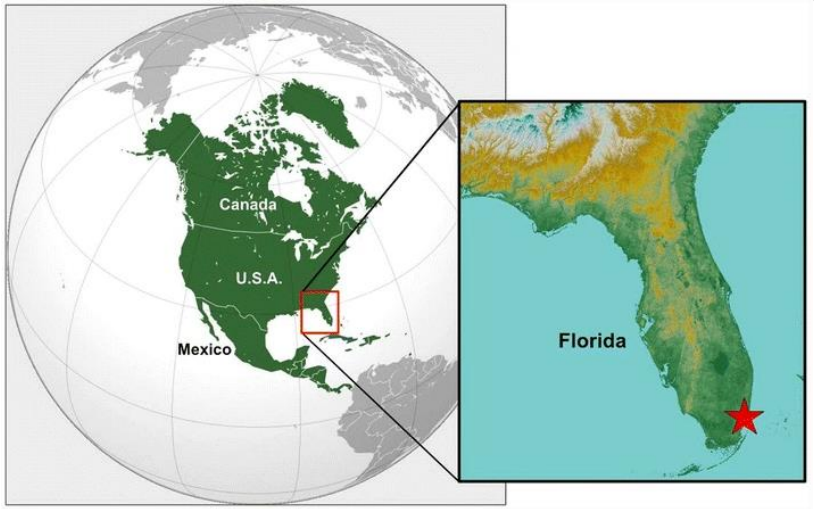
MIAMI-DADE COUNTY | REGULATORY AND ECONOMIC RESOURCES

- Chapter 24 - ENVIRONMENTAL PROTECTION, BISCAYNE BAY AND ENVIRONS DESIGNATED AQUATIC PARK AND CONSERVATION AREA, THE BISCAYNE BAY ENVIRONMENTAL ENHANCEMENT TRUST FUND, AND THE ENVIRONMENTALLY ENDANGERED LANDS PROGRAM
  - ARTICLE I. - IN GENERAL
  - ARTICLE II. - AIR QUALITY
  - ARTICLE III. - WATER AND SOIL QUALITY
  - ARTICLE IV. - NATURAL AND BIOLOGICAL ENVIRONMENTAL RESOURCES PERMITTING AND PROTECTION; REGULATION OF DRAINAGE SYSTEMS AND STORMWATER MANAGEMENT
  - ARTICLE V. - STORMWATER UTILITY*

Water Quality and Flood Protection Regulatory Updates (Miami-Dade County)

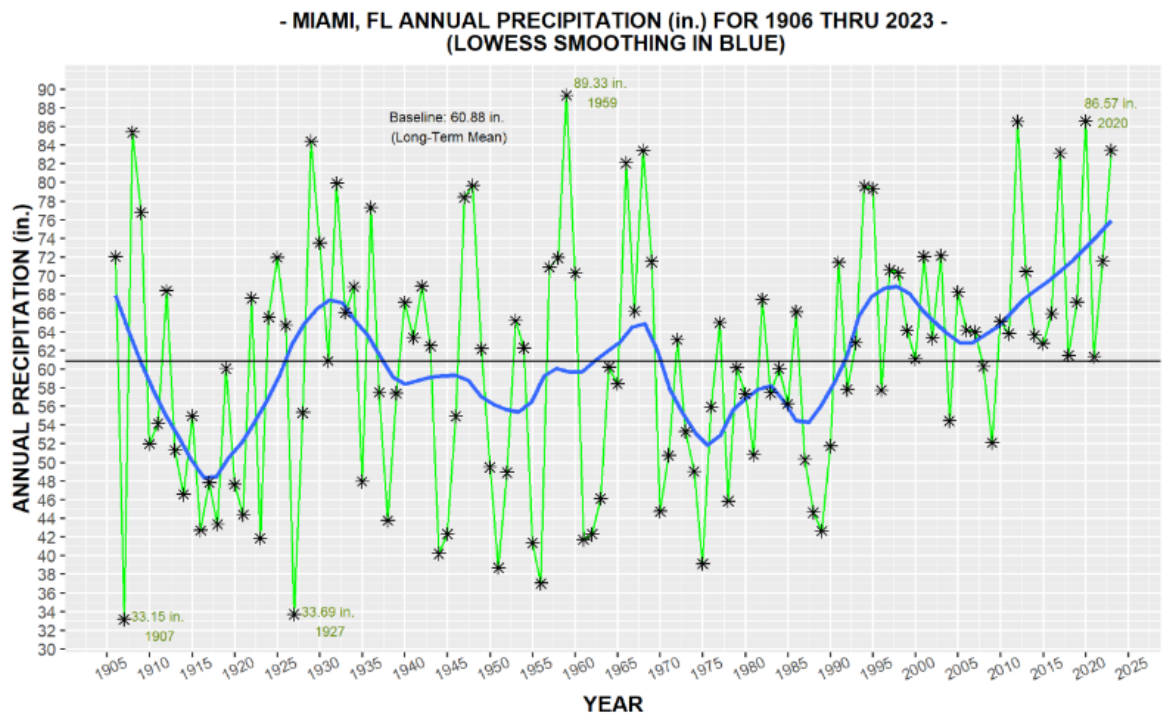
DIVISION OF ENVIRONMENTAL RESOURCES MANAGEMENT

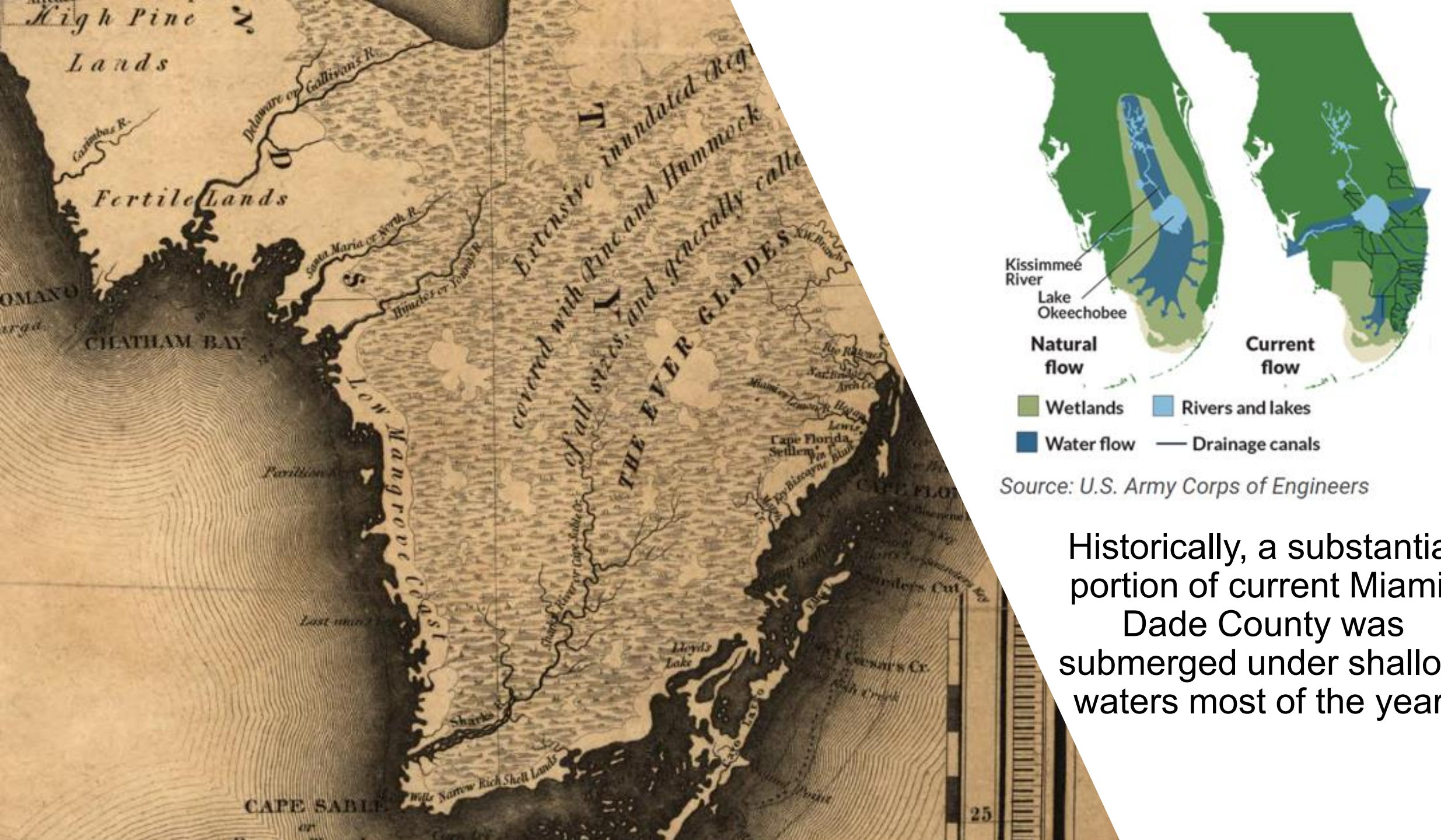
JUNE 2025



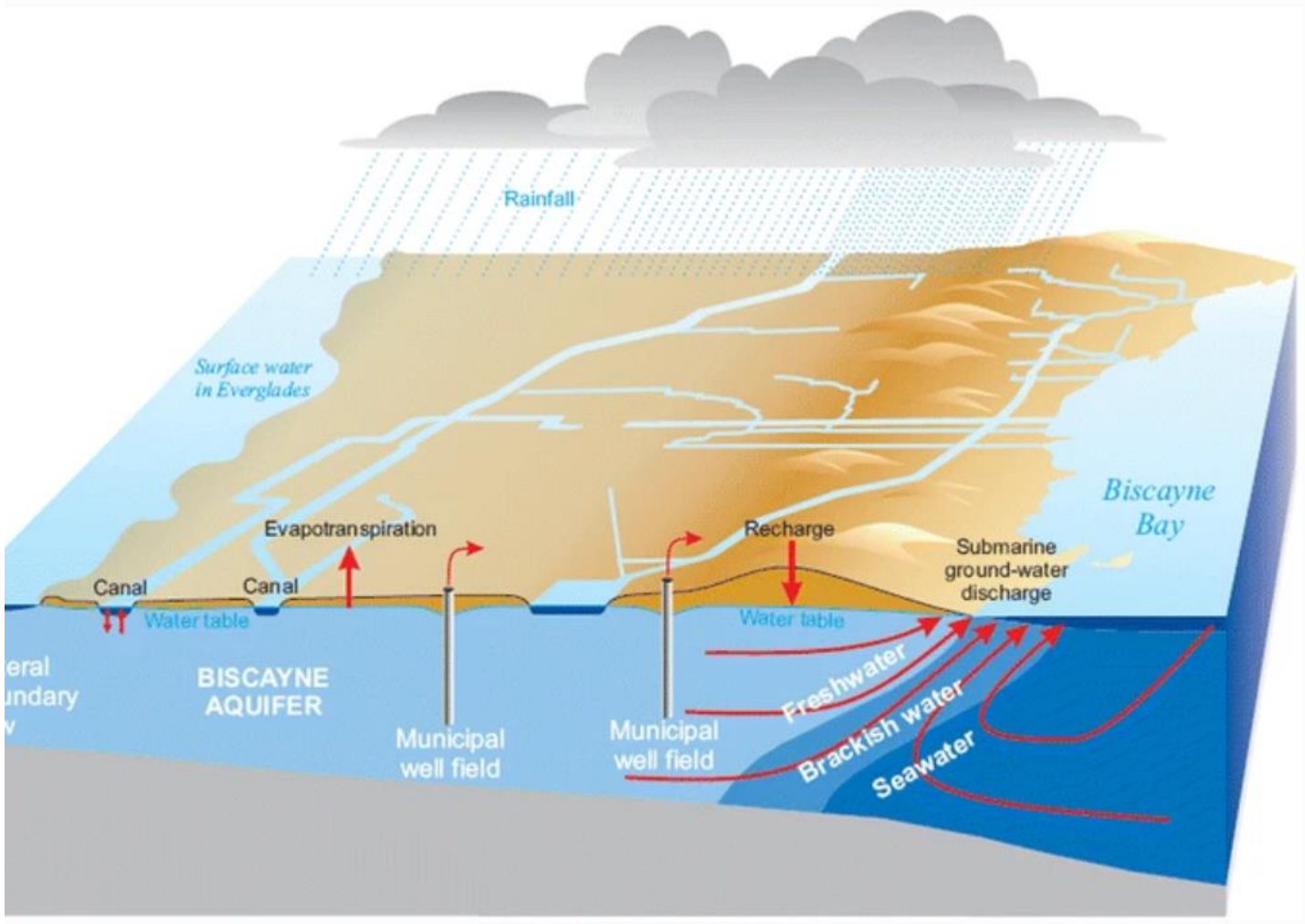
Miami-Dade County receives an average of approximately 57 inches (or 1450 mm) of rainfall annually. An effective stormwater management system is critical to prevent flooding, protect infrastructure from excess runoff, and provide public safety during rainfall events.

Effective Stormwater Management System = Quantity and Quality!

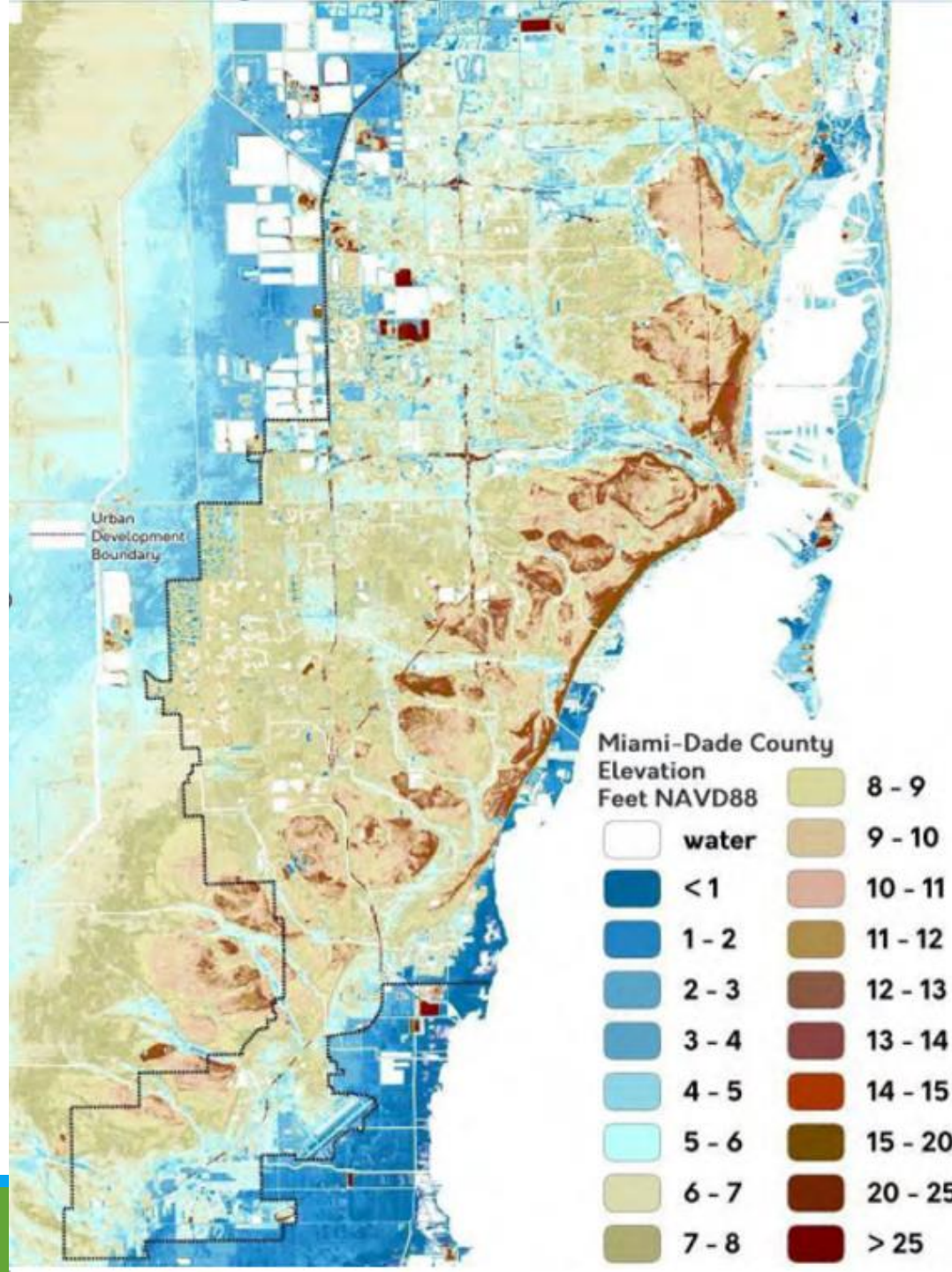




Historically, a substantial portion of current Miami-Dade County was submerged under shallow waters most of the year.



Miami-Dade County has a flat topography with low surface elevations and a high groundwater table with highly permeable soils that dictate the type of stormwater management systems.



Impervious Surface Ordinance

Update Miami-Dade County's regulations on stormwater management, drainage, and impervious surfaces to enhance resilience, water quality, and flood protection.

Applies countywide; revises standards for new development, substantial redevelopment, and stormwater infrastructure.

Key Changes:

Updating stormwater retention and water quality requirements for new developments, redevelopments, and substantial improvements.

Certification and re-certification requirements for the public road rights-of-way stormwater infrastructure.

Timeline: Most new standards effective March 31, 2025, with a transitional period for in-process projects.

Impact: Improves flood protection, water quality and resilience to climate change.

Integrated Stormwater Management and Flood Protection Framework: Regulatory Requirements and System Interconnectivity Across Property Types and Infrastructure Levels

Single-family and duplex residences

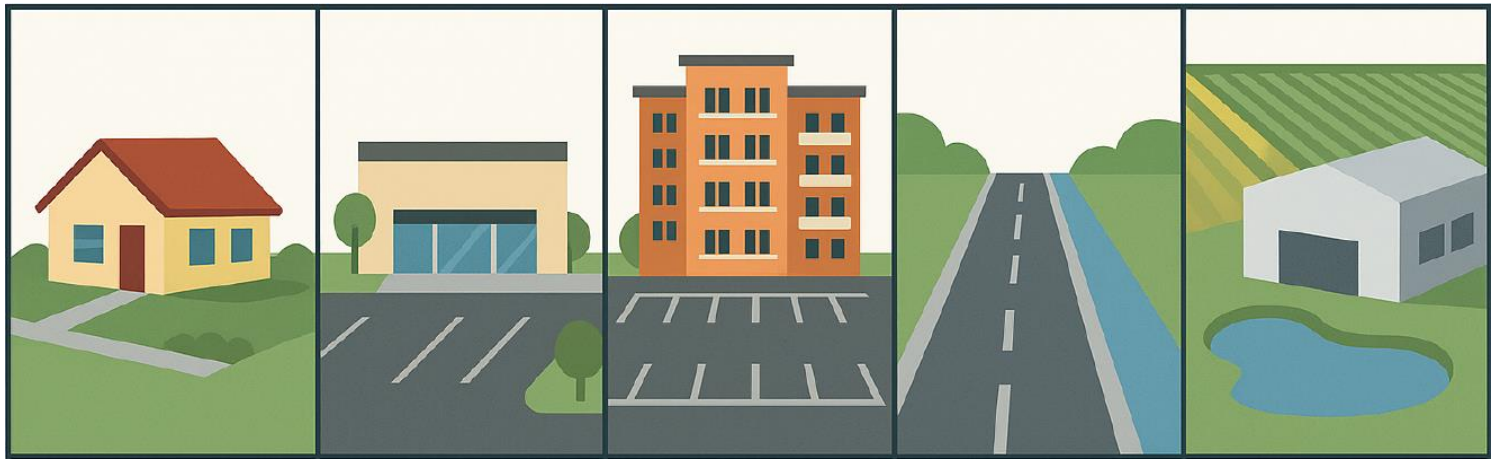
Developments and redevelopments with less than 2 acres of impervious surfaces and 10 acres of total area

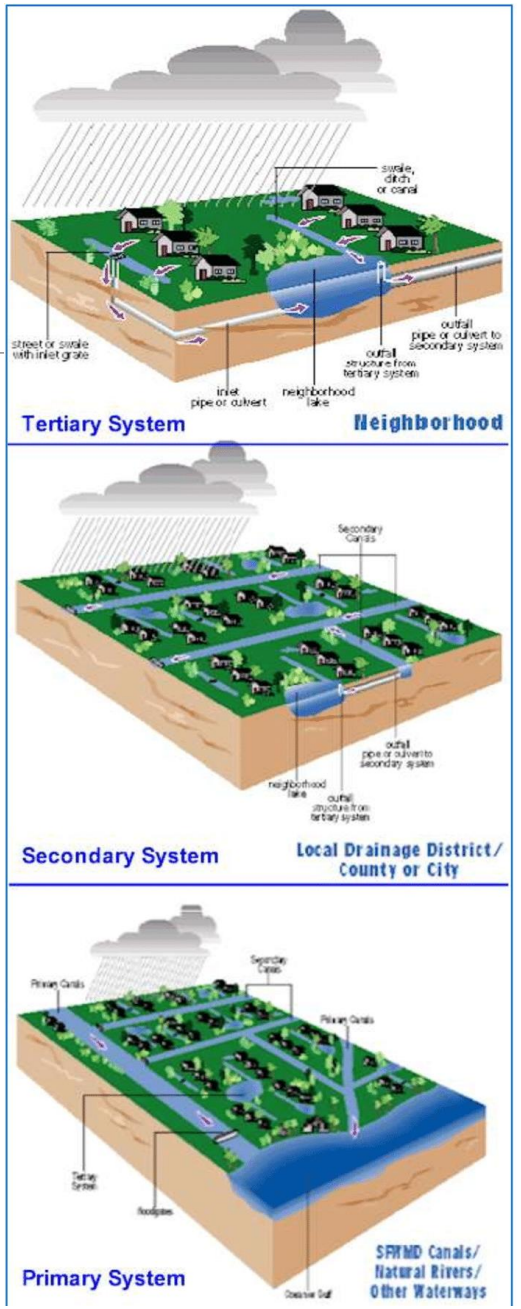
Developments and redevelopments sites with more than 2 acres of impervious surfaces and 10 acres of total area

Properties within special cut and fill basins with flood-prone, low-lying lands and properties outside of urban development areas

Public Road Right-of-Way

Seondary and Primary Canals discharging into Biscayne Bay



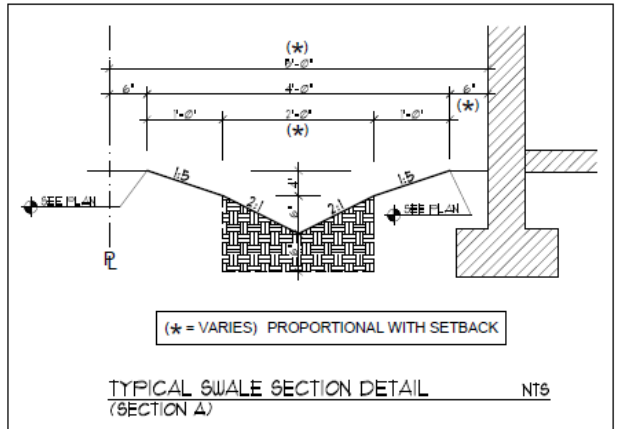


Retention Requirements

Development Type	Storm Event	Additional Information	Code Reference
Single-Family and Duplex Properties	25-year, 10-minute	Retention equivalent can be demonstrated with minimum setbacks, perimeter swale, and percent pervious area based on the lot size	24-42.8(4)(b)(i)
Single-Family and Duplex Properties with a Building 5 Stories or More	25-year, 6-hour	Requirement is regardless of lot size	24-42.8(4)(c)(i)(8)
Developments (other than single-family and duplexes) less than 2 ac of Impervious Area or 10 ac of Total Area	25-year, 6-hour	Unless more stringent retention is required by other aspects of the code	24-42.8(4)(c)(i)(3)
Any subdivision or development that includes more than one contiguous parcel	25-year, 3-day	Requirement is regardless of lot size	24-42.8(4)(k)
Developments (other than single-family and duplexes) more than 2 ac of Impervious Area or 10 ac of Total Area	25-year, 3-day	Surface Water Management General Permit (SWMGP) is required if a project meets the threshold provided in Section 1.2 of ERP Applicant's Handbook Vol. II	24-42.8(4)(i)

Section 24-42.8(4)(b)(i)

Single Family and Duplex Residences
Stormwater Quantity



The following is considered equivalent to the **25-year/10-minute storm event** with zero off-site discharge.

		Lots Less than 5,500 SF	Lot Larger than 5,500 SF
5 feet of pervious area setback on 3 sides of the property	6-inch-deep swale along the property perimeter	20% of pervious lot area	25% of pervious lot area
OR			
2.5 feet of pervious area setback on 2 sides of the property and 10 feet of pervious area setback on 1 side	6-inch-deep swale along the property perimeter	20% of pervious lot area	25% of pervious lot area

Impervious Permit
Non-structural Impervious Improvements

- Required for single-family and duplex properties proposing a non-structural impervious improvement
- Municipalities may regulate non-structural impervious surface improvements if they adopt their own (same or stricter) ordinance, for single-family and duplex properties only

- **Non-structural Impervious Surface Improvement** - the installation or placement of pavement, slab, pavers, or other materials or items that reduce the pervious area, as determined by the Director; or the compaction of ground or fill in a manner that results in an impervious surface conducive to stormwater runoff, as determined by the Director.

Section 24-15(9)(c)

Swimming Pools

- Swimming pools, whether residential or non-residential, are subject to plan approval requirements
- If dewatering is required for a swimming pool installation, including on residential property, no building permit will be issued until a Class V permit as defined in section 24-48.1 has been obtained.

Section 24-42.8(4)(b)(i)

Single Family and Duplex Residences
Grading

If the proposed grading raises the property more than 1.5 feet compared to the elevations of the adjacent properties, a retaining wall or equivalent feature shall be required.

Retention Requirements

Development Type	Storm Event	Additional Information	Code Reference
Single-Family and Duplex Properties	25-year, 10-minute	Retention equivalent can be demonstrated with minimum setbacks, perimeter swale, and percent pervious area based on the lot size	24-42.8(4)(b)(i)
Single-Family and Duplex Properties with a Building 5 Stories or More	25-year, 6-hour	Requirement is regardless of lot size	24-42.8(4)(c)(i)(8)
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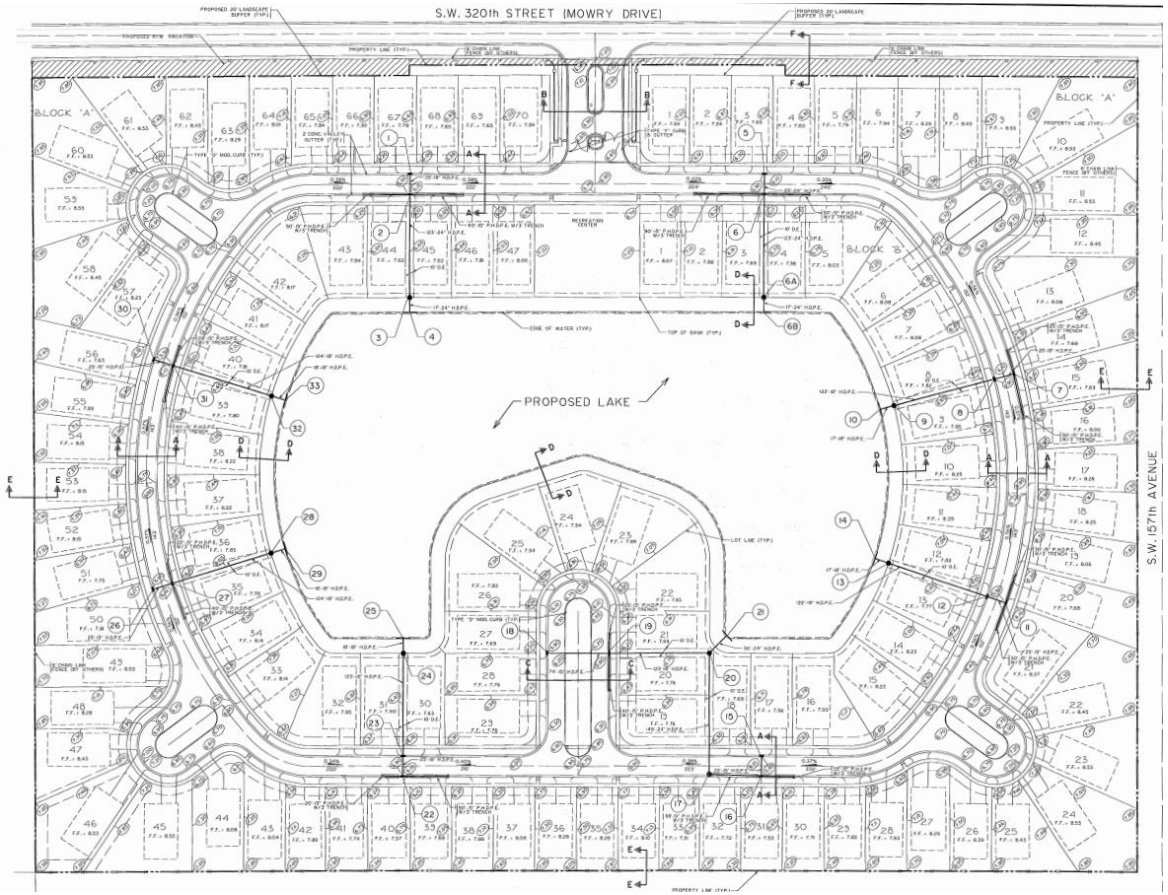
Any subdivision or development that includes more than one contiguous parcel	25-year, 3-day	Requirement is regardless of lot size	24-42.8(4)(k)
Developments (other than single-family and duplexes) more than 2 ac of Impervious Area or 10 ac of Total Area	25-year, 3-day	Surface Water Management General Permit (SWMGP) is required if a project meets the threshold provided in Section 1.2 of ERP Applicant's Handbook Vol. II	24-42.8(4)(i)

24-42.8(4)(i)(l)

The construction, alteration, or operation of a stormwater water management system (that will be serving a development that contains at least 10 acres of total area or at least 2 acres of impervious surface area) requires a Surface Water Management General Permit, which may be issued by the Department pursuant to authority delegated by the South Florida Water Management District.



Retention Requirements

Development Type	Storm Event	Additional Information	Code Reference
Outfall into Primary or Secondary Canal	25-year, 3-day	Subject to canal capacity; Class II permit required	24-42.8(4)(c)(i)(5)
Cut and Fill Basin (Basin B, the Bird Drive Basin, and the North Trail Basin)	100-year, 3-day	Retention equivalent can be demonstrated with percentages of total lot area set aside for stormwater management established for each basin or approved off-site stormwater management areas.	24-42.8(4)(c)(i)(5)(a)
Outside of the Urban Development Boundary	100-year, 3-day	Required on-site	24-42.8(4)(c)(i)(6)
Construction Sites more than 1 ac	25-year, 6-hour	Provide temporary structural stormwater features until the completion of all construction activities	24-42.8(4)(f)(ii)

Section 24-42.8(4)(c)(i)

Retention of **25-year/3-day storm event** with zero off-site discharge for outfalls to primary or secondary canals

Retention Requirements

Development Type	Storm Event	Additional Information	Code Reference
Outfall into Primary or Secondary Canal	25-year, 3-day	Subject to canal capacity; Class II permit required	24-42.8(4)(c)(i)(5)
Cut and Fill Basin (Basin B, the Bird Drive Basin, and the North Trail Basin)	100-year, 3-day	Retention equivalent can be demonstrated with percentages of total lot area set aside for stormwater management established for each basin or approved off-site stormwater management areas.	24-42.8(4)(c)(i)(5)(a)
Outside of the Urban Development Boundary	100-year, 3-day	Required on-site	24-42.8(4)(c)(i)(6)
Construction Sites more than 1 ac	25-year, 6-hour	Provide temporary structural stormwater features until the completion of all construction activities	24-42.8(4)(f)(ii)

Rainfall Depth Table (Miami) NOAA ATLAS 14

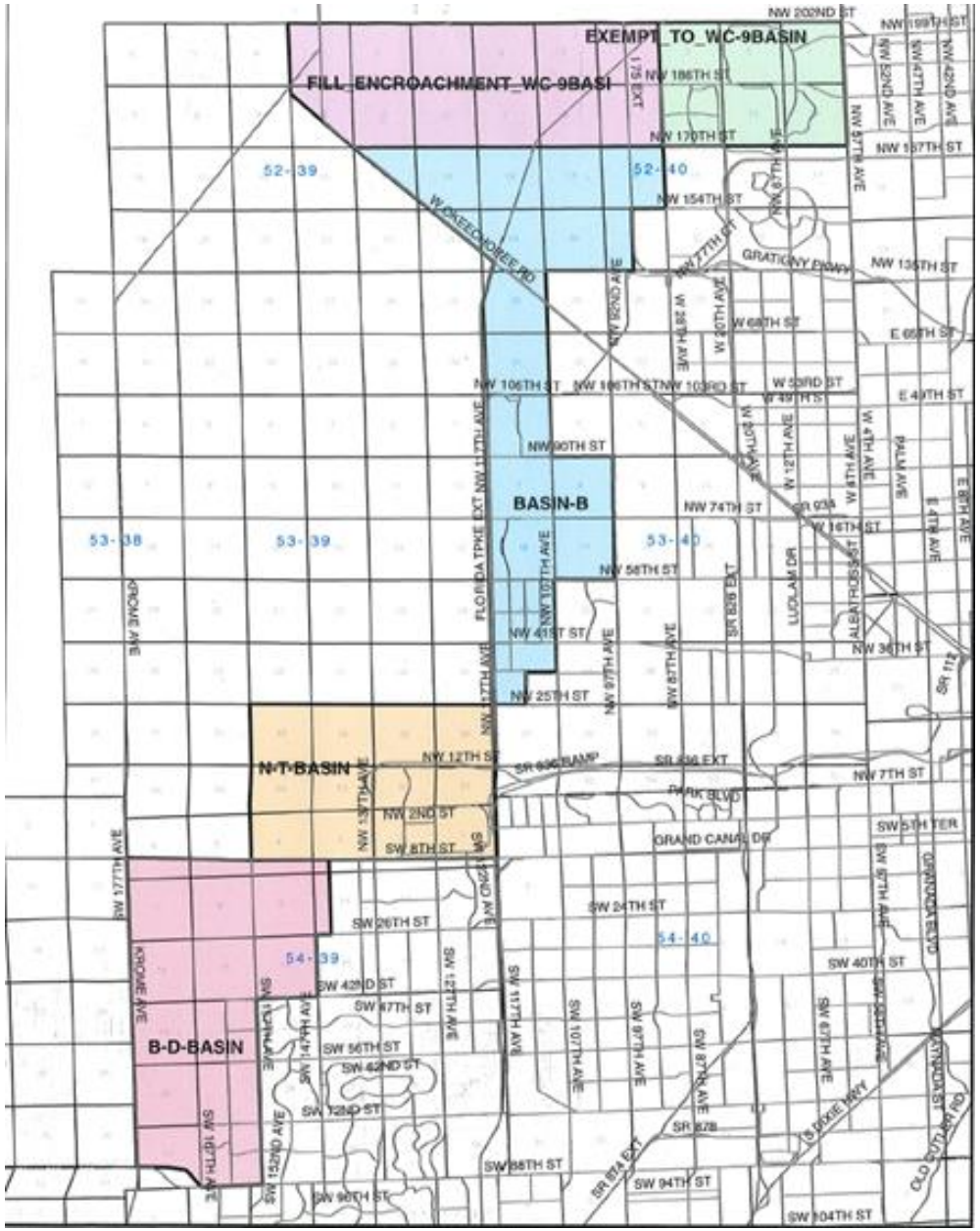
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.573 (0.472-0.695)	0.656 (0.540-0.797)	0.793 (0.651-0.966)	0.908 (0.740-1.11)	1.07 (0.840-1.35)	1.19 (0.915-1.53)	1.32 (0.975-1.74)	1.45 (1.02-1.97)	1.62 (1.10-2.27)	1.75 (1.16-2.50)
10-min	0.839 (0.692-1.02)	0.961 (0.791-1.17)	1.16 (0.953-1.41)	1.33 (1.08-1.63)	1.56 (1.23-1.98)	1.74 (1.34-2.24)	1.93 (1.43-2.55)	2.12 (1.50-2.88)	2.37 (1.61-3.32)	2.56 (1.69-3.66)
15-min	1.02 (0.844-1.24)	1.17 (0.965-1.42)	1.42 (1.16-1.72)	1.62 (1.32-1.98)	1.91 (1.50-2.41)	2.13 (1.63-2.74)	2.35 (1.74-3.11)	2.58 (1.83-3.51)	2.89 (1.96-4.05)	3.12 (2.06-4.46)
30-min	1.55 (1.28-1.88)	1.79 (1.47-2.17)	2.18 (1.78-2.65)	2.50 (2.04-3.06)	2.95 (2.32-3.73)	3.30 (2.53-4.24)	3.65 (2.70-4.82)	4.00 (2.83-5.45)	4.48 (3.04-6.28)	4.84 (3.20-6.91)
60-min	2.06 (1.70-2.50)	2.37 (1.95-2.88)	2.91 (2.39-3.54)	3.38 (2.76-4.14)	4.07 (3.22-5.20)	4.64 (3.57-6.00)	5.23 (3.88-6.95)	5.86 (4.16-8.02)	6.74 (4.59-9.50)	7.43 (4.91-10.6)
2-hr	2.58 (2.14-3.11)	2.96 (2.45-3.57)	3.64 (3.00-4.40)	4.26 (3.49-5.18)	5.19 (4.14-6.62)	5.97 (4.64-7.71)	6.81 (5.09-9.03)	7.71 (5.52-10.5)	9.00 (6.17-12.6)	10.0 (6.67-14.2)
3-hr	2.87 (2.39-3.45)	3.29 (2.73-3.96)	4.08 (3.37-4.91)	4.81 (3.95-5.83)	5.96 (4.79-7.62)	6.94 (5.42-8.98)	8.02 (6.03-10.6)	9.20 (6.62-12.6)	10.9 (7.52-15.3)	12.3 (8.20-17.4)
6-hr	3.38 (2.82-4.03)	3.90 (3.25-4.66)	4.91 (4.08-5.88)	5.87 (4.85-7.07)	7.40 (6.00-9.46)	8.74 (6.87-11.3)	10.2 (7.73-13.5)	11.8 (8.58-16.1)	14.2 (9.88-19.9)	16.2 (10.9-22.7)
12-hr	3.90 (3.27-4.62)	4.59 (3.85-5.45)	5.88 (4.91-7.00)	7.10 (5.89-8.49)	9.00 (7.32-11.4)	10.6 (8.41-13.6)	12.4 (9.48-16.3)	14.4 (10.5-19.5)	17.3 (12.1-24.0)	19.7 (13.3-27.4)
24-hr	4.52 (3.81-5.32)	5.36 (4.51-6.31)	6.90 (5.79-8.16)	8.34 (6.96-9.91)	10.6 (8.63-13.3)	12.5 (9.89-15.8)	14.5 (11.1-18.9)	16.8 (12.3-22.5)	20.1 (14.1-27.6)	22.7 (15.5-31.5)
2-day	5.32 (4.50-6.22)	6.25 (5.29-7.32)	7.96 (6.71-9.35)	9.55 (8.01-11.3)	12.0 (9.84-15.0)	14.1 (11.2-17.8)	16.4 (12.6-21.2)	18.8 (13.9-25.1)	22.4 (15.9-30.6)	25.3 (17.3-34.9)
3-day	5.94 (5.05-6.93)	6.94 (5.88-8.09)	8.74 (7.38-10.2)	10.4 (8.74-12.2)	12.9 (10.6-16.0)	15.1 (12.0-18.9)	17.4 (13.4-22.3)	19.9 (14.7-26.3)	23.5 (16.7-32.0)	26.4 (18.2-36.2)

Section 24-42.8(4)(c)(i)(5)

Special Cut and Fill Basins

Provide retention for the **100-year/3-day storm event**, with zero off-site discharge or provide percentage of the property's total lot area set aside for stormwater management purposes. **Exfiltration discharge shall not be used in determining the peak stage for the 100-year/3-day storm event.** The Director may approve drainage to **an off-site stormwater management area within the same basin**, provided that such stormwater management area can contain the runoff generated by the 100-year, 3-day storm event with zero off-site discharge and complies with all other applicable provisions of this chapter.

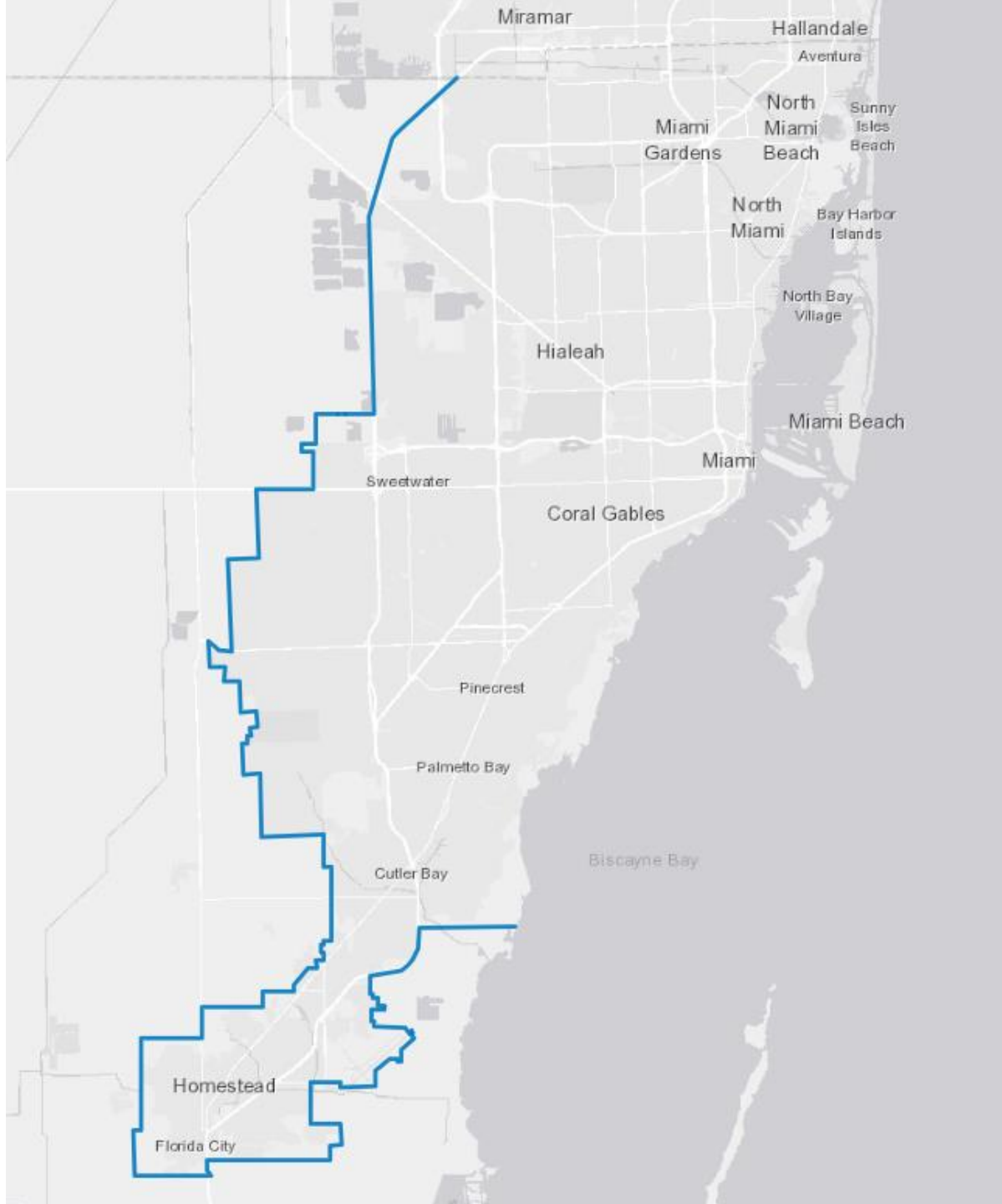
Basin	Wet Retention	Dry Retention
North Trail Basin	28.60%	33.25%
Bird Drive Basin	30.00%	38.00%
Basin B	28.60%	39.00%



Section 24-42.8(4)(c)(i)(6)

Urban Development Boundary

Retention of the
100-year, 3-day storm event



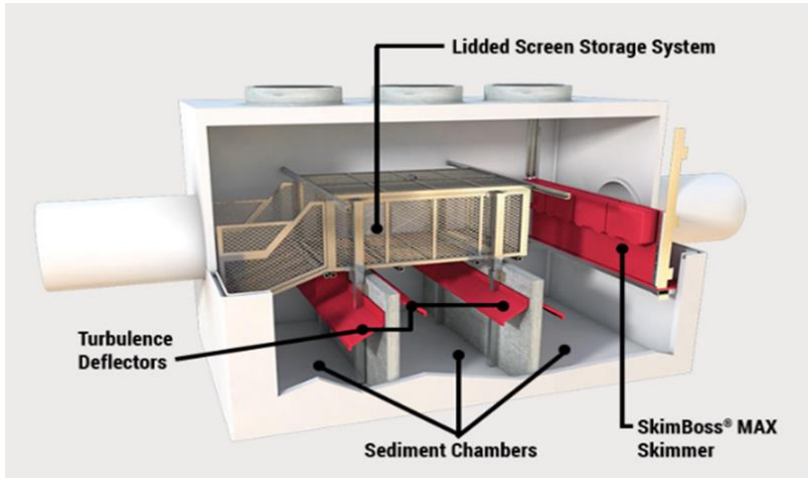
Section 24-42.8(4)(c)(ii)(1)

Water Quality
Volumetric Requirements

The greater of the following volumes shall be used:
- the onsite retention systems' volume
- two and one-half inches of the total impervious area
- one inch over the total area

Examples of devices designed to provide water quality

Inlet Filters



Ecovault Chambers

Downstream Defenders

Section 24-42.8(4)(c)(ii)(2)

Stormwater Quality
Pollutant Loading Requirements

If served or to be served by one or more outfalls, discharges shall meet the **strictest** of the following standards:

- Post-development pollutant loads shall not exceed pre-development pollutant loads
- Post-development reduction shall not be less than **85 percent** based on average annual loading
- Post-development pollutant loads shall not cause water quality violations in receiving water bodies
- Level of treatment required by adopted TMDL or RAP

For any outfalls to Biscayne Bay, Outstanding Florida Water (OFW), any canal or tributary connected to Biscayne Bay or an OFW

Minimum **150%** of required water quality treatment volume	Post-development pollutant reduction of **95 percent**

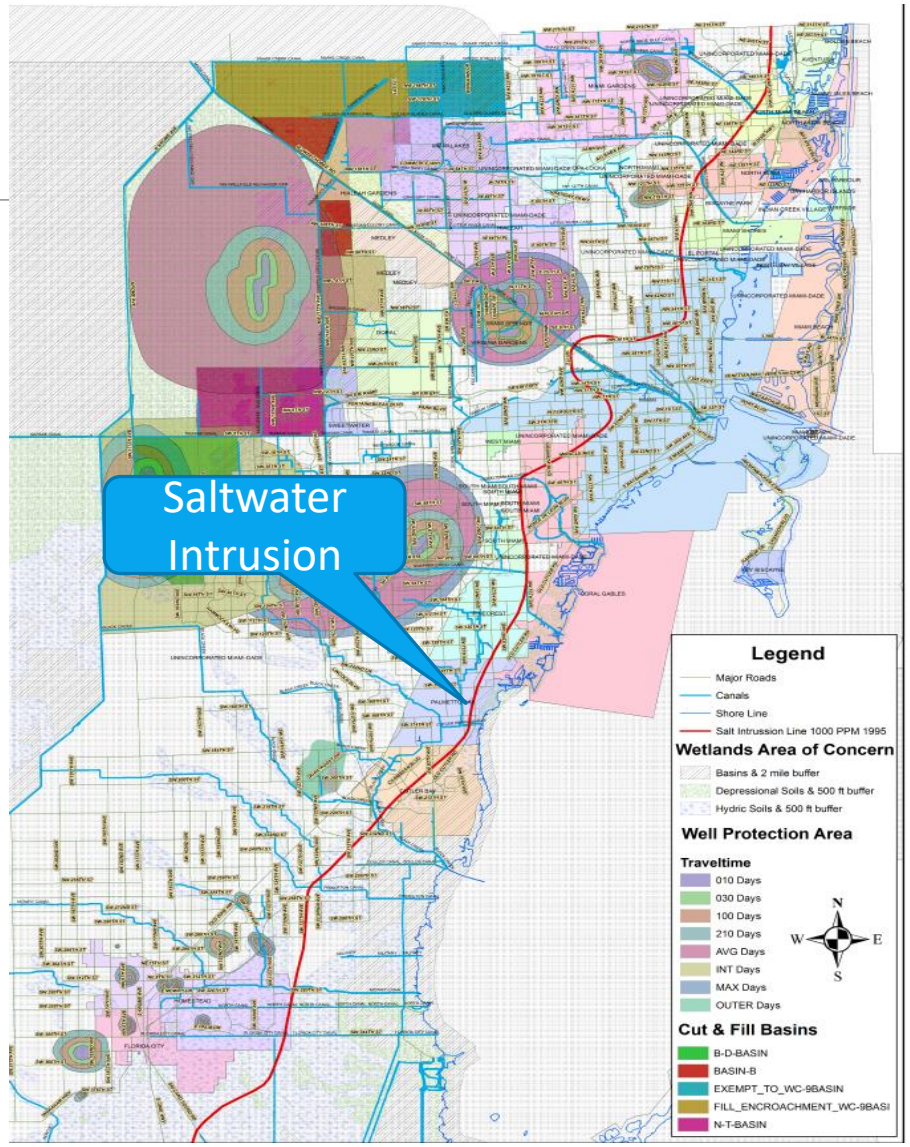
Section 24-42.8(4)(c)(ii)(3)

Traditional BMPs used for retention in Miami-Dade County

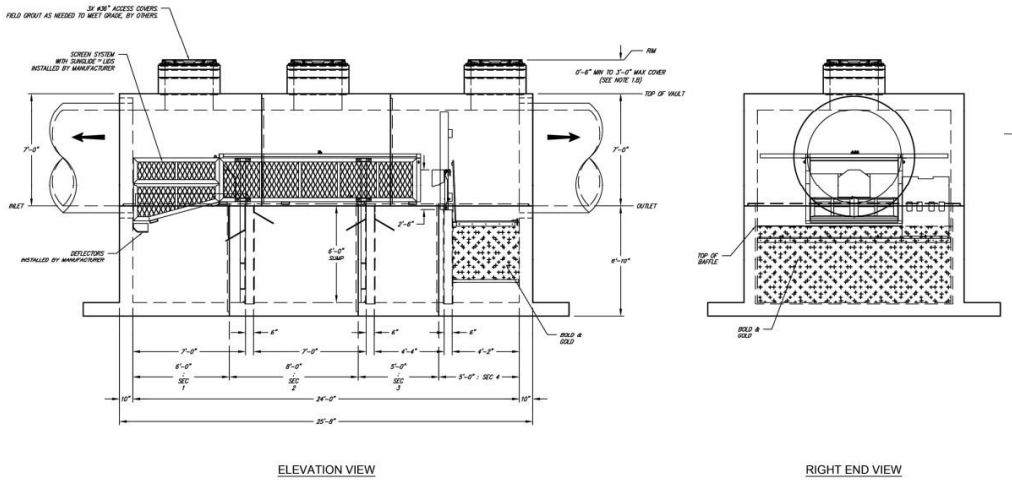
The Code does not explicitly mandate green infrastructure; however, in the highly urbanized areas of Miami-Dade County, elements such as pervious pavers are expected to help meet stormwater retention and water quality requirements.

Examples of projects that utilized underground storage detention and retention facilities as a part of the stormwater system

Utilization of Drainage Wells in Coastal Areas of Miami-Dade County



End-of-Pipe Stormwater Treatment Systems in Miami-Dade County (examples)



Section 24-42.8(4)(f)

Construction projects involving more than one acre of total impervious area, shall provide temporary structural stormwater features to retain the **25-year/6-hour storm event**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Section 24-15.1(2)(b)(7)

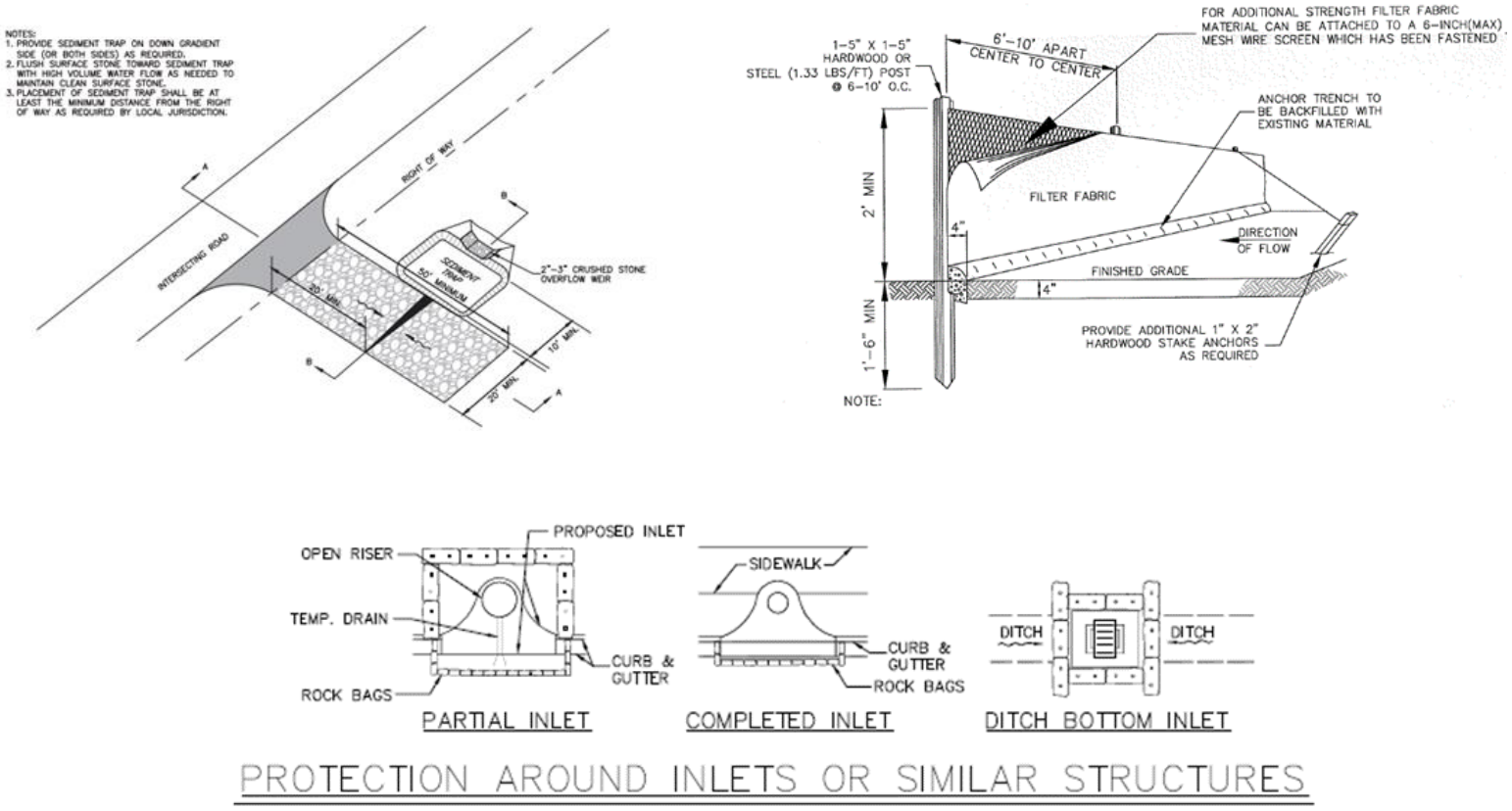
Stormwater Pollution Prevention Plan (SWPPP)

Construction activities involving earth work or excavations along public rights-of-way or adjacent to water bodies shall provide erosion and sedimentation controls to limit impacts to existing drainage facilities, water bodies, and natural preserve areas.

During construction, open ground soils shall be stabilized or covered for protection from rainfall to prevent erosion and sedimentation into public rights-of-way, adjacent properties, water bodies, and natural preserved areas.

Section 24-15(2)(b)

Erosion and Sedimentation Controls



If a project disturbs more than 0.25 acres, a signed and sealed Stormwater Pollution Prevention Plan (SWPPP) is required.

Class V Dewatering Permit

As per Section 24-48.1(1)(e) of the Miami-Dade County Code, Class V permits are required for any dewatering of groundwater, surface water or water which has entered into an underground facility, excavation or trench.

Methods to reduce turbidity

- "Ecofriendly" coagulation and flocculation (monitoring is required)
- Filtration system
- Combination of sedimentation tanks with filtration media
- Well-point dewatering method
- Filter bags (for small-scale dewatering operations)

Well-point dewatering system

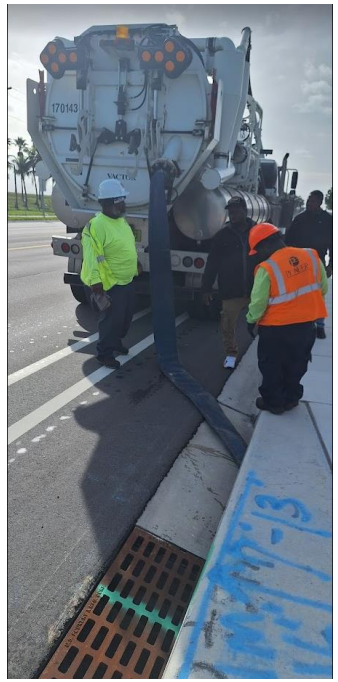
Sedimentation tanks with filter media

BMP-train

Dewatering operations associated with cleaning and maintenance of the stormwater infrastructure

To maintain the functionality of the stormwater infrastructure through the removal of debris, sediments, litter, and other obstructive matter collected within the drainage structures and conveyance features is necessary. These materials are mixed with stormwater and groundwater that enter underground facilities, pipes, and trenches. Typically, a dewatering operation is necessary to complete the task of cleaning stormwater infrastructure. The liquids collected within underground structures are removed using allowed pumping devices.

As per **Section 24-48.1(1)(e)** of the Code, the dewatering operations described above require a Class V permit.

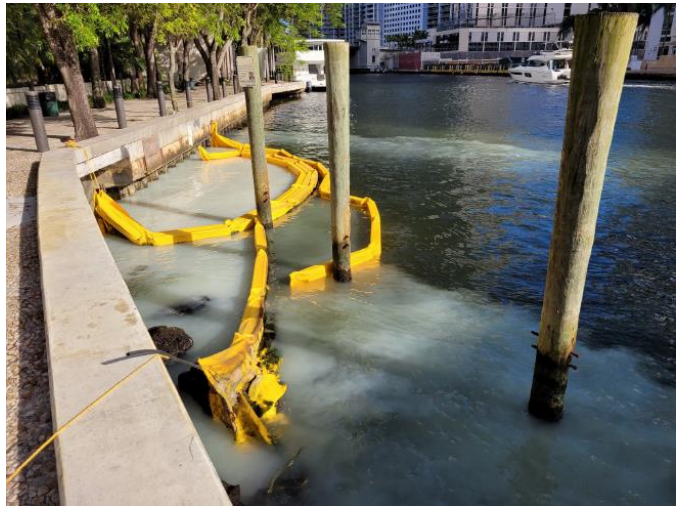


The typical content of stormwater infrastructure in Miami-Dade County.

It consists mixture of runoff, groundwater, debris, trash.

Typically, a dewatering operation is necessary to complete the task of cleaning stormwater infrastructure.

Typically, the contents of the drainage system are decanted back into the structure. Without proper pretreatment, this can cause re-sedimentation and turbid discharges during the release of the contents or during subsequent rainfall events.



Best Management Practice

Only Vacuum/Vactor trucks are allowed to serve stormwater infrastructure.

The vacuum/vactor trucks allow some degree of separation of the liquid and solid phases of the content of stormwater infrastructure, as well as retaining large debris.
To avoid cross-contamination and the potential introduction of contaminants to groundwater, the fleet utilized to clean and maintain stormwater infrastructure should not be utilized for cleaning sanitary sewers, including septic tanks.

Best Management Practice

Dewatering effluent shall only be discharged at locations approved by the Class V permit.

Dewatering effluent cannot be discharged into any structure connected to a public sanitary sewer system (Section 24.42-4 (2)(b

Best Management Practice

The liquid content of stormwater and utility infrastructure (dewatering effluent) removed by the approved equipment must be pretreated before discharge into the location approved by the Class V permit. The proposed pretreatment method must be submitted to the Division of Environmental Resources Management (DERM) for review and approval. The proposed treatment must be designed to remove sediments, silt, and oils, such as heavy-duty drain filters or similar technology. An existing pretreatment system that complies with the Code of Miami-Dade County and state requirements may be accepted as a substitute for the required pretreatment, subject to approval by the Director or the Director's designee.

Best Management Practice

Before the commencement of the dewatering operation, the drainage structures and their content must be visually inspected for signs of contamination, such as unusual color, staining, corrosion, unusual odors, fumes, oily sheen, etc. If signs of contamination are identified, the content of drainage structures shall be transported by a permitted liquid waste transporter to a facility permitted to accept liquid waste. The liquid waste must be transported by a licensed liquid waste hauler (not by a vacuum/vactor truck used for maintenance and cleaning). The permittee has the option to confirm the contamination by means of state-approved water quality sampling and analytical methods.

Best Management Practice

The equipment used for regular maintenance and cleaning of stormwater and utility infrastructure must have its contents fully evacuated and the equipment shall be cleaned before being used for subsequent maintenance and cleaning operation in a system that is not within the responsibility of the same utility owner, or at a different project or construction site even when the new construction site has the same owner.

Once a vacuum/vactor truck has reached the maximum capacity of sludge and debris, its contents must be evacuated at an authorized facility. After disposal, a vacuum/vactor truck must be inspected and cleaned if necessary.

DEWATERING OPERATIONS REQUIRED FOR FLOOD PROTECTION

Temporary dewatering operations required for flood protection, including dewatering necessary to resolve temporary ponding within road rights-of-way or private/public properties during rainfall and king tide events, require a Class V permit.

Temporary Dewatering Bypass with Equivalent Water-Quality Treatment

During temporary dewatering operation, pumped runoff often bypasses the built-in water-quality devices of the drainage system. To prevent turbidity, sediment and trash release, each temporary dewatering operation must incorporate **equivalent treatment.** These interim controls ensure that the bypass meets the same water-quality objectives as the permanent system while floodwaters are safely redirected.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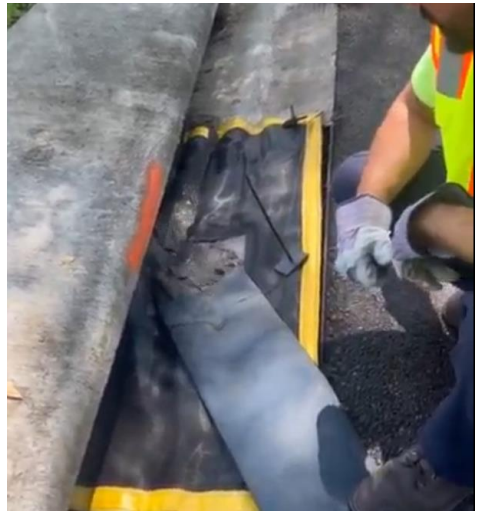
10:37 AM
13076
Ave, Miami Beach, FL 33140, USA




PUMP
BOB'S BARRICADES

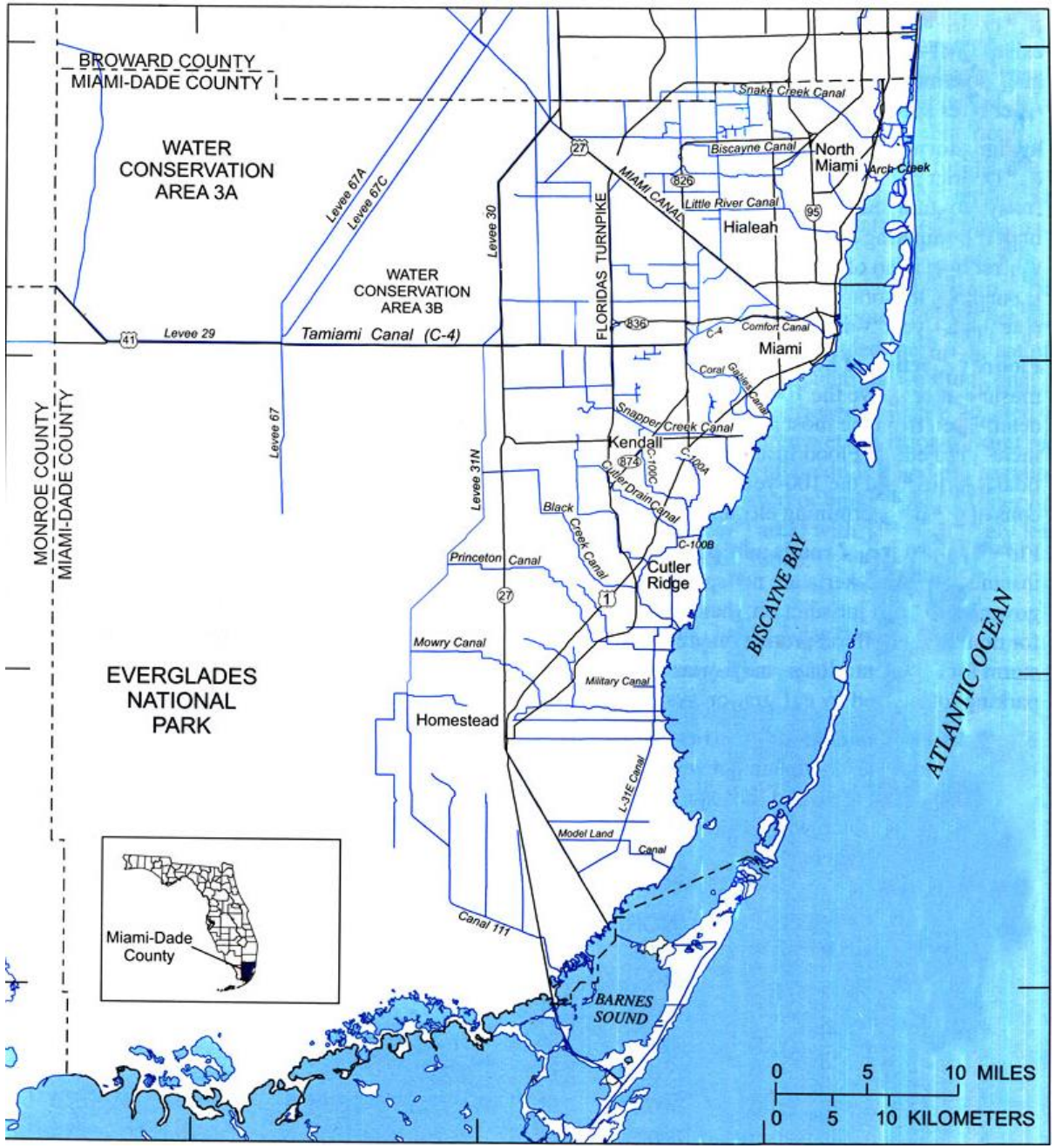
Secondary Drainage Systems:

- **Miami-Dade County**

Class III Permit:

Class III permits are required for any construction or work within non-tidal canals under the direct control of Miami-Dade County, by virtue of ownership, dedication by plat, easement, reservation, or right-of-way and access agreement or instrument. Ch. 24-48.1(1) (c).

A Canal Before and After Rainfall Event



Section 24-21.1(1)

Asset Inventory and Operating Records Required (certification)

On or before December 31, 2026, the following shall be responsible for submitting to and in the form prescribed by the Director the asset inventory, the current maintenance and inspections Standard Operating Procedures (SOPs), and maintenance records of its respective stormwater infrastructure in accordance with the following:

- Municipalities and public entities that own or operate stormwater infrastructure that drains runoff from the public right-of-way
- Each special taxing district, community development district, and private property owners' association that owns or operates stormwater infrastructure that connects to or drains into public right-of-way drainage infrastructure.

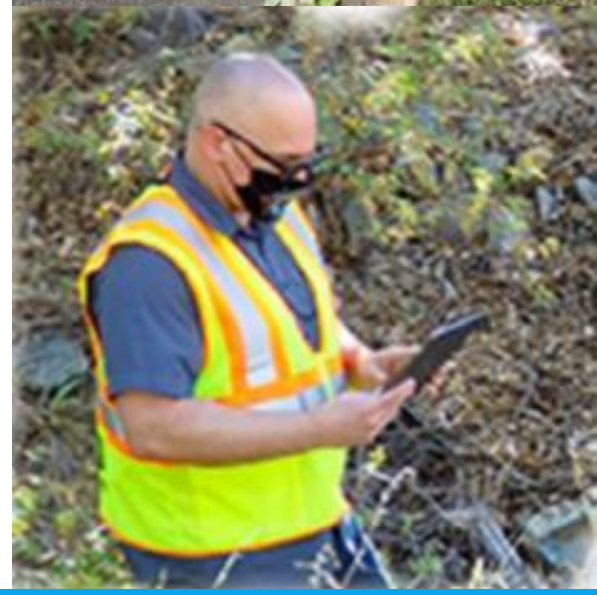
Section 24-21.1(2)

Recertification Required

The same entities subject to records requirement are also responsible for obtaining recertification of all its respective stormwater infrastructure.

- Initial recertification shall be obtained by **March 31, 2028**
- Subsequent recertification shall be obtained every ten years thereafter, unless it is determined that more frequent recertification is required.

The purpose of the recertification process is to ensure system performance, identify deficiencies, and recommend corrective action to ensure that the system is not impacting water quality or causing flooding.



Questions