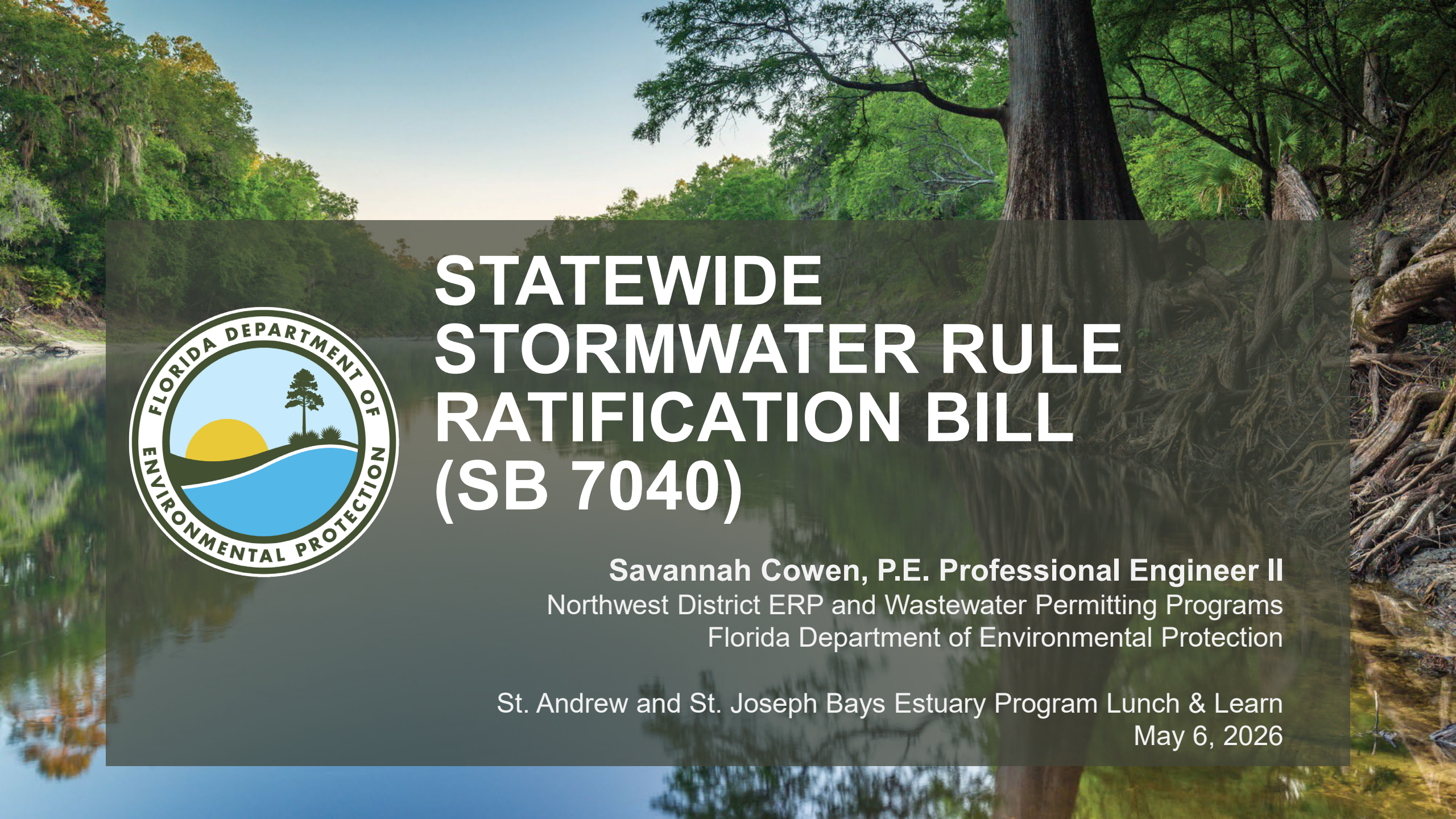


STATEWIDE STORMWATER RULE RATIFICATION BILL (SB 7040)

Savannah Cowen, P.E. Professional Engineer II
Northwest District ERP and Wastewater Permitting Programs
Florida Department of Environmental Protection

St. Andrew and St. Joseph Bays Estuary Program Lunch & Learn
May 6, 2026

AGENDA

- DEP Overview and Leadership.
- Northwest District Overview and Leadership.
- Operating Agreement.
- Permitting Program.
- Types of Permits.
- Stormwater Rule Updates.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Florida Department of Environmental Protection (DEP) is the state's lead agency for environmental management and stewardship, protecting our air, water and land.

DEP's regulatory programs safeguard natural resources by overseeing permitting and compliance activities that protect air and water quality and manage waste cleanups.

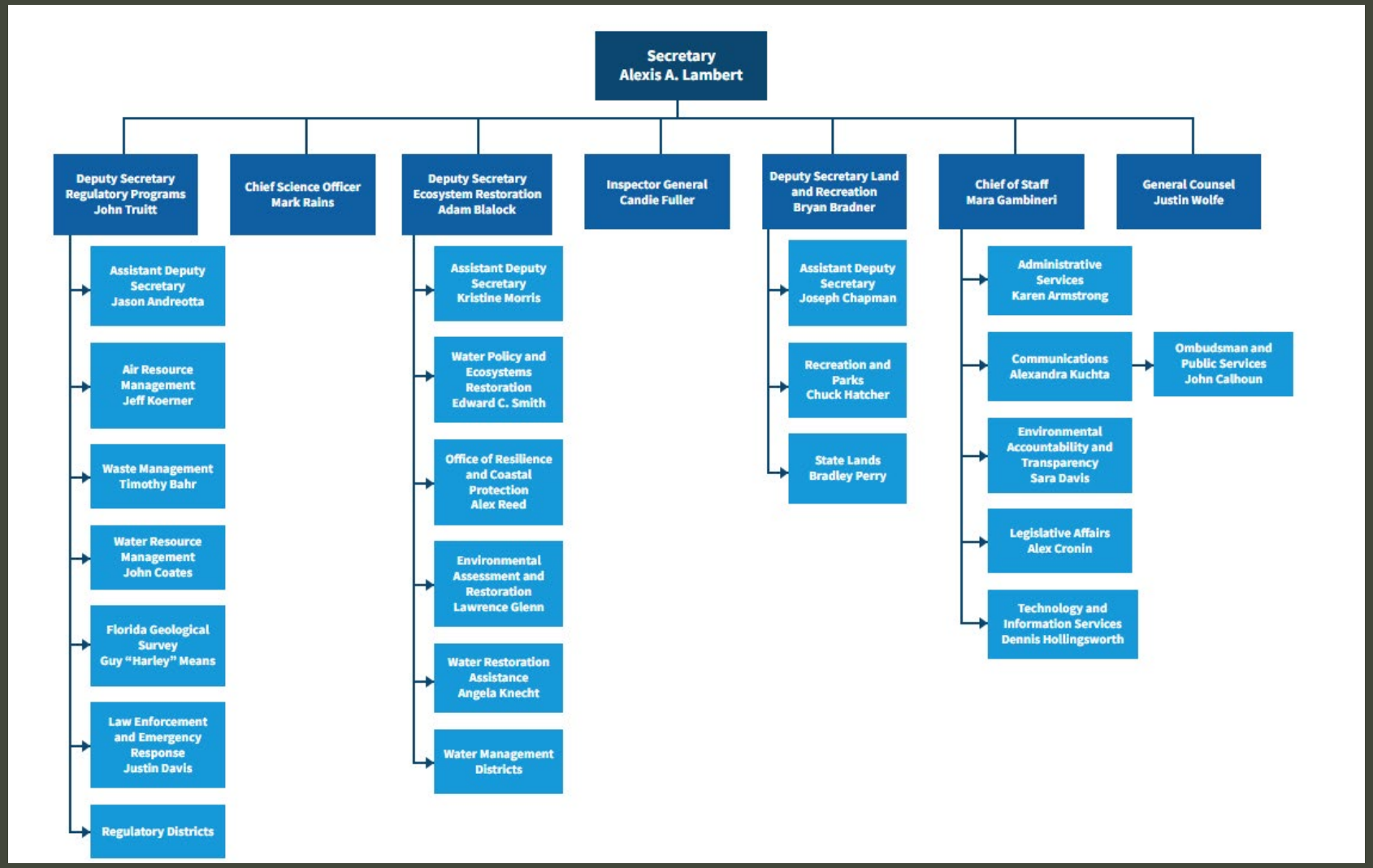
DEP LEADERSHIP

Secretary Alexis Lambert
Secretary of the Florida Department of Environmental Protection

John Truitt
Deputy Secretary
Regulatory Programs

Jason Andreotta
Assistant Deputy Secretary
Regulatory Programs

DEP LEADERSHIP



Source: DEP Organizational Chart

MISSION, VISION, AND VALUES

Mission

The Florida Department of Environmental Protection protects, conserves and manages the state's natural resources and enforces its environmental laws.

Vision

To advance Florida's position as a world leader in protecting natural resources while growing the state's economy.

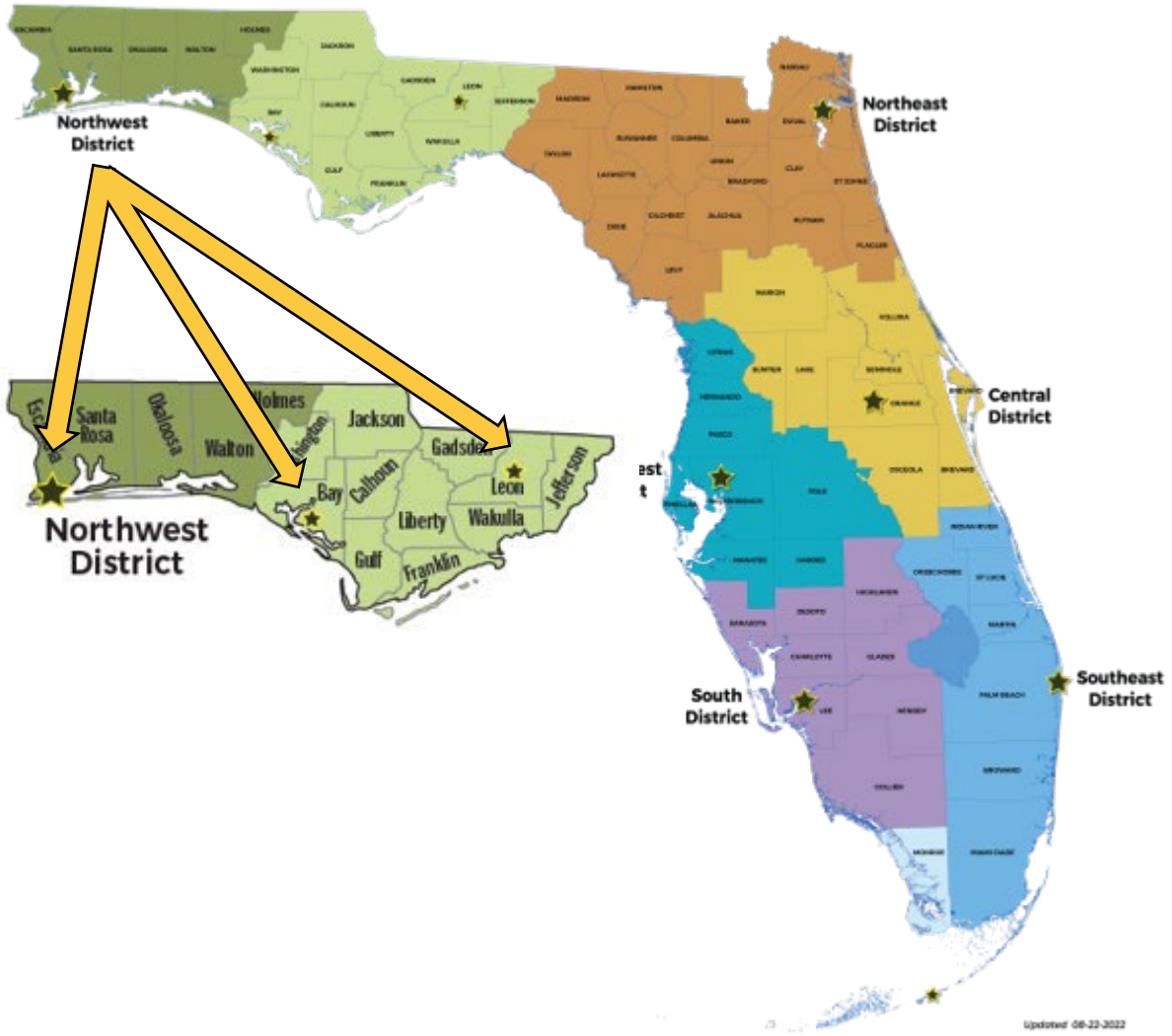
Values

- Leadership
- Integrity
- Accountability
- Communication
- Innovation
- Service

REGULATORY DISTRICT OFFICES

DEP has six district offices located regionally throughout the state.

The Northwest District (NWD) is headquartered in Pensacola with branch offices in Tallahassee and Panama City and is responsible for the 16 counties of the Florida Panhandle. In addition to issuing various kinds of program-specific permits, the district's offices conduct the majority of the day-to-day environmental inspections, including the performance of compliance assistance and enforcement functions.



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OPERATING AGREEMENT

The Operating Agreement between DEP and the Northwest Florida Water Management District (NWFWMD) states that DEP is responsible for "the review and final action on all applications and notices for permits, petitions for variances, and verification of exemptions" for:

a.	All activities, in whole or in part, in, on, or over submerged lands owned by the State of Florida, including state-owned submerged lands.
d.	A system serving or consisting of up to three contiguous parcels of land under single ownership, where each parcel contains or is proposed to contain only one single family dwelling unit, duplex, triplex, or quadruplex (hereinafter referred to as a dwelling unit).
e.	Systems proposed in whole or in part seaward of the coastal construction control line (CCCL). In areas where a CCCL has not been established, systems proposed in whole or in part seaward of a point 50 feet above the mean high water line at any riparian coastal location fronting the Gulf of Mexico coast shoreline, exclusive of bays, inlets, rivers, bayous, creeks, passes, and the like.
s.	Ecosystem Management Agreements and activities conducted in accordance with Ecosystem Management Agreements under Section 403.0752, F.S.
t.	Projects submitted by, or on behalf of, the following military installations: Tyndall Air Force Base, Naval Support Activity Panama City, Eglin Air Force Base, Hurlburt Field, Naval Air Station Whiting Field, Training Center Corry, Naval Hospital Pensacola, and Naval Air Station Pensacola.

Source: Photo taken by Blake Chapman

PERMITTING PROGRAMS

Permitting Programs:

- Environmental Resource Permitting (ERP).
- Water/Wastewater.
- Air.
- Waste Cleanup.
- Solid Waste.

NWD Permitting General Inquiries:
850-595-8300

ENVIRONMENTAL RESOURCE PERMITTING (ERP) PROGRAM

Regulated activities:

- Activities in, on, or over surface waters or wetlands, and state-owned waters.
- Dredge and fill.
- Docks, piers, and boat ramps.
- Shoreline stabilization.
- Stormwater management.
- Permit revisions and modifications.
- State lands leases and easements.
- Some federal-level permitting.

ERP Applications Mailbox:
NWD_ERP_Applications@FloridaDEP.gov

WASTEWATER PERMITTING PROGRAM

Regulated activities:

- Domestic (sanitary sewage from residents, businesses, etc.) and industrial (derived from an industrial activity) wastewater.
- New wastewater treatment facility permitting.
- Permit renewals and revisions.
- Biosolids site and treatment permitting.
- Collection system permitting and clearances.
- NPDES Industrial Generic Permits (concrete batch plants, dewatering and discharge from petroleum contaminated sites).

Shared Mailbox:

Epost.NWDWF@FloridaDEP.gov

WATER PERMITTING PROGRAM

Regulated activities:

- New drinking water facility and distribution system permitting.
- Permit renewals and revisions.
- Potable water clearances.
- Monitoring and treatment well oversight.

Shared Mailbox:
NWDPWS@FloridaDEP.gov

AIR PERMITTING PROGRAM

Regulated activities:

- Air quality monitoring.
- Issue air construction and air operating permits to stationary sources of air pollution.
- State and federal compliance.
- Asbestos notifications.

Source: Pexels

Shared Mailbox:
NWDAIR@FloridaDEP.gov

WASTE CLEANUP AND SOLID WASTE PERMITTING PROGRAM

Regulated activities:

- Solid waste disposal and processing site permitting.
  - Landfills, waste transfer stations, waste tires and storm debris disposal.
- Investigation of soil and groundwater contamination.
- Investigation and cleanup of hazardous waste sites.

General Inquiries:
850-595-8300

NEW STORMWATER RULE

- On June 28, 2024, Governor Ron DeSantis signed Senate Bill 7040 into law, which updates Florida's stormwater rules and design criteria to protect the state's waterways.
- Under the new rule, applicants for stormwater management systems will continue to have flexibility to choose from a range of design options, including a variety of best management practices, when designing systems to meet the performance-based design criteria.
- The amendments to this rule will also ensure that future permitted systems will be better maintained. Operation and maintenance entities will be required to have estimates for the expected routine maintenance costs and to certify that they have the financial capability to maintain the stormwater system over time.
- The rule will also provide for more consistent oversight through a required periodic inspection routine and reporting on the inspection results to the permitting agency.
- Updates were made to ERP Applicant's Handbook Volume I and Volume II.
- For more information contact: Stormwater2020@FloridaDEP.gov.

NEW STORMWATER RULE – A.H. VOL. I UPDATES

Section, Applicant's Handbook Volume I:	When it is effective:*	Who is affected:
8.3 – Performance Criteria (begins on page 83).	Effective date of rule revisions plus 18 months - Dec. 28, 2025.**	Applicants for general and individual permits and major modifications of existing permits.
8.4.5 – Dam System Criteria (begins on page 85).	Effective date of rule revisions - June 28, 2024.	Dam system owners.
12.3.5 – Operation and Maintenance (O&M) Cost Estimate (begins on page 137).	Effective date of rule revisions - June 28, 2024 (submitted at the time of application).	All applicants.
12.4 – O&M Plan (begins on page 139).	Effective date of rule revisions - June 28, 2024 (submitted at the time of application).	All applicants.
12.5 – Inspection Requirements and Checklist. 12.5(c) – Qualified Inspector (begins on page 141).	Effective date - June 28, 2024 (submitted at the time of application). Effective date plus 12 months - June 28, 2025.	Everyone except municipal separate storm sewer system (MS4) entities and certain activities and best management practices regulated by the South Florida Water Management District or the Florida Department of Agriculture and Consumer Services.

Source: FDEP ERP Stormwater Resource Center

NUTRIENT REMOVAL CRITERIA

- For new ERP Individual Permits and Major Modifications deemed complete AFTER December 28, 2025 (unless Grandfathered per Section 3.1.2 ERP A.H. Vol. I) nutrient reduction criteria per Section 8.3 ERP A.H. Vol. I ***must*** be met.
  - Please review Section 3.1.2 to see if your project qualifies for grandfathering. If it does, please include supporting documentation in your Application.
- Nutrient reduction analyzes the reductions in Total Nitrogen (TN) and Total Phosphorous (TP) between the site's pre-development conditions, post-development conditions prior to stormwater treatment, and post-development conditions after stormwater treatment.

NUTRIENT REMOVAL CRITERIA (TSS)

- Per Section 8.3.1, SWMS are required to removal at least 80% of the average annual post-development total suspended solid (TSS) load.
- At least a 95% reduction is required if the project is located within a HUC-12 that contains an Outstanding Florida Water (OFW) and is upstream of said OFW.
- The required reduction is the difference between the post-development loadings prior to treatment and the post-development loading AFTER treatment, not a comparison of pre- and post-development loadings.
- It is presumed that, if sufficient TN and TP reductions are provided per Section 8.3 ERP A.H. Vol. I, that the above TSS reductions will also be achieved.

NUTRIENT REMOVAL CRITERIA (TN AND TP)

- Section 8.3.2 – 8.3.5 list required TN and TP removal efficiencies for several scenarios.
- For ALL cases, the required TN and TP reductions are either the listed percent reductions OR a reduction such that the post-development condition average annual loading (i.e. prior to treatment) of nutrients does NOT exceed the pre-development condition, whichever is greater.
    - Impairments are only considered for Category 4a, 4b, and 5.

Scenario	*Required TP Reduction*	*Required TN Reduction*	*Additional Criteria*
Minimum Requirement for ALL New Developments	80%	55%	OR Post ≤ Pre
Located within a HUC-12 that contains an OFW AND upstream of said OFW	90%	80%	OR Post ≤ Pre
Located within a HUC-12 that contains an impaired waterbody (regardless of impairment) AND upstream of said impaired waterbody	80%	80%	AND Post ≤ Pre Plus Net Improvement of Pollutant of Concern
Located within a HUC-12 that contains BOTH an impaired waterbody (regardless of impairment) and OFW AND upstream of said impaired waterbody and OFW	95%	95%	AND Post ≤ Pre Plus Net Improvement of Pollutant of Concern

NUTRIENT REMOVAL CRITERIA (TN AND TP)

- In lieu of the specific requirements of Section 8.3.4(a) ERP A.H. Vol. I (i.e. sites within a HUC-12 AND upstream of an impaired waterbody), basin-specific design and performance criteria for load reductions of nonpoint sources of stormwater were included in order to achieve an adopted Total Maximum Daily Load (TMDL) or Basin Management Action Plan (BMAP) the level of treatment for the basin-specific design and performance criteria prescribed in such TMDL, BMAP, approved alternative restoration plan, or other watershed management plan may be used instead.
- TN and TP removal efficiencies differ slightly for proposed redevelopment sites per Section 8.3.5.

Scenario	***Required TP Reduction***	***Required TN Reduction***	***Additional Criteria***
Minimum Requirement for ALL Redevelopments	80%	45%	N/A
Located within a HUC-12 that contains an OFW AND upstream of said OFW	90%	60%	N/A
Located within a HUC-12 that contains an impaired waterbody (regardless of impairment) AND upstream of said impaired waterbody	Post-Development Loading is Less than Pre-Development Loading for listed pollutants	Post-Development Loading is Less than Pre-Development Loading for listed pollutants	AND Net Improvement for Pollutant of Concern

NUTRIENT REMOVAL CRITERIA (TN AND TP)

- For example:
  - Pre-Development TP Loading: 20 lb./year.
  - Post-Development TP Loading: 25 lb./year.
  - 80% Reduction (as required for all sites): 5 lb./year.
    - In this scenario, the required percent reduction is more protective.
- However:
  - Pre-Development TP Loading: 4 lb./year.
  - Post-Development TP Loading: 25 lb./year.
  - 80% Reduction (as required for all sites): 5 lb./year.
    - In this scenario, the pre ≤ post would be more protective, and sufficient reductions should be made so that Post Development TP Loading is ≤ 4 lb./year.

HOW DO I DETERMINE THE REQUIRED WATER QUALITY CRITERIA FOR MY SITE?

- A HUC 12 subwatershed and Waters Not Obtaining Standards (WNAS) map is available on the Departments website.
  - This map will show if your site is within a HUC 12 subwatershed (identified by the 12 digit number) and if the site's discharge is within or upstream of an impaired waterbody within the ***same*** HUC 12 subwatershed.
- Unfortunately, this map does NOT contain OFWs.
  - To determine if your site's discharge is within or upstream of an OFW within the ***same*** HUC 12 subwatershed, the Department's OFW Map or MapDirect (with the OFW layer applied) should be utilized.

NUTRIENT REMOVAL CALCULATIONS

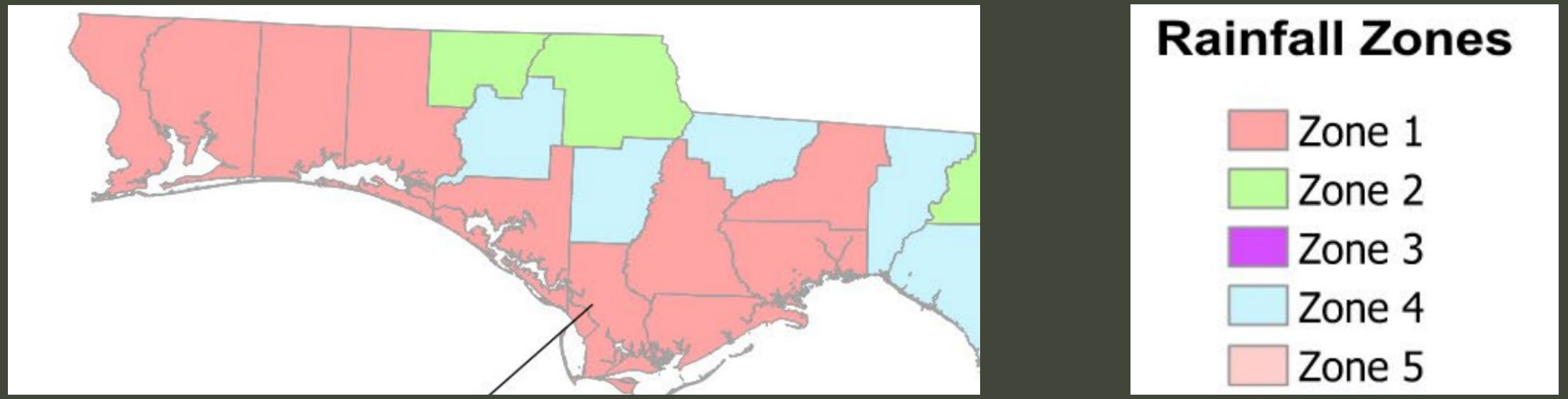
- Acceptable concentration-based loading calculations are provided in Sections 9.2.1 and 9.2.2 ERP A.H. Vol. I.
- Alternative calculation and modeling methods *may* be used if assurance is provided that these results provide an equivalent or greater degree of supporting information and reliability.
- The annual stormwater mass loadings must be determined for the total project area AND any offsite contributing areas.

9.6 Off-site Stormwater

The volume of runoff to be treated from a site shall be determined by the minimum level of treatment set forth in **Section 8** of this Volume; the type of treatment system (e.g., retention, wet detention, etc.); and the meteorological region (rainfall zone) where the project is proposed. If stormwater runoff from off-site areas is allowed to co-mingle with on-site runoff, then the effects of runoff from these off-site areas must be addressed in the load reduction calculations for the project area, unless the project is exempt from this provision under section 373.413(6), F.S.

NUTRIENT REMOVAL CALCULATIONS

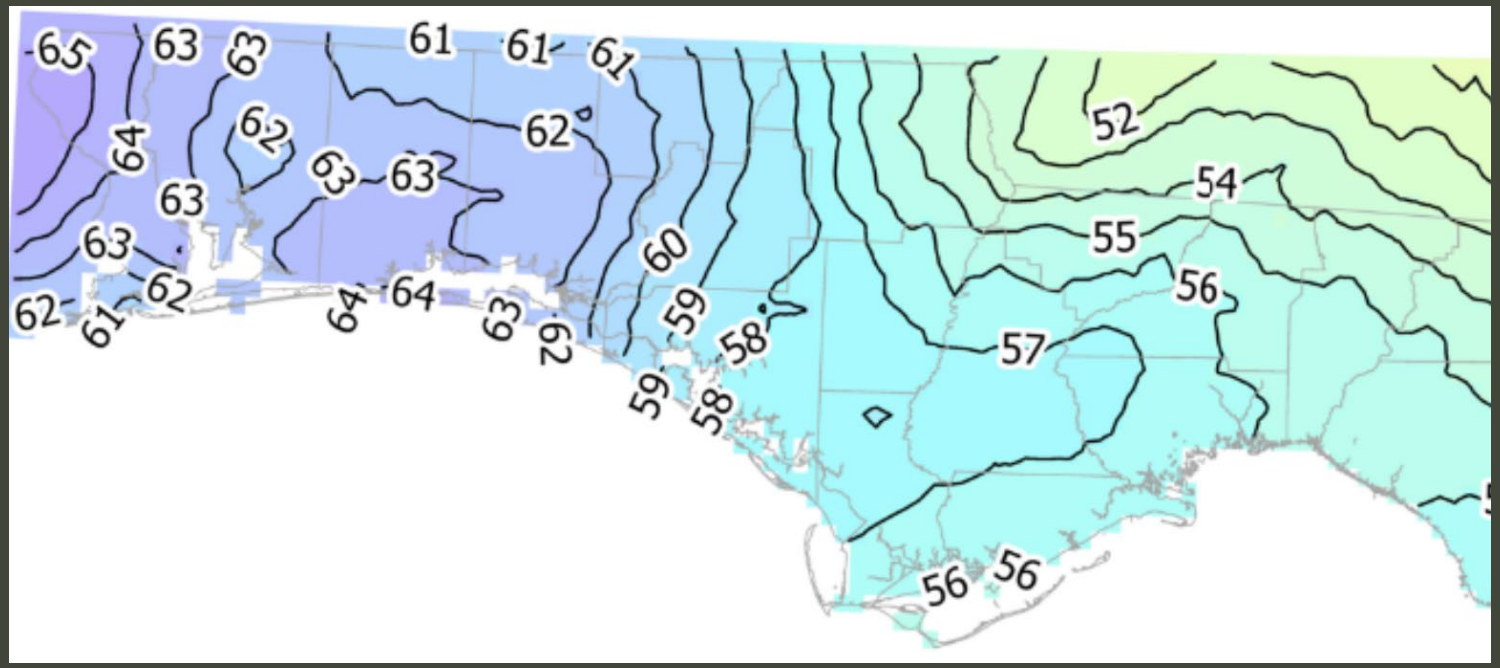
- Designated meteorological zones are located in Appendix M ERP A.H. Vol. I.
- NWD includes Zones 1, 2, and 4.



Source: FDEP Appendix M Applicant's Handbook Volume I

NUTRIENT REMOVAL CALCULATIONS

- Average annual rainfall (inches) is included in Appendix M ERP A.H. Vol. I.



Source: FDEP Appendix M Applicant's Handbook Volume I

NUTRIENT REMOVAL CALCULATIONS DCIA

- Directly Connected Impervious Areas (DCIA) consist of those impervious areas that are directly connected to the stormwater conveyance system (i.e. flows along road into catch inlet).
  - Areas are also considered to be DCIA if stormwater flow occurs as a concentrated shallow flow over a short (< 10 feet) pervious area.
  - DCIA is calculated as a percentage of the total development, not the impervious areas.
- Non-Directly Connected Impervious Areas (Non-DCIA or NDCIA) include ALL pervious areas and portions or impervious areas that:
  - Flow over at least 10 feet of undisturbed pervious areas with HSG A or B.
  - Flow over at least 20 feet of undisturbed pervious areas for all other HSGs.
  - The Applicant may demonstrate that narrower widths provide sufficient infiltration to “disconnect” the impervious areas by percolating the runoff from the 3-year, 1-hour storm event.

NUTRIENT REMOVAL CALCULATIONS ROC VALUES

- Mean annual runoff coefficients (ROC Values) are determined using tables in Appendix N ERP A.H. Vol. I.
  - Function of CN and DCIA for each meteorological zone.
  - The ROC must be determined for each, separate land used category.
  - ROC = 0.0 for naturally occurring, undeveloped conditions.
  - Linear interpolation may be used as necessary:

$$ROC = ROC_1 + \frac{(CN - CN_1)(ROC_2 - ROC_1)}{(CN_2 - CN_1)} \; or \; ROC = ROC_1 + \frac{(DCIA - DCIA_1)(ROC_2 - ROC_1)}{(DCIA_2 - DCIA_1)}$$

ZONE 1
Mean Annual Runoff Coefficients (ROC Value) as a Function of DCIA Percentage and Non-DCIA Curve Number

NDCIA / CN	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
	0.006	0.048	0.090	0.132	0.175	0.217	0.259	0.301	0.343	0.386	0.428	0.470	0.512	0.554	0.596	0.639	0.681	0.723	0.765	0.807	0.849
35	0.009	0.051	0.093	0.135	0.177	0.219	0.261	0.303	0.345	0.387	0.429	0.471	0.513	0.555	0.597	0.639	0.681	0.723	0.765	0.807	0.849
40	0.014	0.056	0.098	0.139	0.181	0.223	0.265	0.307	0.348	0.390	0.432	0.474	0.515	0.557	0.599	0.641	0.682	0.724	0.766	0.808	0.849
45	0.020	0.062	0.103	0.145	0.186	0.228	0.269	0.311	0.352	0.394	0.435	0.476	0.518	0.559	0.601	0.642	0.684	0.725	0.767	0.808	0.849
50	0.029	0.070	0.111	0.152	0.193	0.234	0.275	0.316	0.357	0.398	0.439	0.480	0.521	0.562	0.603	0.644	0.685	0.726	0.767	0.808	0.849
55	0.039	0.079	0.120	0.161	0.201	0.242	0.282	0.323	0.363	0.404	0.444	0.485	0.525	0.566	0.606	0.647	0.687	0.728	0.768	0.809	0.849
60	0.052	0.092	0.132	0.172	0.212	0.252	0.291	0.331	0.371	0.411	0.451	0.491	0.531	0.570	0.610	0.650	0.690	0.730	0.770	0.810	0.849
65	0.069	0.108	0.147	0.186	0.225	0.264	0.303	0.342	0.381	0.420	0.459	0.498	0.537	0.576	0.615	0.654	0.693	0.732	0.771	0.810	0.849
70	0.092	0.130	0.167	0.205	0.243	0.281	0.319	0.357	0.395	0.433	0.471	0.508	0.546	0.584	0.622	0.660	0.698	0.736	0.774	0.812	0.849
75	0.121	0.158	0.194	0.230	0.267	0.303	0.340	0.376	0.412	0.449	0.485	0.522	0.558	0.595	0.631	0.667	0.704	0.740	0.777	0.813	0.849
80	0.162	0.196	0.230	0.265	0.299	0.334	0.368	0.402	0.437	0.471	0.506	0.540	0.574	0.609	0.643	0.678	0.712	0.746	0.781	0.815	0.849
85	0.220	0.252	0.283	0.315	0.346	0.378	0.409	0.441	0.472	0.503	0.535	0.566	0.598	0.629	0.661	0.692	0.724	0.755	0.787	0.818	0.849
90	0.312	0.339	0.366	0.393	0.419	0.446	0.473	0.500	0.527	0.554	0.581	0.608	0.634	0.661	0.688	0.715	0.742	0.769	0.796	0.823	0.849
95	0.478	0.496	0.515	0.533	0.552	0.571	0.589	0.608	0.626	0.645	0.664	0.682	0.701	0.719	0.738	0.757	0.775	0.794	0.812	0.831	0.849
98	0.656	0.666	0.676	0.685	0.695	0.705	0.714	0.724	0.734	0.743	0.753	0.763	0.772	0.782	0.792	0.801	0.811	0.821	0.830	0.840	0.849

Source: FDEP Appendix M Applicant's Handbook Volume I

NUTRIENT REMOVAL CALCULATIONS

- While not required, it is recommended that pre- and post-development (before treatment) tables are utilized.
  - This should be done for each separate land use category.
- Use the listed ROC Values to determine the Annual Runoff Volume for each, separate land use area.
- Average Annual Rainfall determined by Appendix M.

$$(Eq. 9-1) Annual\ Runoff\ Volume\ (ac-ft) = \frac{Area\ (ac) * (Average\ Annual\ Rainfall\ (in) * ROC}{12\ in/ft}$$

Pre-development	Total watershed area	Non-DCIA CN	DCIA percentage	Calculated ROC Value
Single Family				
Multi-Family				
Low Intensity Commercial				
High Intensity Commercial				
Light Industrial				
Highway				
Natural Vegetated Community				

Post-development	Total watershed area	Non-DCIA CN	DCIA percentage	Calculated ROC Value
Low Density Residential				
Single Family				
Multi-Family				
Low Intensity Commercial				
High Intensity Commercial				
Light Industrial				
Highway				
Natural Vegetated Community				

Source: FDEP Table 9-1 ERP Applicant's Handbook Volume I

NUTRIENT REMOVAL CALCULATIONS EMC

- Pre- and Post-Development (Prior to treatment) nutrient loadings are calculated by multiplying the Annual Runoff Volume by the land use specific runoff characterization data or event mean concentrations (EMCs).
  - Acceptable EMC Values are listed in Table 9.2 ERP A.H. Vol. I.
  - In the Application, the Engineer of Record may propose to use other TN/TP values derived from regional and/or local governmental studies.

Table 9.2 Standardized Statewide Stormwater Nutrient EMC Values

Land Use Category	Total N (mg/l)	Total P (mg/l)
Low Density Residential	1.65	0.270
Single Family	1.77	0.327
Multi-Family	1.84	0.520
Low Intensity Commercial	0.93	0.19
High Intensity Commercial	2.40	0.345
Light Industrial	1.20	0.260
Highway	1.25	0.173
Dry Prairie	2.025	0.184
Marl Prairie	0.684	0.012
Mesic Flatwoods	1.087	0.043
Ruderal/Upland Pine	1.694	0.162
Scrubby Flatwoods	1.155	0.027
Upland Hardwood	1.042	0.346
Upland Mixed Forest	0.606	1.166
Wet Flatwoods	1.213	0.021
Wet Prairie	1.095	0.015
Xeric Scrub	1.596	0.156
Rangeland/parkland	1.150	0.055
General Agricultural	2.29	0.381
Pasture	3.03	0.593
Citrus	2.11	0.180
Row Crops	2.50	0.577

Source: FDEP Table 9-2 ERP Applicant's Handbook Volume I

NUTRIENT REMOVAL CALCULATIONS

- Annual Average Mass Loadings are determined for each separate land use area and separately for TN and TP.
  - Total Loadings are determined by summing the Annual Average Mass Loadings for TN and TP, separately, for all included land uses.

(Eq. 9-2) $$Annual\ Mass\ Loading\ \left(\frac{lb}{yr}\right) = \frac{(Annual\ Runoff\ Volume\ (ac - \frac{ft}{yr})(43560\frac{ft^2}{ac})(7.48\frac{gal}{ft^3})(3.785\frac{L}{gal})(EMC)}{453592\ mg/lb}$$

$$Total\ TN\ Annual\ Mass\ Loading\ \left(\frac{lb}{yr}\right) = \sum Annual\ Mass\ Loadings\ for\ TN$$

$$Total\ TP\ Annual\ Mass\ Loading\ \left(\frac{lb}{yr}\right) = \sum Annual\ Mass\ Loadings\ for\ TP$$

NUTRIENT REMOVAL CALCULATIONS

- The required TN and TP reductions are either the listed percent reductions OR a reduction such that the post-development condition average annual loading (i.e. prior to treatment) of nutrients does NOT exceed the pre-development condition, whichever is greater.
  - Compare the pre- and post-development (Prior to treatment) nutrient removal.
    - Calculate for each nutrient:

$$(Eq. 9-3)\left(1-\frac{\sum Pre-Development\ Loading}{\sum Post-Development\ Prior\ to\ Treatment\ Loading}\right)(100)$$

NUTRIENT REMOVAL CALCULATIONS

- Find the required treated loading rates for TN and TP.

$$(Eq.-4)(1-Required\ Load\ Reduction\ \%)(\sum Post-Development\ Prior\ to\ Treatment\ Loading)$$

- Acceptable BMPs in Appendix O can be used to provide the required nutrient reductions
  - Selected BMPs must meet all applicable criteria of Part V ERP A.H. Vol. II (2024 Version).
- SWMS efficiencies are explained in Appendix O ERP A.H. Vol. I.
  - Efficiencies for retention systems are tabulated based on rainfall depth, CN, and Non-DCIA Tables (similar to ROC Tables).
    - Removal rates are the SAME for TN and TP for retention systems.
  - Efficiencies for wet detention systems are based on the ponds residence time (minimum 21-days required per Section 5.2.5 A.H. Vol. II).
    - Average Annual Detention Time (t_d) cannot exceed 200 days

$$Annual\ Average\ Detention\ Time, t_d(days) = \frac{PPV(ac-ft)*12\frac{in}{ft}}{Drainage\ Area\ to\ Pond\ (ac)*C\ Value*Mean\ Annual\ Rainfall\ (\frac{in}{yr})}$$

$$\%TP\ Removal = 40.13 + (6.372)(ln(t_d)) + (0.213)(ln(t_c))^2$$

$$\%TN\ Removal = \frac{43.75 * t_d}{4.38 + t_d}$$

NUTRIENT REMOVAL CALCULATIONS TREATMENT TRAINS

- In order to reach required treatment reductions, it is recommended that BMP Treatment Trains are utilized.
  - Treatment trains involved the combination or conjunction of multiple BMPs (either of the same or different types in series).
    - For the BMPs to be in series, the discharge of the first BMP must be the inlet of the second BMP and so on.
  - It is assumed that BMPs in series act independently on one another, with the treatment provided by one BMP not positively or negatively affecting the previous or next system.
  - The calculated overall efficiency of the treatment train must account for the reduced loading or concentrations that are available for removal by the subsequent downstream treatment device.
- Overall Treatment Efficiency is calculated separately for TN and TP:

  $(Eq. 9-5) Overall\ Treatment\ Efficiency = 1 - (1 - EFF_1)\ (1 - EFF_2)\ (1 - EFF_3) \ldots\ (1 - EFF_n)$

  Where EFF_1, EFF_2, EFF_3, etc. represent each separate BMP.

PERMITTING LINKS

- **General ERP Link**: https://floridadep.gov/water/submerged-lands-environmental-resources-coordination.
- **MapDirect**: https://ca.dep.state.fl.us/mapdirect/?focus=standard.
- **Stormwater Resource Center**: https://floridadep.gov/water/engineering-hydrology-geology/content/erp-stormwater-resource-center.
- **Permitting Applications Under Review**: https://floridadep.gov/sec/sec/content/permit-applications-under-review.
- **Information Portal**: https://prodenv.dep.state.fl.us/DepNexus/public/searchPortal.

THANK YOU

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Tables for Non DCIA

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	94.0	94.9	93.4	91.0	88.1	85.0	81.8	78.7	75.5	72.6	69.7	67.0	64.5	62.1	59.8	57.7	55.7	53.8	52.1	50.5
35	91.2	93.0	91.9	89.8	87.2	84.2	81.2	78.2	75.2	72.3	69.5	66.8	64.3	62.0	59.7	57.6	55.7	53.8	52.1	50.5
40	88.1	90.5	90.1	88.3	86.0	83.3	80.5	77.6	74.7	71.9	69.2	66.6	64.1	61.8	59.6	57.6	55.6	53.8	52.1	50.5
45	84.5	87.7	87.9	86.5	84.5	82.1	79.5	76.8	74.0	71.4	68.8	66.3	63.9	61.6	59.5	57.5	55.5	53.7	52.0	50.5
50	80.8	84.6	85.2	84.4	82.8	80.7	78.3	75.8	73.3	70.7	68.3	65.9	63.6	61.4	59.3	57.3	55.5	53.7	52.0	50.5
55	77.1	81.1	82.2	81.9	80.7	79.0	76.9	74.6	72.3	70.0	67.6	65.4	63.2	61.1	59.1	57.2	55.3	53.6	52.0	50.5
60	73.2	77.5	79.0	79.1	78.3	76.9	75.2	73.2	71.1	69.0	66.9	64.7	62.7	60.7	58.8	56.9	55.2	53.5	51.9	50.5
65	69.6	73.8	75.4	75.8	75.5	74.5	73.2	71.5	69.7	67.8	65.9	63.9	62.0	60.2	58.4	56.7	55.0	53.4	51.9	50.5
70	66.1	69.9	71.7	72.3	72.3	71.7	70.8	69.5	68.0	66.4	64.7	63.0	61.3	59.6	57.9	56.3	54.8	53.3	51.8	50.5
75	62.7	66.0	67.8	68.6	68.8	68.5	67.9	67.1	65.9	64.7	63.3	61.8	60.3	58.8	57.3	55.9	54.5	53.1	51.7	50.5
80	59.6	62.2	63.8	64.7	65.1	65.1	64.8	64.2	63.4	62.5	61.4	60.3	59.1	57.8	56.6	55.3	54.0	52.8	51.6	50.5
85	56.8	58.7	60.0	60.8	61.2	61.4	61.3	61.0	60.5	59.9	59.1	58.3	57.4	56.5	55.5	54.5	53.5	52.5	51.4	50.5
90	54.5	55.6	56.4	57.0	57.3	57.5	57.5	57.4	57.2	56.8	56.4	55.9	55.4	54.7	54.1	53.4	52.7	51.9	51.2	50.5
95	52.5	52.9	53.2	53.3	53.5	53.6	53.6	53.6	53.5	53.4	53.2	53.0	52.8	52.5	52.2	51.9	51.6	51.2	50.8	50.5
98	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.6	51.6	51.5	51.4	51.3	51.3	51.2	51.1	51.0	50.8	50.7	50.6	50.5

Mean Annual Mass Removal Efficiencies for 1.00-inches of Retention for Zone 1 by Percent DCIA

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	95.3	96.5	95.9	94.4	92.5	90.3	87.9	85.5	83.1	80.6	78.2	75.8	73.6	71.4	69.2	67.2	65.3	63.4	61.6	60.0
35	93.1	94.9	94.6	93.3	91.6	89.5	87.3	85.0	82.7	80.3	77.9	75.6	73.4	71.2	69.1	67.1	65.2	63.4	61.6	60.0
40	90.7	93.0	93.0	92.0	90.5	88.6	86.6	84.4	82.1	79.9	77.6	75.4	73.2	71.1	69.0	67.0	65.2	63.3	61.6	60.0
45	88.0	90.7	91.0	90.5	89.2	87.5	85.6	83.6	81.5	79.3	77.2	75.0	72.9	70.9	68.8	66.9	65.1	63.3	61.6	60.0
50	85.0	88.0	88.8	88.6	87.6	86.2	84.5	82.7	80.7	78.7	76.6	74.6	72.6	70.6	68.6	66.8	65.0	63.2	61.6	60.0
55	81.8	85.3	86.4	86.3	85.7	84.6	83.2	81.5	79.8	77.9	75.9	74.0	72.1	70.2	68.4	66.6	64.8	63.1	61.5	60.0
60	78.7	82.3	83.6	83.9	83.5	82.7	81.5	80.1	78.6	76.9	75.1	73.4	71.6	69.8	68.0	66.3	64.7	63.0	61.5	60.0
65	75.6	79.1	80.6	81.2	81.0	80.5	79.6	78.5	77.2	75.7	74.1	72.5	70.9	69.3	67.6	66.0	64.4	62.9	61.4	60.0
70	72.7	75.9	77.5	78.2	78.3	78.0	77.4	76.5	75.5	74.2	72.9	71.5	70.1	68.6	67.1	65.6	64.2	62.7	61.3	60.0
75	69.9	72.7	74.2	75.0	75.3	75.2	74.8	74.2	73.4	72.5	71.4	70.3	69.1	67.8	66.5	65.1	63.8	62.5	61.2	60.0
80	67.2	69.5	70.8	71.7	72.1	72.1	72.0	71.6	71.1	70.4	69.6	68.7	67.8	66.7	65.6	64.5	63.4	62.2	61.1	60.0
85	64.8	66.5	67.6	68.3	68.7	68.9	68.9	68.7	68.4	68.0	67.5	66.8	66.1	65.4	64.5	63.7	62.8	61.8	60.9	60.0
90	62.7	63.7	64.4	65.0	65.3	65.5	65.6	65.6	65.5	65.2	65.0	64.6	64.2	63.7	63.1	62.6	61.9	61.3	60.6	60.0
95	61.1	61.5	61.8	62.0	62.1	62.2	62.3	62.3	62.3	62.2	62.1	62.0	61.8	61.6	61.4	61.2	60.9	60.6	60.3	60.0
98	60.7	60.7	60.7	60.8	60.8	60.8	60.8	60.8	60.7	60.7	60.7	60.6	60.6	60.5	60.4	60.3	60.3	60.2	60.1	60.0