA = 2,383,675 sf
RATIONAL 'C' FACTOR = 0.51

PERM. POOL VOLUME REQ'D - THREE METHODS

1. 3.84% OF THE ANNUAL RAIN
 2. 9.15% OF THE YEARLY PEAK SEASON RAIN
 3. 2" X IMPERVIOUS AREA + 1/2" X PERVIOUS
-
1. $0.0384 \times 61" \times 3,708,096 \times 0.51 = 369,148 \text{ CF} = 8.47 \text{ ac-ft (FL. DEV. MANUAL)}$
 2. $0.0915 \times 30" \times 3,708,096 \times 0.51 = 432,596 \text{ CF} = 9.93 \text{ ac-ft}$
 3. $[(2/12) \times 1,324,421] + [(0.5/12) \times 2,383,675] = 320,056 \text{ CF} = 7.35 \text{ (FL. DEV. MANUAL)}$

PERM. POOL PROVIDED = 32.116 ac-ft > 9.93 O.K. MEETS CRITERIA FOR FL. DEV. MANUAL

ORIFICE DRAWDOWN OF THE TREATMENT VOLUME 7.094 AC-FT = 309,015 CF

$$Q = CA (2gh)^{1/2}$$

$$C = 0.6$$

$$Q \text{ REQUIRED} = 309015/2 \text{ PER 60 HRS} = 0.7153 \text{ CFS}$$

$$h = \text{HEAD} = 4.92 - 4.15 = 0.77' \text{ USE 75\% TO ACCOUNT FOR FALLING HEAD} = 0.6'$$

$$A = Q/[C(2gh)^{1/2}] = 0.7153/[0.6((64.4)(.6))^{1/2}] = 0.192 \text{ SF} = 27.6 \text{ SQ. IN.}$$

AREA OF 6" PIPE = 28.27 SQ. IN., THEREFORE USE ONE 6" PIPE

Retention Volumes LAKES #8 AND #9**Project: DRIFTWOOD ESTATES PHASE II****Location: Walton County, Florida****Revised:****DRAINAGE AREA #2 - PERMITTED DESIGN**

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
-3.00	49531.00	1.13708	0.00000	0.00000	0	
-2.00	56030.00	1.28627	1.21167	1.21167	0	
-1.00	62733.00	1.44015	1.36321	2.57489	0	
0.00	70107.00	1.60944	1.62479	4.09968	0	
1.00	77409.00	1.77707	1.69325	5.79293	0	
2.00	84984.00	1.95096	1.86402	7.65694	0	
3.00	98871.00	2.26977	2.11037	9.76731	0	
4.00	117928.00	2.70725	2.48851	12.25582	0	
4.50	138705.00	3.18423	1.47287	13.72869	0	

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
4.50	138705.00	3.18423	0.00000	0.00000	0	
5.00	145816.00	3.34747	1.63293	1.63293	0	
5.50	157700.00	3.62029	1.74194	3.37487	0	
6.00	163307.00	3.74901	1.84233	5.21719	0	
6.50	168964.00	3.87888	1.90697	7.12417	0	

DRAINAGE AREA #2 - REVISED DESIGN**REVISED 2-29-12****CENTER LINE DRAWDOWN ORIFICE ELEV. = 4.2 (as-built)**

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
-3.00	49531.00	1.13708	0.00000	0.00000	0	
-2.00	56030.00	1.28627	1.21167	1.21167	0	
-1.00	62733.00	1.44015	1.36321	2.57489	0	
0.00	70107.00	1.60944	1.52479	4.09968	0	
1.00	77409.00	1.77707	1.69325	5.79293	0	
2.00	84984.00	1.95096	1.86402	7.65694	0	
3.00	98871.00	2.26977	2.11037	9.76731	0	
4.00	117928.00	2.70725	2.48851	12.25582	0	
4.20	126239.00	2.89805	0.56053	12.81635	0	

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
4.20	126239.00	2.89805	0.00000	0.00000	0	
4.50	138705.00	3.18423	0.91234	0.91234	0	
5.00	145816.00	3.34747	1.63293	2.54527	0	
5.50	157700.00	3.62029	1.74194	4.28721	0	
6.00	163307.00	3.74901	1.84233	6.12954	0	
6.50	168964.00	3.87888	1.90697	8.03651	0	

DRAINAGE AREA = 35.517 ACRE DISCHARGE STRUCTURE AT LAKE #9**FDEP AND COUNTY 1" RETENTION REQUIRED = 2.96 AC-FT****CENTER LINE DRAWDOWN ORIFICE ELEV. = 4.20 (as-built)****REQUIRED WEIR ELEVATION = 5.12**

$$5.5 - [(4.28721 - 2.96)/(4.28721 - 2.54527) \times 0.5] = 5.12$$

AS-BUILT WEIR VARIES FROM ELEVATION = 4.96 TO ELEVATION 5.17**WEIR ELEVATION TO BE SET AT MINIMUM ELEVATION = 5.17**

DRAINAGE AREA #2

TOTAL AREA TO RETENTION POND = 1,547,111 SF = 35.5

IMPERVIOUS AREA = 475,897 sf

PERVIOUS AREA = 1,071,214 sf

RATIONAL 'C' FACTOR = 0.47

PERM. POOL VOLUME REQ'D - THREE METHODS

1. 3.84% OF THE ANNUAL RAIN

2. 9.15% OF THE YEARLY PEAK SEASON RAIN

3. 2" X IMPERVIOUS AREA + 1/2" X PERVIOUS

1. $0.0384 \times 61" \times 1,547,111 \times 0.47 = 141,938 \text{ CF} = 3.26 \text{ ac-ft (FL. DEV. MANUAL)}$

2. $0.0915 \times 30" \times 1,547,111 \times 0.47 = 166,333 \text{ CF} = 3.81 \text{ ac-ft}$

3. $[(2/12) \times 475,897] + [(0.5/12) \times 1,071,214] = 123,950 \text{ CF} = 2.84$
(FL. DEV. MANUAL)

PERM. POOL PROVIDED = 12.81 ac-ft > 3.81 O.K. MEETS CRITERIA FOR FL. DEV. MANUAL

ORIFICE DRAWDOWN OF THE TREATMENT VOLUME 2.96 AC-FT = 128,926 CF

$$Q = CA (2gh)^{1/2}$$

$$C = 0.6$$

$$Q \text{ REQUIRED} = 128,926 / 2 \text{ PER 60 HRS} = 0.298 \text{ CFS}$$

$$h = \text{HEAD} = 5.17 - 4.2 = 0.97' \text{ USE 75\% TO ACCOUNT FOR FALLING HEAD} = 0.73'$$

$$A = Q / [C(2gh)^{1/2}] = 0.298 / [0.6\{(64.4)(.73)\}^{1/2}] = 0.0724 \text{ SF} = 10.4 \text{ SQ. IN}$$

AREA OF 3" PIPE = 7.06 SQ. IN

AREA OF 2" PIPE = 3.14 SQ IN THEREFORE, USE ONE 3" PIPE, AND ONE 2" PIPE

Retention Volumes LAKES #10 THROUGH #13
 Project: DRIFTWOOD ESTATES PHASE II
 Location: Walton County, Florida
 Revised:

DRAINAGE AREA #3 - PERMITTED DESIGN

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
-3.00	48799.00	1.07436	0.00000	0.00000	0	
-2.00	62566.00	1.43632	1.25534	1.25534	0	
-1.00	75127.00	1.72468	1.58050	2.83584	0	
0.00	89480.00	2.05418	1.88943	4.72526	0	
1.00	105801.00	2.42886	2.24152	6.96678	0	
2.00	120927.00	2.77810	2.60248	9.56926	0	
3.00	142252.00	3.26566	3.02088	12.59014	0	
4.00	144728.00	3.32250	3.29408	15.88422	0	
4.50	193033.00	4.43143	1.93848	17.82270	0	

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
4.50	193033.00	4.43143	0.00000	0.00000	0	
5.00	208401.00	4.78423	2.30391	2.30391	0	
5.50	221466.00	5.08416	2.46710	4.77101	0	
6.00	232259.00	5.33193	2.60402	7.37503	0	
6.50	243298.00	5.58535	2.72932	10.10436	0	

DRAINAGE AREA #3 - REVISED DESIGN

REVISED 2-29-12

CENTER LINE DRAWDOWN ORIFICE ELEV. = 4.4 average (as-built)

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
-3.00	46799.00	1.07436	0.00000	0.00000	0	
-2.00	62566.00	1.43632	1.25534	1.25534	0	
-1.00	75127.00	1.72468	1.58050	2.83584	0	
0.00	89480.00	2.05418	1.88943	4.72526	0	
1.00	105801.00	2.42886	2.24152	6.96678	0	
2.00	120927.00	2.77810	2.60248	9.56926	0	
3.00	142252.00	3.26566	3.02088	12.59014	0	
4.00	144728.00	3.32250	3.29408	15.88422	0	
4.40	183372.00	4.20964	1.50643	17.39065	0	

ELEVATION (ft)	AREA (sf)	AREA (ac)	STORAGE (ac-ft)	CUMM STORAGE (ac-ft)	DISCHARGE (cfs)	PERCOLATION (cfs)
4.40	183372.00	4.20964	0.00000	0.00000	0	
4.50	193033.00	4.43143	0.43205	0.43205	0	
5.00	208401.00	4.78423	2.30391	2.73597	0	
5.50	221466.00	5.08416	2.46710	5.20306	0	
6.00	232259.00	5.33193	2.60402	7.80709	0	
6.50	243298.00	5.58535	2.72932	10.53641	0	

DRAINAGE AREA = 45.5 ACRE DISCHARGE STRUCTURE AT LAKE #13
 FDEP AND COUNTY 1" RETENTION REQUIRED = 3.79 AC-FT
 CENTER LINE DRAWDOWN ORIFICE ELEV. = 4.3 and 4.5 (as-built)
 REQUIRED WEIR ELEVATION = 5.21

$$5.5 - [(5.20306 - 3.79) / (5.20306 - 2.73597) \times 0.5] = 5.21$$

AS-BUILT WEIR VARIES FROM ELEVATION = 4.86 TO ELEVATION 5.03
 WEIR ELEVATION TO BE SET AT MINIMUM ELEVATION = 5.21

DRAINAGE AREA #3

TOTAL AREA TO RETENTION POND = 1,981,287 SF = 45.5
IMPERVIOUS AREA = 659,345 sf
PERVIOUS AREA = 1,321,942 sf
RATIONAL 'C' FACTOR = 0.49

PERM. POOL VOLUME REQ'D - THREE METHODS

1. 3.84% OF THE ANNUAL RAIN
 2. 9.15% OF THE YEARLY PEAK SEASON RAIN
 3. 2" X IMPERVIOUS AREA + 1/2" X PERVIOUS
-
1. $0.0384 \times 61" \times 1,981,287 \times 0.49 = 189,506 \text{ CF} = 4.35 \text{ ac-ft (FL. DEV. MANUAL)}$
 2. $0.0915 \times 30" \times 1,981,287 \times 0.49 = 222,077 \text{ CF} = 5.10 \text{ ac-ft}$
 3. $[(2/12) \times 659,345] + [(0.5/12) \times 1,321,942] = 164,971 \text{ CF} = 3.78 \text{ (FL. DEV. MANUAL)}$

PERM. POOL PROVIDED = 17.39 ac-ft > 5.10 O.K. MEETS CRITERIA FOR FL. DEV. MANUAL

ORIFICE DRAWDOWN OF THE TREATMENT VOLUME 3.79 AC-FT = 165,106 CF

$$Q = CA (2gh)^{1/2}$$

$$C = 0.6$$

$$Q \text{ REQUIRED} = 165,106/2 \text{ PER } 60 \text{ HRS} = 0.382 \text{ CFS}$$

$$h = \text{HEAD} = 5.2 - 4.4 = 0.8' \text{ USE } 75\% \text{ TO ACCOUNT FOR FALLING HEAD} = 0.60'$$

$$A = Q/[C(2gh)^{1/2}] = 0.381/[0.6\{(64.4)(.60)\}^{1/2}] = 0.1022 \text{ SF} = 14.7 \text{ SQ. IN}$$

AREA OF 3" PIPE = 7.06 SQ. IN THEREFORE, USE TWO 3" PIPES,





Walton County Public Works Division

Engineering Department
117 Montgomery Circle
DeFuniak Springs, FL 32435

Memorandum

To: Walton County Board of County Commissioners

From: Charles Cotton, P.E.
Walton County Public Works Department
Chance Powell, P.E.
Walton County Public Works Department

CC: Harvey H. Harper, Ph.D., P.E.

Date: March 25, 2019

Subject: Driftwood Estates Stormwater Evaluation Review and Capital Improvement Prioritization

The following is a summary of the meeting held on March 12, 2019 between Dr. Harper, Ph.D., P.E. of Environmental Research and Design, Inc. (ERD) and Walton County Public Works employees Chance Powell, P.E. and Charley Cotton, P.E. This meeting was scheduled following an approved motion at the February 12, 2019 Walton BOCC meeting directing staff to meet with Dr. Harper, Ph.D., P.E. The purpose of this summary is to clarify the conclusions of ERD's stormwater evaluation, clearly define the scope of the recommended drainage capital improvement project identified in the report, and to present a workable prioritization and phasing plan for the capital improvement project.

Meeting Summary and Points of Discussion:

1. It is the opinion of ERD that neither the interior nor the exterior stormwater systems in Driftwood, in their existing state, meet the DRI standard.
2. ERD's review of the Driftwood Stormwater Systems concluded that "there is no practical method or cost-effective way of retrofitting the Driftwood Stormwater Systems for such an extraordinarily high standard", referred to as the DRI standard in item 1 above.
3. ERD's review of the Driftwood Stormwater Systems concluded that the interior systems do provide the required level of service for both water quality and peak rate attenuation pursuant to the applicable performance standards within Walton County's Land Development Code.
4. ERD's evaluation noted that developing the interior lots did not adversely impact the stormwater outfalls that are shared by both the interior and exterior portions of Driftwood Estates.
5. ERD's evaluation did not recommend modification to the interior stormwater systems.
6. ERD's evaluation did identify that the exterior stormwater system, designed and constructed per Connelly and Wicker plans dated June 1994, has 'issues and deficiencies inherent to the original drainage design.'
7. ERD's evaluation did recommend a drainage capital improvement project for the exterior loop meeting 'an adequate drainage level of service for the 10-year storm event without provisions for water quality treatment'.

8. ERD's proposed capital improvement project for the exterior loop would not (and is not intended to) meet the level of service referred to as the DRI standard in item 1, but would provide an adequate drainage level of service for a 10-year storm event to be consistent with the Walton County Land Development Code for a system with roadside swales for drainage internal to the development.
9. ERD's proposed capital improvement project involves the installation of a piping network and ditch bottom inlets to be located within the right-of-way for increasing collection and conveyance capacity to one of six outfalls to Choctawhatchee Bay.
10. ERD's proposed capital improvement project identifies the need to purchase 4 privately owned parcels for use as 'forebay's to daylight the proposed piping network. These forebays are not designed to meet the Walton County Land Development Code Standards for stormwater treatment or sized to retain the volume of runoff equaling the DRI Standard identified in item 1.
11. These forebays are not designed to meet stormwater quality standards, but it is understood that some ancillary level of treatment will be provided.
12. Based on current Walton County Property Appraiser information, the parcels identified for purchase as forebays include 1 vacant bay front parcel, 2 vacant interior parcels, and 1 interior parcel with a residential home.
13. ERD's capital improvement project proposes armoring of existing outfall locations using either ditch pavement or Articulated Concrete Block (ACB) matting to improve flow to the receiving water body and reduce maintenance frequency.
14. ERD identifies a maintenance recommendation that could be implemented in the interim if necessary due to anticipated budget implications associated with the proposed capital improvement project. The maintenance project involves grading of swales for positive flow, and ensuring adequate flow transmission through driveway connections is achieved by unclogging existing culverts or installing culverts at locations where needed. ERD recommends armoring the outfalls as part of the maintenance recommendation also.
15. Walton County Public Works has recently completed a phase of an 'in-house' project that involves conveyance improvements in a roadside collection system. The conveyance improvement utilize a shallow swale system with underdrains to provide connectivity to the existing outfall locations. A nutrient removing filtration system utilizing bi-sorption activated media was installed at the outfall as a water quality component. These plans and calculations have been provided to Dr. Harper, Ph.D., P.E. for review.
16. Existing outfall easement descriptions have been provided to Dr. Harper, Ph.D., P.E. for review.
17. Walton County's Conceptual Phasing Plan for the ERD Capital Improvement Project has been provided to Dr. Harper, Ph.D., P.E. for review.

Attachments:

- (a) Conceptual Construction Phasing Plan For ERD's Recommended Improvements For the Exterior Stormwater System in Driftwood Estates
- (b) Easement Descriptions for Existing Outfall Locations
- (c) Walton County Public Works Driftwood Drainage Retrofit Phase II Drainage Analysis
- (d) Walton County Public Works Driftwood Drainage Retrofit Plan Set
- (e) Walton County Public Works Driftwood Drainage Retrofit Qualification for Use of General Permit from Northwest Florida Water Management District

Choctawhatchee Bay	778C	Choctawhatchee Bay (Middle Segment2)	Estuary 2
Nutrients (Total Nitrogen)		ENRM7: AGM ≤ 0.36 mg/L	NA
Impaired	Medium	"ENRM7: AGM	5

2003 (0.31 mg/L)

2004 (0.27 mg/L)

2005 (0.31 mg/L)

2006 (0.25 mg/L)

2007 (0.30 mg/L)

2008 (0.32 mg/L)

2009 (0.39 mg/L)

2010 (0.33 mg/L)

2011 (0.27 mg/L)

2012 (0.33 mg/L)" "ENRM7: AGM

2008 (0.32 mg/L)

2009 (0.39 mg/L)

2010 (0.33 mg/L)

2011 (0.27 mg/L)

2012 (0.33 mg/L)

2013 (0.38 mg/L)

2014 (0.41 mg/L)" This waterbody is impaired for this parameter because the annual geometric means exceeded the criterion more than once in the most recent consecutive three year period. This parameter is being added to the 303(d) List.



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DRAFT TECHNICAL MEMORANDUM

TO: Walton County Board of County Commissioners
FROM: Harvey H. Harper, III, Ph.D., P.E. – President
DATE: November 11, 2015
RE: Sandestin DRI and Driftwood Estates Stormwater Standard

Introduction

Driftwood Estates is part of the Sandestin Development of Regional Impact (DRI) which is located in Walton County, Florida. The Sandestin DRI is a mixed use development that includes approximately 1,960 acres of residential, office, and commercial land use activities which was approved by the Walton County Board of County Commissioners on October 19, 1976. The Sandestin DRI is bisected by U.S. Highway 98, with the majority of the development located north of U.S. Highway 98.

Driftwood Estates is located on the northern tip of the Sandestin DRI, approximately 2.5 miles north of U.S. Highway 98, and is bordered on the west, north, and east by Choctawhatchee Bay. Choctawhatchee Bay is a highly productive estuarine system which is classified in Chapter 62-302.400 of the Florida Administrative Code (FAC) as a Class II surface water suitable for shellfish propagation or harvesting.

An Application for Development Approval (ADA) was submitted to the Florida Department of Community Affairs (DCA) during 1974 to obtain approval for the proposed Sandestin development, including Driftwood Estates. The ADA included detailed descriptions of proposed activities for water supply, sewage disposal, surface drainage (runoff), water quality, natural resources, archeology, traffic, noise pollution, air pollution, and other design elements associated with significant developments. The ADA, including description of proposed activities and preliminary construction drawings, were developed by Baskerville-Donovan Engineers, Inc.

Driftwood Estates was developed in two separate phases. Driftwood Estates Phase I consists of perimeter portions of the overall Driftwood Estates, with lots that generally border Choctawhatchee Bay. These areas were platted during 1979 and are commonly referred as the "exterior" portions of Driftwood Estates. Driftwood Estates Phase II consists of center or "interior" portions of Driftwood Estates and was platted in three separate plats during 2003, 2004, and 2006.

Stormwater Matters in Dispute

Walton County and Greater Driftwood Estates Homeowners Association (Driftwood) have had an ongoing dispute regarding interpretation of the DRI development standards and criteria along with periodic flooding episodes which occur in the exterior portions of Driftwood Estates. During 2008, the parties entered into an agreement which stipulated that matters in dispute would be heard by an impartial Special Magistrate tasked with holding an evidentiary hearing, making findings of fact regarding the relevant issues, and providing recommendations for resolution of the matters in dispute. An evidentiary hearing was held on August 24-25, 2009 with participation from Walton County, Driftwood Estates, and DCA. The stormwater related areas of disagreement addressed by the Special Magistrate involved: (1) whether the Driftwood Estates stormwater system is designed according to standards outlined in the Sandestin DRI, and (2) and measures taken to correct the perceived deficiencies and stop the periodic flooding events.

The Special Magistrate Recommendation from the hearing included the following language regarding the stormwater issues:

“A review by an independent, qualified, and experienced stormwater engineer of the Driftwood Estates exterior stormwater system and interior stormwater system (jointly referred to as the “Driftwood Stormwater Systems”) should be undertaken as soon as reasonably possible to determine or perform the following:

- A. The appropriate model to be used in modeling the Driftwood Stormwater Systems.
- B. The permitted design of the Driftwood Stormwater Systems and a reasonable review of what has been built to determine any significant changes not consistent with the design.
- C. The modeling inputs should assume full build-out and model the exterior stormwater system and the interior stormwater system independently and jointly.
- D. Model the Driftwood Stormwater Systems to determine if the 3-day, 24-hour storm DRI level of service pursuant to the Sandestin ADA and the 25-year, 24-hour storm Walton County development code level of service are being met. The independent contractor should assess from the Sandestin ADA and other relevant data whether the 3-day, 24-hour storm level of service is a ‘retention’ or ‘detention’ standard or some variation of the two.
- E. If the level of service standards are not met, determine what stormwater system options, including wet detention systems similar to other parts of the Sandestin DRI, are possible meet the level of service and their estimated costs.
- F. All results are to be reported to Walton County, Driftwood, and DCA.”

During April 2015, Walton County entered into a contract with Environmental Research & Design, Inc. (ERD) and Harvey H. Harper, III, Ph.D., P.E. (hereafter referred to as "Engineer") to address the stormwater-related recommendations provided by the Special Magistrate. Over the past few months, the Engineer has met with representatives of Driftwood Estates and Walton County and has reviewed numerous documents provided by each party. ERD is currently working on issues related to modeling of the Driftwood Stormwater Systems and interactions between the interior and exterior stormwater systems and results of these modeling efforts will be presented in a subsequent report. This Technical Memorandum specifically addresses the Recommendation from the Special Magistrate related to the level of service for the Driftwood Stormwater System outlined in the DRI and whether the level of service is a "retention" or "detention" standard or some variation of the two.

Description of DRI Stormwater Standard

A narrative description of the proposed stormwater management system for the Sandestin DRI is included in the Sandestin ADA. Section 19b(1)(b) of the ADA states the following:

"The series of lakes shown in the Master Plan, Section 34i, represents an efficient system of retaining water in a readily useable form. In the natural state, the flatwoods are flooded with each intense summer rain after which the native plants rapidly "pump" much of this water back into the air with accelerated rates of evapotranspiration. Much of the water is normally taken into the soil profile and is retained there and used in the growth of native trees and shrubs. A part of the water is normally taken into the surface sand aquifer where it is stored and is generally available."

This language implies that the stormwater system is designed to mimic the existing site hydrology where runoff is returned to the hydrologic cycle through evapotranspiration, infiltration into the soil profile, and stored in the surface sand aquifer.

Section 19b(2) of the Sandestin ADA provides further information regarding the intent of the stormwater management system as follows:

"In all cases as in the handling of storm runoff, any liquid discharges, such as treated sewage effluent, will be assimilated into the vegetation, soils, and internal lake system within the Sandestin area. Every precaution is being taken to maintain or improve the good water quality of Choctawhatchee Bay."

The intent of the stormwater management system is further clarified in Section 19b(2)(d) of the Sandestin ADA which provides a description of removal processes associated with the stormwater management system as follows:

"Normally, all surface runoff will pass through a series of natural filters, such as (1) grassed, landscaped, and native areas near the impervious surfaces, (2) a zone of shoreline plants around the lakes, (3) the lake waters, and (4) finally the salt marshes around the area. In most cases, the runoff water will be recirculated many times via irrigation waters from the lakes and will not reach the public waters of Choctawhatchee Bay. In cases of extremely high rates of rainfall, the runoff waters will still have to pass through the same set of filters which will clean them of sediments and nutrients, but the retention time will be shortened. Such intense rains would follow much of the same route without the Sandestin project and would have approximately the same BOD and even greater sediment loads."

This language describes a lake-based stormwater system which is designed to recirculate and reuse runoff inputs so that discharges from the lakes “will not reach the public waters of Choctawhatchee Bay” and anticipates that runoff will reach the Bay only in “cases of extremely high rates of rainfall”.

The specific design standard for portions of the Sandestin DRI north of U.S. Highway 98, including Driftwood Estates, is provided in Appendix 26-1 of the Sandestin ADA which states:

“The system is to hold stormwater on-site in a series of interconnecting inland lakes (See Plan No. 13). These lakes will be adequate in size to retain onsite runoff from a 3-year design storm of 24-hour duration and not rise more than 2 feet.”

It is not known whether the standard was proposed by DCA or provided by the applicant.

Analysis of DRI Stormwater Standard

At the time of submittal of the Sandestin ADA during 1974 the field of stormwater management was in its infancy. In fact, generally accepted stormwater rules and design criteria did not exist at the time of the Sandestin ADA submittal. The first stormwater rule promulgated by the Florida Department of Environmental Protection (FDEP, referred to at the time as the Department of Pollution Control) was outlined in Chapter 17-4.248 FAC and was an interim rule adopted in October 1979 that applied only to “significant discharges” while the rule-making process was going on for a more permanent rule.

The primary issue of contention regarding the Sandestin DRI stormwater standard is whether the standard reflects a “retention” or “detention” standard. At the time of the Sandestin ADA, the terms “retention” and “detention” were clearly part of stormwater nomenclature, although the first formal regulatory definitions for these terms were not published by FDEP until adoption of the Chapter 17-25 rule in October 1981. This rule defines “retention” as:

“Retention” or “To Retain” – the prevention of, or to prevent the discharge of, a given volume of stormwater runoff into surface waters of the State by complete on-site storage where the capacity to store the given volume of stormwater is again provided within 72 hours following the storm event. The additional storage volume must be provided by a decrease of stored water caused only by percolation through soil, evaporation, or evapotranspiration.

Chapter 17-25 defines “detention” as:

“Detention” or “To Detain” – the collection and temporary storage of stormwater in such a manner as to provide for treatment through physical, chemical, or biological processes with subsequent gradual release of the stormwater.

The basic difference between the two treatment techniques is the mode of achieving pollutant load reductions. Retention systems provide pollutant removal by reducing the runoff volume through infiltration into groundwater, use as an irrigation source, or evapotranspiration through plants and the water surface. Detention systems simply detain the water for a period of time, without significant reduction in runoff volume, relying upon physical, chemical, or biological processes to remove pollutants during the period in which the water is detained, typically 72 hours or less.

It is generally undisputed between the parties that the Sandestin ADA uses the word "retention" instead of "detention" in describing the Sandestin Stormwater System. The assertion by Walton County that the words "retention" and "detention" were used interchangeably during the 1970s is correct, and in fact, these terms are still used interchangeably today by some stormwater engineers. However, the intent of the stormwater management system, described by the applicant in the Sandestin ADA, clearly appears to describe a retention rather than detention system. For example, Section 19b(1)(b) of the ADA states that "the series of lakes shown in the Master Plan, Section 34i, represents an efficient system of retaining water in a readily useable form. This section goes on to further describe how the pre-existing flatwoods on the site served to "pump" much of the runoff back into the atmosphere through evapotranspiration and how "water is normally taken into the soil profile and is retained there and used in the growth of native trees and shrubs". This description appears to describe a "retention" rather than a "detention" system.

Section 19b(2)(d) of the Sandestin ADA describes removal processes associated with the stormwater management system as occurring through a series of natural filters such as pervious areas near impervious surfaces, shoreline plants around the lakes, the lakes themselves, and the salt marshes around the area. This section indicates further that "in most cases, the runoff water will be recirculated many times via irrigation waters from the lakes and will not reach the public waters of Choctawhatchee Bay". This language supports a stormwater system where a majority of the runoff is retained on-site and prevented from reaching the waters of Choctawhatchee Bay.

Further evidence of a retention standard is provided by the applicant who uses the word "retention" or "retained" in every description of the stormwater management system as well as in responses to questions from DCA regarding protection of water quality. In fact, the word "detention" does not appear in any references to the stormwater management system for the Sandestin DRI reviewed by the Engineer for this analysis. The word "retention" appears almost exclusively in subsequent submittals for modification of the 1976 DRI development order, as well as in communications between DCA and the applicant. For example, the document titled "Sandestin-1984 Master Plan Update" prepared by the Sandestin Corporation and dated August 1, 1984 continues to refer to the stormwater system as "retention" and proposes an increase in the area of the retention lakes from 187.3 acres to 222.7 acres.

Question 26B of the Sandestin ADA relates to flood protection and impacts on the floodplain resulting from the proposed development. In response to this question, the applicant replied "since Choctawhatchee Bay is a Class II body of water, it is desirable to limit direct discharge of storm waters into its surface waters. In order to obtain this goal, a series of interconnected ponds are proposed which would collect and retain on-site all surface stormwater expected for the overflow of heavy storms which would occur infrequently". This language describes a retention system which would retain stormwater runoff on-site even for infrequent heavy storms. Later in addressing this same issue as part of Question 26C, the applicant further describes the system as "retention ponds" and states that "for design storms of greater intensity than a 3-year storm, six spillways will be constructed that will allow discharge of this excess stormwater from the lake system into Choctawhatchee Bay". This statement clearly anticipates that discharges will only occur from the stormwater system for storm events in excess of a 3-year storm.

In a correspondence dated April 2, 2010, the DCA reiterated the stormwater standard in a letter to the Honorable Scott Brannon, Chair of the Walton County Board of County Commissioners. DCA states in the third paragraph of this letter that "the controlling standard, as documented in the Sandestin application for development approval (ADA) is *retention* of 6.7 inches of rainfall during a 3-year, 24-hour storm event. The ADA also prohibits untreated runoff from reaching any of the public waters surrounding Sandestin, including the Choctawhatchee Bay." Although the words "retention" and "detention" were often used interchangeably in the stormwater community during the 1970s, it is unlikely that experienced professionals from DCA and FDEP assigned to address stormwater issues, designs, and regulatory criteria would consistently interchange these terms. The emphasis placed by DCA in the April 2, 2010 correspondence on retention (printed in italics in the original letter) supports the fact that DCA considers the standard to originally and currently refer to retention of the runoff generated by 6.7 inches of rainfall. This position is reiterated in correspondence from the Department of Economic Opportunity (DEO) on May 30, 2014 to the Honorable William (Bill) Chapman, Chair of the Walton County Board of County Commissioners, by repeating the assertion of DCA that the stormwater system should be designed to retain runoff from a 3-year, 24-hour storm event (6.7 inches) with no discharge into Choctawhatchee Bay.

The transcript from the Special Magistrate Hearing discusses testimony by Walton County that land development regulations require a stormwater Level of Service (LOS) of a 25-year storm, 24-hour duration with a total of 10.2 inches of rainfall in a 24-hour period. The County contends that the 25-year, 24-hour standard is a stricter standard than the 3-year, 24-hour standard for the Sandestin DRI, and maintains that systems designed to meet the County LOS will automatically meet the Sandestin DRI stormwater standard since the 25-year, 24-hour standard is a stricter standard. However, the Sandestin 3-year, 24-hour standard and Walton County 25-year, 24-hour standard refer to different components of a stormwater system that are not comparable. The Sandestin DRI standard of 3-year, 24-hour storm is a *water quality* volume standard similar to the Walton County performance standard for stormwater management systems outlined in Section 5.06.03-Stormwater Management Requirements of the Walton County Land Development Code which requires developments to provide on-site retention for the first inch of rainfall for water quality purposes. In contrast, the 25-year, 24-hour standard is a *flood protection* volume designed to prevent flooding during extreme storm events by providing temporary runoff storage in a pond so that the post-development peak discharge rate (generally referenced in cubic feet per second, cfs) does not exceed the peak runoff discharge under pre-development conditions. Most stormwater systems combine the water quality and flood control elements into a single pond with separate design elements and volumes for the water quality and flood protection elements. Since the 3-year, 24-hour standard addresses water quality and pollutant load reductions, and the 25-year, 24-hour standard addresses flood control, the standards are not comparable.

As a point of clarification, both The Special Magistrate Recommendation and historical documents related to the Driftwood Estates project used the term LOS, at times, when referring to the 3-year, 24-hour Sandestin DRI stormwater standard. However, the LOS term is typically used in the stormwater field in reference to issues related to runoff collection, conveyance, and flooding, not water quality volumes.

A final argument proposed by Walton County is that the use of wet ponds as part of the stormwater system assumes a method of "detention" instead of "retention". This statement is generally true when describing current stormwater methods. However, during the 1970s, wet retention systems, which provide for retention of runoff inside a wet pond rather than a dry pond, were popular within Florida. In wet retention systems, water volume is evacuated by exfiltration of the water into the adjacent shallow groundwater table or to deeper aquifers. The concept of wet detention lakes, as we know it today, did not become popular until the 1980s.

Perhaps a confusing aspect of the Sandestin DRI stormwater standard is that the retention depth is based upon a 3-year storm of 24-hour duration, with a total of 6.7 inches of rainfall. Current stormwater water quality design criteria are generally based upon a certain number of inches of rainfall or runoff over the contributing project area for estimation of water quality treatment volumes, while the reference to a return period and duration for a storm event (i.e., 3-year storm of 24-hour duration) is generally used to evaluate storms with respect to flooding potential. However, at the time of development for the Sandestin DRI, stormwater language related to water quality control was much less defined than under current conditions, and the language used to define the Sandestin DRI stormwater quality design standard is stated would probably not be used today.

Calculation of DRI Standard

The Sandestin DRI stormwater standard is based on retaining the runoff generated from a 3-year storm of 24-hour duration, with a total of 6.7 inches of rainfall. The amount of runoff generated from a given storm event is a function of the hydrologic characteristics of the project site and the rainfall depth. To provide more specificity regarding the Sandestin stormwater standard, an analysis was conducted by the Engineer to quantify the runoff treatment depth required by the standard. Due to the different hydrologic characteristics of the Interior and Exterior portions of Driftwood Estates, the runoff treatment depths will be different for the two areas.

Estimates of typical hydrologic characteristics for developed areas within Interior and Exterior portions of Driftwood Estates were developed by the Engineer based upon a review of aerial photography of existing development within the two areas, as well as extensive professional experience in evaluating hydrologic characteristics for a variety of land use types within the State of Florida. A summary of assumed hydrologic characteristics of Interior portions of Driftwood Estates is given in Table 1. Based upon review of aerial photography for existing development in Interior portions of the Driftwood Estates site, it appears that approximately 50% of the developed residential areas are covered by impervious surfaces such as houses, roadways, and sidewalks. This analysis further assumes that approximately 50% of the impervious area is considered to be directly connected impervious areas (DCIA), which refers to impervious areas directly connected into the stormwater drainage system, resulting in an estimated DCIA percentage of 25% of the project area (50% impervious x 50% DCIA = 25% of site).

Land cover in developed portions of the Interior site is assumed to grass in good condition. The hydrologic soil group (HSG) for the Interior site is assumed to be Group D under pre-development conditions, due to the high water table conditions prior to development. However, as a result of the general lowering of the water table under post-development conditions and import of significant amounts of fill, the HSG under post-development conditions is assumed to be Group C. The curve number (CN) value associated with the pervious areas, which is a measure of the runoff potential for the existing land cover and soil group, is assumed to be 74 which was obtained from the NRCS Technical Release 55 (TR-55) dated June 1995. Additional information regarding hydrologic characteristics can be obtained from the TR-55 publication or from the Harper and Baker (2007) report titled "Evaluation of Current Stormwater Design Criteria within the State of Florida" which was prepared for FDEP as part of the Statewide Stormwater Rule process.

TABLE 1

**HYDROLOGIC CHARACTERISTICS OF
INTERIOR PORTIONS OF DRIFTWOOD ESTATES**

PARAMETER	UNITS	VALUE
Impervious Area ¹	% of Total Area	50
Directly Connected Impervious Area (DCIA) ²	% of Impervious Area	50
	% of Total Area	25
Pervious Areas	Land Cover	Grass, good conditions
	HSG ³	C
	CN Value ⁴	74

1. Percentage of total area covered by impervious surfaces
2. Percentage of total area covered by impervious surfaces which are directly connected to the drainage system
3. HSG = Hydrologic Soil Group
4. CN = SCS Curve Number obtained from NRCS Technical Release 55 (TR-55) (June 1995)

A tabular summary of assumed hydrologic characteristics for Exterior portions of Driftwood Estates is given in Table 2. Exterior portions are characterized by a lower impervious percentage, which is assumed to be approximately 30% of the total area. Impervious areas connected directly to the stormsewer system are assumed to be 25% of the total impervious area in Exterior portions, resulting in a DCIA percentage of 7.5% of the total area (30% impervious x 25% DCIA = 7.5% of site). Land cover for developed areas in Exterior portions of Driftwood Estates is assumed to be grass in good condition. The HSG for developed areas in Exterior portions of Driftwood Estates is assumed to be Group D due to a lower degree of fill and a lower degree of drawdown of the pre-development water table. The CN value associated with the assumed land cover and HSG is 80 which was obtained from TR-55.

TABLE 2

**HYDROLOGIC CHARACTERISTICS OF
EXTERIOR PORTIONS OF DRIFTWOOD ESTATES**

PARAMETER	UNITS	VALUE
Impervious Area ¹	% of Total Area	30
Directly Connected Impervious Area (DCIA) ²	% of Impervious Area	25
	% of Total Area	7.5
Pervious Areas	Land Cover	Grass, good conditions
	HSG ³	D
	CN Value ⁴	80

1. Percentage of total area covered by impervious surfaces
2. Percentage of total area covered by impervious surfaces which are directly connected to the drainage system
3. HSG = Hydrologic Soil Group
4. CN = SCS Curve Number obtained from NRCS Technical Release 55 (TR-55) (June 1995)

Estimates of the runoff volume generated by the 6.7-inch rainfall event were calculated for Interior and Exterior portions of Driftwood Estates using a modification of the SCS curve number methodology. The modified SCS method used by ERD calculates the runoff volume for a given rainfall event by adding the rainfall excess (runoff) from the non-DCIA portion to the rainfall excess created from the DCIA portion of the land use. Rainfall excess from the non-DCIA areas is calculated using the following set of equations:

$$nDCIA\ CN = \frac{CN * (100 - Imp) + 98 (Imp - DCIA)}{(100 - DCIA)}$$

$$Soil\ Storage\ (S) = \frac{1000}{nDCIA\ CN} - 10$$

$$Q_{nDCIAi} = \frac{(P_i - 0.2S)^2}{(P_i + 0.8S)} \times (\% nDCIA\ of\ total\ area)$$

where:

<i>CN</i>	=	curve number for pervious area
<i>Imp</i>	=	percent impervious area
<i>DCIA</i>	=	percent directly connected impervious area
<i>nDCIA CN</i>	=	curve number for non-DCIA area
<i>P_i</i>	=	event rainfall
<i>Q_{nDCIAi}</i>	=	rainfall excess for non-DCIA for rainfall event

For the DCIA portion, rainfall excess is calculated using the following equation:

$$Q_{DCIAi} = (P_i - 0.1) \times (\% DCIA\ of\ total\ area)$$

When *P_i* is less than 0.1, *Q_{DCIAi}* is equal to zero. This factor reflects the initial abstraction for the impervious areas which assumes that the first 0.1 inch of rainfall is stored within the irregularities in the impervious surfaces and does not become stormwater runoff. After these surfaces become filled with the initial 0.1 inch of rainfall, additional rainfall begins to generate runoff on these surfaces.

A summary of calculated runoff depth for a 6.7-inch rain event in Interior portions of Driftwood Estates is given on Table 3. The values listed in Table 3 are calculated using the previous formulas. The total runoff generated by a 6.7-inch rain event in Interior portions of Driftwood Estates is 5.1 inches, corresponding to an event C value of 0.75, indicating that approximately 75% of the rainfall generated by the 6.7-inch rain event became runoff. This value is substantially higher than annual average C values associated with residential developments which are typically in the range of 0.25-0.4. However, during extreme rainfall events, such as a 6.7-inch storm, the available soil storage is rapidly filled, and significant runoff begins to be generated by both pervious and impervious surfaces. Based upon this analysis, the retention standard for Interior portions of Driftwood Estates is approximately 5.1 inches of runoff over the developed area.

TABLE 3
CALCULATED RUNOFF DEPTH FOR A 6.7-INCH RAIN
EVENT FOR INTERIOR PORTIONS OF DRIFTWOOD ESTATES

PARAMETER	SYMBOL	UNITS	VALUE
Event Rainfall	P_i	inches	6.7
Non-DCIA CN Value ¹	nDCIA CN	--	82.0
Soil Storage	S	inches	2.20
Non-DCIA Runoff	Q_{nDCIA}	inches	3.48
DCIA Runoff	Q_{DCIA}	inches	1.58
Total Runoff ²	Q_{TOTAL}	inches	5.1
Event C Value ³	C	--	0.75

1. Weighted curve number of pervious areas and non-DCIA impervious areas
2. Sum of non-DCIA and DCIA runoff
3. Proportion of annual rainfall which becomes runoff

A summary of calculated runoff depth for a 6.7-inch rain event in Exterior portions of Driftwood Estates is given on Table 4. This analysis is conducted using the same methodology used for the Interior portion analysis. The total runoff generated by a 6.7-inch rain event in Exterior portions of Driftwood Estates is approximately 4.8 inches, equivalent to an event C value of 0.72, indicating that approximately 72% of the event rainfall became runoff. Therefore, the retention standard for Exterior portions of Driftwood Estates is approximately 4.8 inches over the contributing watershed area.

TABLE 4**CALCULATED RUNOFF DEPTH FOR A 6.7-INCH RAIN
EVENT FOR EXTERIOR PORTIONS OF DRIFTWOOD ESTATES**

PARAMETER	SYMBOL	UNITS	VALUE
Event Rainfall	P_i	inches	6.7
Non-DCIA CN Value ¹	nDCIA CN	--	83.4
Soil Storage	S	inches	1.99
Non-DCIA Runoff	Q_{nDCIA}	inches	4.43
DCIA Runoff	Q_{DCIA}	inches	0.40
Total Runoff ²	Q_{TOTAL}	inches	4.8
Event C Value ³	C	--	0.72

1. Weighted curve number of pervious areas and non-DCIA impervious areas
2. Sum of non-DCIA and DCIA runoff
3. Proportion of annual rainfall which becomes runoff

The calculated retention standards of 5.1 inches for Interior portions of Driftwood Estates and 4.8 inches for Exterior portions of Driftwood Estates are exceedingly high standards which far exceed any existing water quality treatment volume standards within the State of Florida. It is not known if the originator of the stormwater standard intended to provide this level of protection for off-site discharges into Choctawhatchee Bay. However, regardless of the original intention, the retention depths of 5.1 inches for Interior portions and 4.8 inches for Exterior portions reflect the numerical interpretation of the adopted Sandestin DRI stormwater standard.

Conclusions

Based upon the review of available documentation, there appears to be overwhelming evidence that the stormwater standard for the Sandestin DRI is intended to be a "retention" standard. This conclusion is supported by documentation provided by the applicant as well as DCA which has reaffirmed their position on the issue on multiple occasions. In contrast, other than the interchangeability of the words "retention" and "detention" during the 1970s, and allegations by the County that a pond designed with a wet permanent pool volume must be detention by definition, there is little evidence to support a detention rather than retention interpretation of the standard. The Engineer agrees that the 3-year, 24-hour retention standard is an extraordinarily high standard, particularly for the period in time, but the 3-year, 24-hour retention standard is consistent with the stated objectives by the applicant of maintaining water quality within Choctawhatchee Bay. Therefore, the Engineer concludes that the Sandestin DRI stormwater standard is a retention standard which is equivalent to approximately 5.1 inches over the contributing drainage basin area for Interior portions of Driftwood Estates and 4.8 inches over the contributing drainage basin area for Exterior areas.



Dickey, Kenneth <Kenneth.Dickey@floridadep.gov>

Mar 31, 2025, 4:33 PM

to me, Rick, Robert, Kate, Dan.Curry@mywaltonfl.gov, Krika, Daniel, sharris827, Fred, Barbara

Mr. Osborne,

The exterior portion that you are referring to with the sediment boxes was permitted by the Northwest Florida Water Management District. Myself, along with a representative from the W inspected all of it about 1.5 years ago. The Departments portion, (wet detention ponds) were determined to be in compliance with the permit. I can not speak for the Water Management D

Regarding the DRI, the Department does not have any part in regulating the DRI, nor do we say if the county is in compliance with it or not.

Thanks,

Kenny

850-595-0580

 [Dep Customer Survey](#)



alan osborne <28henriq@gmail.com>

Mar 31, 2025, 4:38 PM

to Kenneth, Rick, Robert, Kate, Dan.Curry@mywaltonfl.gov, Krika, Daniel, sharris827, Fred, Barbara

THERE ARE NO SEDIMATE BOXES WHERE I AM REFERRING TO. NONE!!! IT IS DIRECT PIPING AS DR. Harper CALCULATED. The FBPE said the county using th what standards are required to be met in a DEP permit. Half the information sent to you this time wasnt even out 15 years ago. Wanna try another answer?

Reply

Forward

