

BOROUGH OF EDGEWATER

BERGEN COUNTY, NEW JERSEY



NEGLIA PROJECT NUMBER: EDGWADM20.001

DATE: OCTOBER 27, 2020

PREPARED BY:

NEGLIA ENGINEERING ASSOCIATES

34 PARK AVENUE

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Edgewater Stormwater Management Ordinance

Introduction

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Borough of Edgewater to address stormwater-related impacts. The creation of this plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Management Regulations. This plan contains all of the required elements described in N.J.A.C. 7:8 Stormwater Management Rules.

The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, defined as projects that disturb one or more acres of land. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides base flow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

A “build-out” analysis is not required, in accordance with N.J.A.C. 7:8-4.2(c)10 since the municipality does not have greater than one square mile remaining of vacant/agricultural developable land. Figure C-8 illustrates the existing zoning and land available for development within the Borough.

The plan also addresses the review and update of existing ordinances, the Borough Master Plan, and other planning documents to allow for project designs that include low impact development techniques.

The final component of this plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the Stormwater Plan, specific stormwater management measures are identified to lessen the impact of existing development

Goals

1. Reduce flood damage, including to life and property

This is to occur through the adoption of the Stormwater Control Ordinance and the existing stormwater regulations within the New Jersey Residential Site Improvement Standards (NJRSIS). This ordinance along with the NJRSIS will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing flooding impacts. This is accomplished through flow and suspended solids reduction to watercourses and stormwater conveyance systems.

All submitted site plans and subdivision plans which are governed by this ordinance and / or the NJRSIS will be reviewed by the municipal and board engineer for conformance with the specified stormwater regulations. The applicant will be required to submit a drainage report including a flooding analysis to ensure conformance.

2. Minimize, to the extent practical, any increase in stormwater runoff from any new development.

This is to occur through the adoption of the Stormwater Control Ordinance and the existing stormwater regulations within the New Jersey Residential Site Improvement Standards (NJRSIS). This ordinance along with the NJRSIS will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing stormwater runoff quantities from new development.

All submitted site plans and subdivision plans which are governed by this ordinance and / or the NJRSIS will be reviewed by the municipal and board engineer for conformance with the specified stormwater regulations. The applicant will be required to submit a drainage report including a flooding analysis to ensure conformance.

3. Reduce soil erosion from any development or construction project

This is to occur through the implementation of the New Jersey's Soil Erosion and Sediment Control Standards requirements. This Plan is to be consistent with those Standards. The requirements are also included within the Stormwater Control Ordinance.

All submitted site plans and subdivision plans which are governed by this ordinance and / or the NJRSIS will be reviewed by the municipal and board engineer for conformance with the specified Soil Erosion and Sediment Control Standards. In addition, projects with limit of disturbance of five thousand square feet or greater must obtain a Soil Erosion and Sediment Control Permit from the Bergen County Soil Conservation District.

4. Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures.

This is to occur through the adoption of the Stormwater Control Ordinance and the existing stormwater regulations within the New Jersey Residential Site Improvement Standards (NJRSIS). This ordinance along with the NJRSIS will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing flow and suspend solids which affect flow channels through culverts and bridges. In addition, inadequate culverts that were constructed prior to the Stormwater Control Ordinance may be updated through the Mitigation Plan section.

All submitted site plans and subdivision plans which are governed by this ordinance and / or the NJRSIS will be reviewed by the municipal and board engineer for conformance with the specified stormwater regulations. The applicant will be required to submit a drainage report including a flooding analysis to ensure conformance.

5. Maintain groundwater recharge and groundwater quality

This is to occur through the adoption of the Stormwater Control Ordinance and the existing stormwater regulations within the New Jersey Residential Site Improvement Standards (NJRSIS). Groundwater recharge and quality requirements for all major development will be governed through the adoption of this ordinance.

Groundwater recharge requirements are to be satisfied through the implementation of design measures to maintain existing groundwater recharge rate and quantity prior to development. Groundwater quality is to be maintained through the implementation of Best Management Practices (Nonstructural and Structural Strategies) to remove constituents and pollutants prior to infiltration / recharge to groundwater.

All submitted site plans and subdivision plans which are governed by this ordinance and / or the NJRSIS will be reviewed by the municipal and board engineer for conformance with the specified stormwater regulations.

6. Prevent , to the greatest extent feasible, an increase in nonpoint pollution.

This is to occur through the adoption of a series of ordinances which include a pet waste and wildlife feeding ordinance.

7. Maintain the integrity of stream channels for their biological functions, as well as for drainage.

This is to occur through the adoption of the Stormwater Control Ordinance and the existing stormwater regulations within the New Jersey Residential Site Improvement Standards (NJRSIS). This ordinance will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing pollutants within the flow which affect biological function and drainage conveyance ability of stream channels.

All submitted site plans and subdivision plans which are governed by this ordinance and / or the NJRSIS will be reviewed by the municipal and board engineer for conformance with the specified stormwater regulations.

8. Minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water.

This is to occur through the adoption of the Stormwater Control Ordinance and the existing stormwater regulations within the New Jersey Residential Site Improvement Standards

(NJRSIS). This ordinance will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing pollutants. In addition, the adoption of a series of ordinances which include a pet waste and wildlife feeding ordinance will reduce pollutants within stormwater runoff.

All submitted site plans and subdivision plans which are governed by this ordinance and / or the NJRSIS will be reviewed by the municipal and board engineer for conformance with the specified stormwater regulations.

9. Protect public safety through the proper design and operation of stormwater basins.

This is to occur through the adoption of the Stormwater Control Ordinance and the existing stormwater regulations within the New Jersey Residential Site Improvement Standards (NJRSIS). A section within the adopted ordinance will address safety standards for stormwater management basins.

All submitted site plans and subdivision plans which are governed by this ordinance and / or the NJRSIS will be reviewed by the municipal and board engineer for conformance with the specified stormwater regulations. The applicant will be required to submit a drainage report including a flooding analysis to ensure conformance.

To achieve these goals, this plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for stormwater infrastructure to be implemented to protect public safety.

Stormwater Discussion

Land development can dramatically alter the hydrologic cycle (See Figure C-1) of a site and, ultimately, an entire watershed. Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through evapotranspiration. Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability, resulting in increased volumes and rates of stormwater runoff from the site. Impervious areas that are connected to each other through gutters, channels, and storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing flow in downstream waterways to peak faster and higher than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a

stream. Increases in impervious area can also decrease opportunities for infiltration which, in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients. In addition to increased pollutant loading, land development can adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks that normally provide shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

Background

The Borough of Edgewater is located in the southeast portion of Bergen County and is bound by the Hudson River on its eastern boundary. The Hudson River is the only water body located within the Borough. The Borough is within PA-1 (Planning Area 1) State Planning Commission Area with a small portion within PA-7 State Park Area bordering the Borough of Fort Lee. The Borough is included in Watershed Management Area No. 5 Hackensack, Hudson, and Pascack Watershed. There are no wells or septic systems located within the Borough of Edgewater. The Borough maintains the sewer system with the Bergen County Utilities Authority being responsible for collection, pumping, and treatment. United Water is the Borough’s water provider.

According to the Master Plan and subsequent Reexamination Report, last adopted November 29, 2004, the Borough of Edgewater encompasses approximately 656 acres of land or 1.03 square miles in Bergen County. The Borough’s land use is designated as follows:

Land Use	Percentage (%)
Residential	32.34
Commercial	11.26
Industrial	8.46
Roads	17.64
Semi-Public	0.41
Cemetery	0.21
Public	10.65
Vacant	19.03

According to the 2010 U.S. Census, the Borough of Edgewater had a population of 11,513 residents. Between 2000 and 2010 the population increased from 7,677 to 11,513, a 50.0% increase, which can be attributed to the construction of several multi-family dwellings within the Borough. The U.S. Census Bureau estimates that in 2019 the population in Edgewater is approximately 13,364 in 2019 which is about 20% larger than the population in 2010.

The number of dwelling units in the Borough in 2000 was 4,277 and 5,746 in 2010 illustrating a 34.34% increase and a correlation with the increase in population. The increase in dwelling units is due to the construction of multi-family residential buildings which were generally redevelopment projects.

The growth of the Borough of Edgewater has moderately impacted the stormwater runoff volumes and pollutant loads to nearby waterways. The Borough of Edgewater is committed to minimizing stormwater runoff, preventing erosion and siltation, enhancing the stormwater water quality, and maintaining the groundwater recharge and infiltration.

The Borough of Edgewater requires stormwater management measures to be designed for any new major development. The Borough's Stormwater Control Ordinance defines a major development as any "development" that provides for ultimately disturbing one or more acres of land or increasing the post development impervious surface beyond the pre-development impervious surface. Disturbance for the purpose of this rule is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation.

New major developments are required to submit a stormwater management plan which proposes the method of controlling and managing stormwater on site after construction.

According to the State of New Jersey Brownfields SiteMart, the following sites are located within the Borough of Edgewater:

1. Grand Cove Marina (Former Gulf SS on Site), 989 River Road
2. Unilever Research & Development Inc, 45 River Road
3. Octagon Process Inc, 596 River Road
4. Quanta Resources Corporation, 163 River Road
5. Lustrelon Inc, 235 Old River Road
6. Celotex Park, 1 River Road
7. Edgewater Apartments Reiss Development, 99 Gorge Road
8. North River Mews, Russell Avenue & River Road
9. 361 River Road
10. Transcontinental Gas Pipeline Hudson River Va, River Road
11. 2 Bridle Way
12. Vreeland Park Residences, 2 Vreeland Terrace
13. Undercliff Avenue
14. River Road River Front

Grand Cove Marina provides above ground detention basins with stone. There are no outlets associated with these basins as these are used for infiltration purposes. Unilever Research and Development, Octagon Process Inc., and Quanta Resources Corp. are currently undeveloped and therefore do not require stormwater management measures. However, if these properties are developed in the future, they will be required to conform to this stormwater management plan, the stormwater control ordinance, and all other regulations set forth by the State of New Jersey. The remaining Brownfields sites listed were all developed prior to 2004 and therefore were not required to provide any stormwater management. A list of the Brownfields SiteMart results and maps for each property can be found in the Appendix A of this report.

The Borough is under the jurisdiction of the Bergen County Soil Conservation District which limits disturbance for soil erosion (less than five thousand square feet). The Borough requires a Soil Erosion Control Plan, if required pursuant to P.L. 1975, c 251, which would be included, as part of single family home development plans. The Borough, wherever and whenever possible, makes every effort to reduce stormwater runoff volumes and pollutant loads to the waterways of the Borough, County and State.

Figure C-2 illustrates the waterways in the Borough. Figure C-3 illustrates the Borough of Edgewater boundary on the USGS Quadrangle Map.

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the State's waterways. There are over 800 AMNET sites throughout the State of New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a five-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics. The February 2008 Northeast Water Region AMNET Study for WMA-5 indicates that there are eight sites, seven of which are moderately impaired and one being nonimpaired. None of these areas are within the Borough limits. There are no significant macroinvertebrate abnormalities during the sampling period for the waterway.

In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the State. This data shows that the instream water quality constituents frequently exceed the state's criteria. This means that these watercourses are impaired waterways and the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for these pollutants for each waterway.

A TMDL is the pollutant amount that can be accepted by a watercourse without causing an exceedance of water quality standards or interfering with the ability to use a watercourse for one or more of its designated uses. The allowable load is allocated to the various sources of the pollutant, such as stormwater and wastewater discharges, which require an NJPDES permit to discharge, and nonpoint source, which includes stormwater runoff from agricultural areas and residential areas, along with a factor of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various sources will be reduced to the designated allocations. Implementation strategies may include

improved stormwater treatment plans, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other BMPs.

The New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303 (d)) (Integrated List) is required by the Federal Clean Water Act to be prepared biennially and is a valuable source of water quality information. This combined report presents the extent to which New Jersey watercourses are attaining water quality standards, and identifies watercourses that are impaired. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDLs are needed.

Several portions of the Hudson River are listed on Sublist 5 of the Integrated List for not attaining water quality standards for mercury, fish-PCB, and fish-dioxin. However none of these levels are within the Borough limits of the Hudson River and necessary steps will be outlined in this Plan to prevent these pollutants migrating to adjacent waterways.

In addition to water quality problems, the Borough is subject to water quantity problems, including flooding, stream bank erosion, and diminished flow in its watercourses as a result of the impervious coverage within the Borough. The Borough has adopted the Statewide Basic Requirements to decrease the negative impact of development on water quantity. The Borough also requires developers to submit hydraulic calculations to be reviewed for compliance with the adopted Stormwater Management Ordinance.

A map of the groundwater recharge areas are shown in Figure C-4. At this time, the Borough does not have an existing groundwater assessment. Well head protection areas, also required as part of the MSWMP, are shown in Figure C-5.

Design and Performance Standards

The Borough will adopt the design and performance standards for stormwater management measures as presented in N.J.A.C. 7:8-5 to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies. The design and performance standards include the language for maintenance of stormwater management measures consistent with the stormwater management rules at N.J.A.C. 7:8-5.8 Maintenance Requirements, and language for safety standards consistent with N.J.A.C. 7:8-5.6 Safety Standards for Stormwater Management Basins. At this time, the ordinance has been submitted and conditionally approved by Bergen County per the Stormwater Management Regulations. Revisions are currently being made to the Stormwater Control Ordinance to address the Bergen County comments. A copy of the Borough's Stormwater Control Ordinance is included within Appendix of this Plan.

During construction, Borough inspectors and engineers will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed. If the Borough determines that noncompliance is occurring, the Borough shall issue non-compliance citations, stop work orders, and fines to ensure compliance.

Once construction is completed, long-term maintenance is required for existing and future stormwater facilities to ensure long-term operation for all project governed by the requirements

set forth within the Stormwater Control Ordinance. The ordinance will require an operations and maintenance plan that will provide specific preventative maintenance tasks and schedules along with the name of the person or people responsible for preventive or corrective maintenance. The person responsible for maintenance will be required to evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as necessary.

To ensure proper maintenance and facility repair, the Borough will notify the responsible person in writing should a stormwater facility become a danger to public safety, public health, or require maintenance and / or repair. Upon receipt of the written notice, the responsible person will have fourteen days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer. The Borough, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the Borough or County may immediately proceed to do so and shall bill the cost to the responsible person.

Non-structural measures should be considered first before structural measures are planned. To ensure the effectiveness of such measures, the applicant must verify the stormwater quantity impacts as detailed in the Stormwater Management Rules at N.J.A.C. 7:8-5.8 and the Borough's Stormwater Control Ordinance. Should non-structural measures be insufficient to achieve proper stormwater management control, structural measures should be designed according to the Stormwater Management Rules at N.J.A.C. 7:8-5.8 and the Borough's Stormwater Control Ordinance. The New Jersey Stormwater Best Management Practices Manual should be used as a guide for structural and non-structural design standards. The design of these measures must comply with the NJ Soil Erosion and Sediment Control Standards, Freshwater Wetland Protection Act Rules, Flood Hazard Area Rules, Surface Water Quality Standards, and any other rules as applicable to the project.

Plan Consistency

The Borough is not within a Regional Stormwater Management Planning Area. No TMDLs have been developed for waters within the Borough. Therefore, this plan does not need to be consistent with any regional stormwater management plan (RSWMP's). A TMDL was completed in 2006 for Fish-Dioxin, FishPCB and Mercury levels in the Hudson River. This Municipal Stormwater Management Plan will be updated to be consistent with any RSWMPs or TMDLs developed in the future.

The Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) as N.J.A.C. 5:21. The municipality will utilize the most current update of the RSIS in the stormwater management review of residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updated to the RSIS.

The Borough's Stormwater Management Ordinance required all new development and redevelopment plans to comply with New Jersey's Soil Erosion and Sediment Control Standards. During construction, Borough inspectors will observe on-site erosion and sediment control measures and report any inconsistencies to the local Soil Conservation District.

Nonstructural Stormwater Management Strategies

The Borough of Edgewater has approximately 0.196 square miles of vacant/agricultural land. Per N.J.A.C. 7:8-4.2 (10) the Borough does not have to evaluate to what extent the entire master plan, official map and development regulations (including the zoning ordinance), implement the principles expressed in N.J.A.C. 7:8-5.3(b). Figure C-6 illustrates the Land Use/Land Cover Map.

Land Use / Build-Out Analysis

The Borough of Edgewater is approximately 1.03 square miles in its entirety and is therefore exempt from requirements to perform a build out analysis because less than one square mile is vacant or agricultural land.

Mitigation Plans

This mitigation plan is provided for a proposed development that is granted a variance or exemption from the stormwater management design and performance standards. Presented is a hierarchy of options (1 and 2).

MITIGATION PROJECT CRITERIA

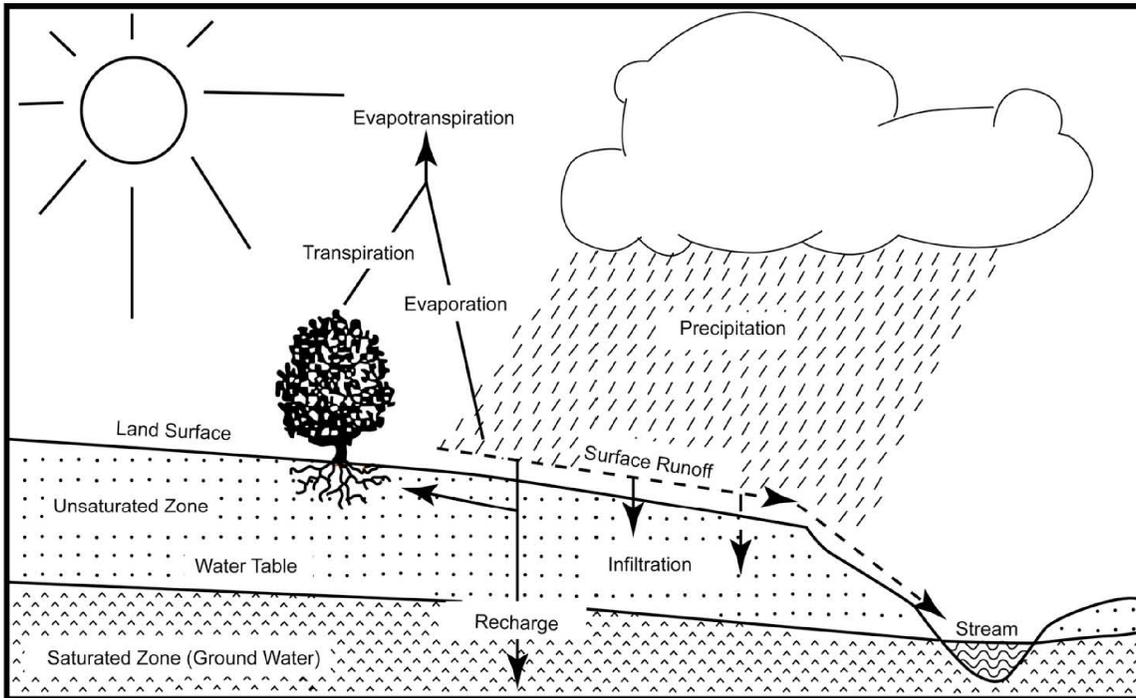
1. The mitigation project must be implemented in the same drainage area as the proposed development. The project must provide additional groundwater recharge benefits, or protection from stormwater runoff quality and quantity from previously developed property that does not currently meet the design and performance standards outlined in the Municipal Stormwater Management Plan. The developer must ensure the long-term maintenance of the project, including the maintenance requirements under Chapters 8 and 9 of the NJDEP Stormwater BMP Manual. Specific projects that can be used to address the mitigation requirement can be obtained from the Borough Engineer.
 - a. The applicant can select one of the following projects listed to compensate for the deficit from the performance standards resulting from the proposed project. More detailed information on the projects and a list of additional projects can be obtained from the Borough Engineer. Listed below are some examples of projects that can be used to address the mitigation requirement.
 - i. Groundwater Recharge
 1. Building roof runoff to maximize groundwater recharge.
 2. Retrofit any one of the Borough of Edgewater properties to replace impervious areas with permeable paving.
 - ii. Water Quality
 1. Retrofit any one of the Borough's existing stormwater management facilities to provide removal of 80 percent total suspended solids.
 - iii. Water Quantity
 1. Install stormwater management measures on Borough properties to reduce the minimum or equal, to the project created impervious area and additional surface area volumes of the 2, 10, and 100-year storms, respectively.

2. If a suitable site cannot be located from mitigation in the same drainage (HUC 14) area as the proposed development, as presented in Option 1, the mitigation project may provide mitigation that is not equivalent to the impacts for which the variance or exemption is sought, but that addresses the same issue. The borough will only permit this alternate option when all other mitigation venues have been exhausted. For example, if a variance is given because the 80% TSS requirement cannot be met, the selected project may address water quality impacts due to other impairments. Specific projects that can be used to address the mitigation requirement can be obtained from the Borough Engineer.

i. Water Quality

1. Re-establish a vegetative buffer (minimum 50 feet wide) as a goose control measure and to filter stormwater from the high water fowl traffic areas.
2. Provide goose management areas, including public education.

The Borough may allow a developer to provide funding or partial funding to the municipality for an environmental enhancement project that has been identified in a Municipal Stormwater Management Plan, or towards the development of a Regional Stormwater Management Plan. The funding must be equal to or greater than the cost to implement the mitigation outlined above, including costs associated with purchasing the property or easement for mitigation, and the cost associated with the long-term maintenance requirements of the mitigation measure.



Source: New Jersey Geological Survey Report GSR-32.

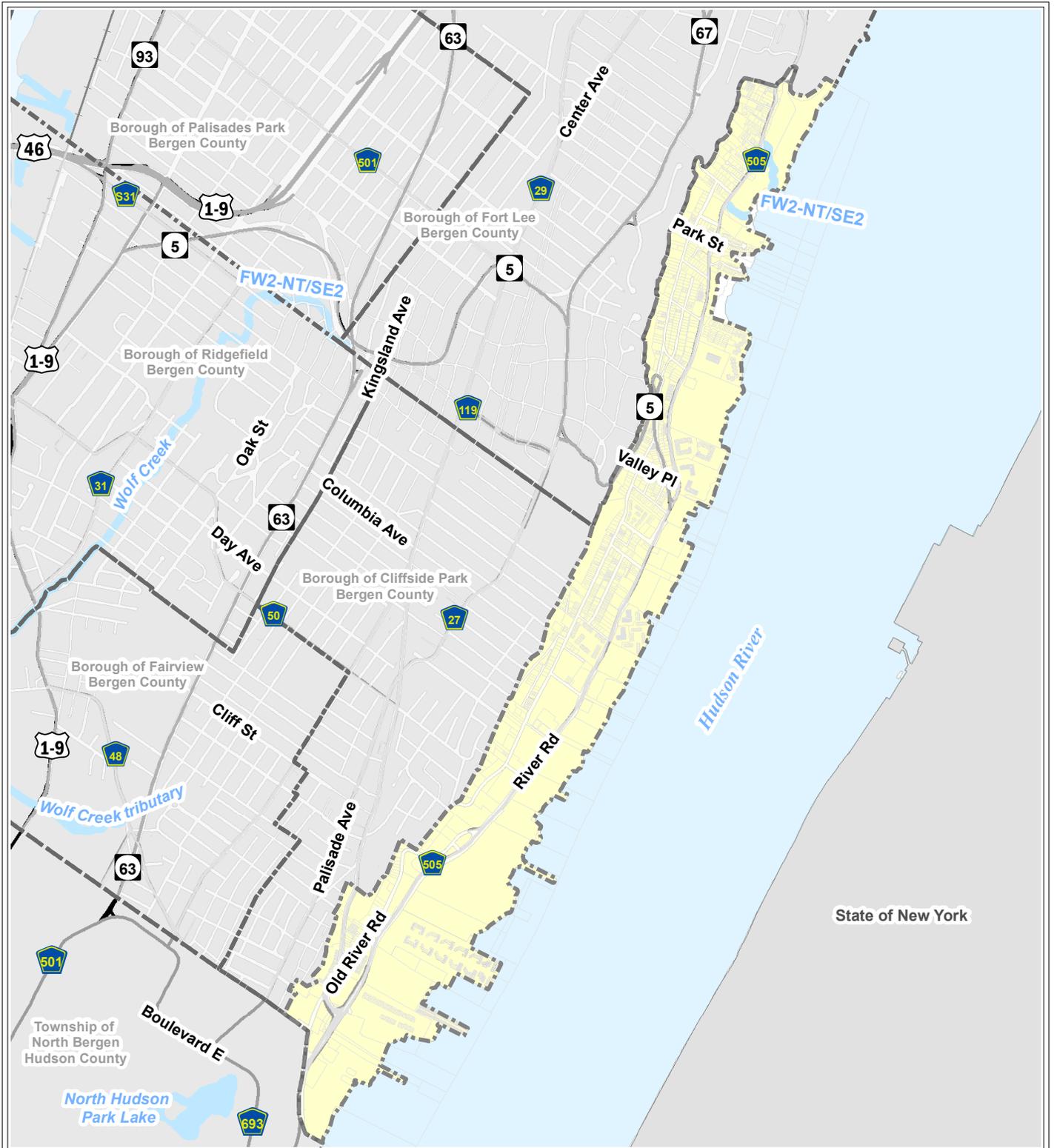
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Figure C-1 Groundwater Recharge in the Hydrologic Cycle Borough of Edgewater Bergen County, NJ



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Designed By:	Page:	EDGWADM20.010	Figure C-1	New Jersey Geological Survey Report GSR-32
Field Book No:	Date: October 2020			



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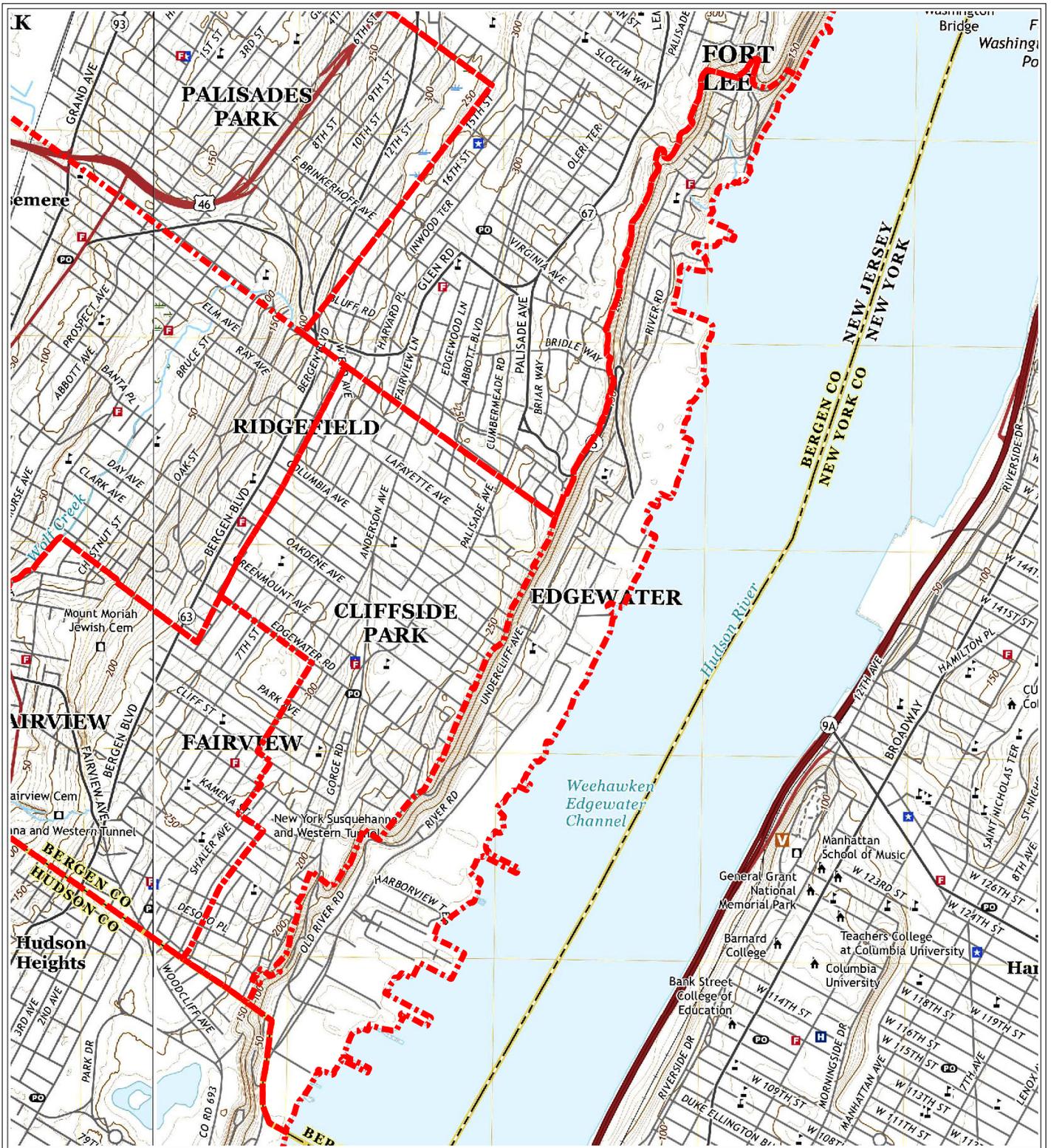
Figure C-2 Waterways Borough of Edgewater Bergen County, NJ

Legend

- Waterways
- Borough of Edgewater



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Designed By:	Page:	EDGWADM20.010	Figure C-2
Field Book No:	Date: October 2020	Map References: New Jersey Office of GIS, NJDEP	



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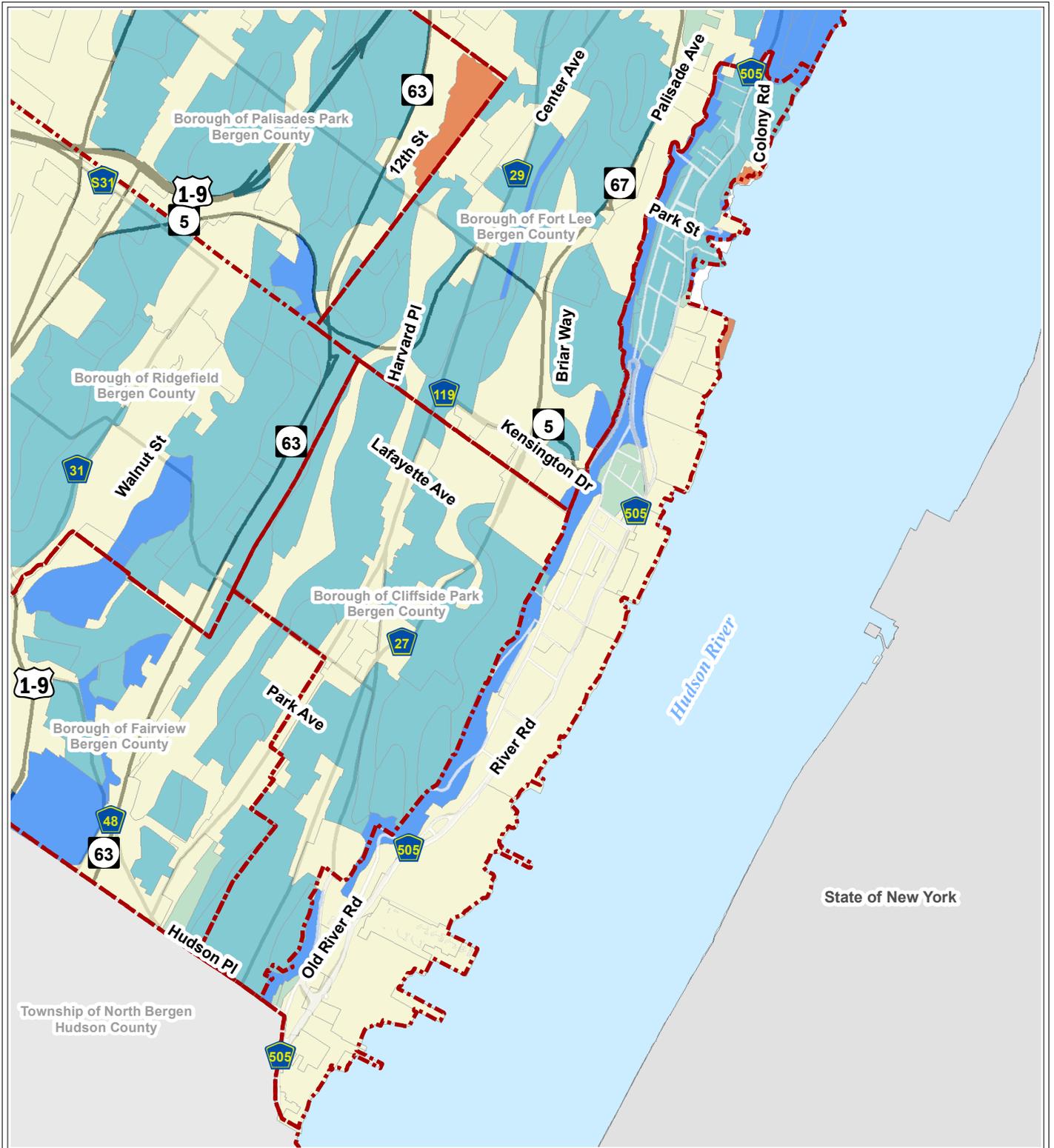
Figure C-3
USGS Topography Map
Borough of Edgewater
Bergen County, NJ

Legend

Municipal Boundary



Drawn By: M.T.	Checked By: R.K.C.	Project No:	Sheet No:	Map References: USGS Weehawken, NJ Quadrangle 2019, USGS Central Park, NY Quadrangle 1919, New Jersey Office of GIS, NJDEP
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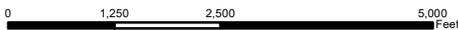


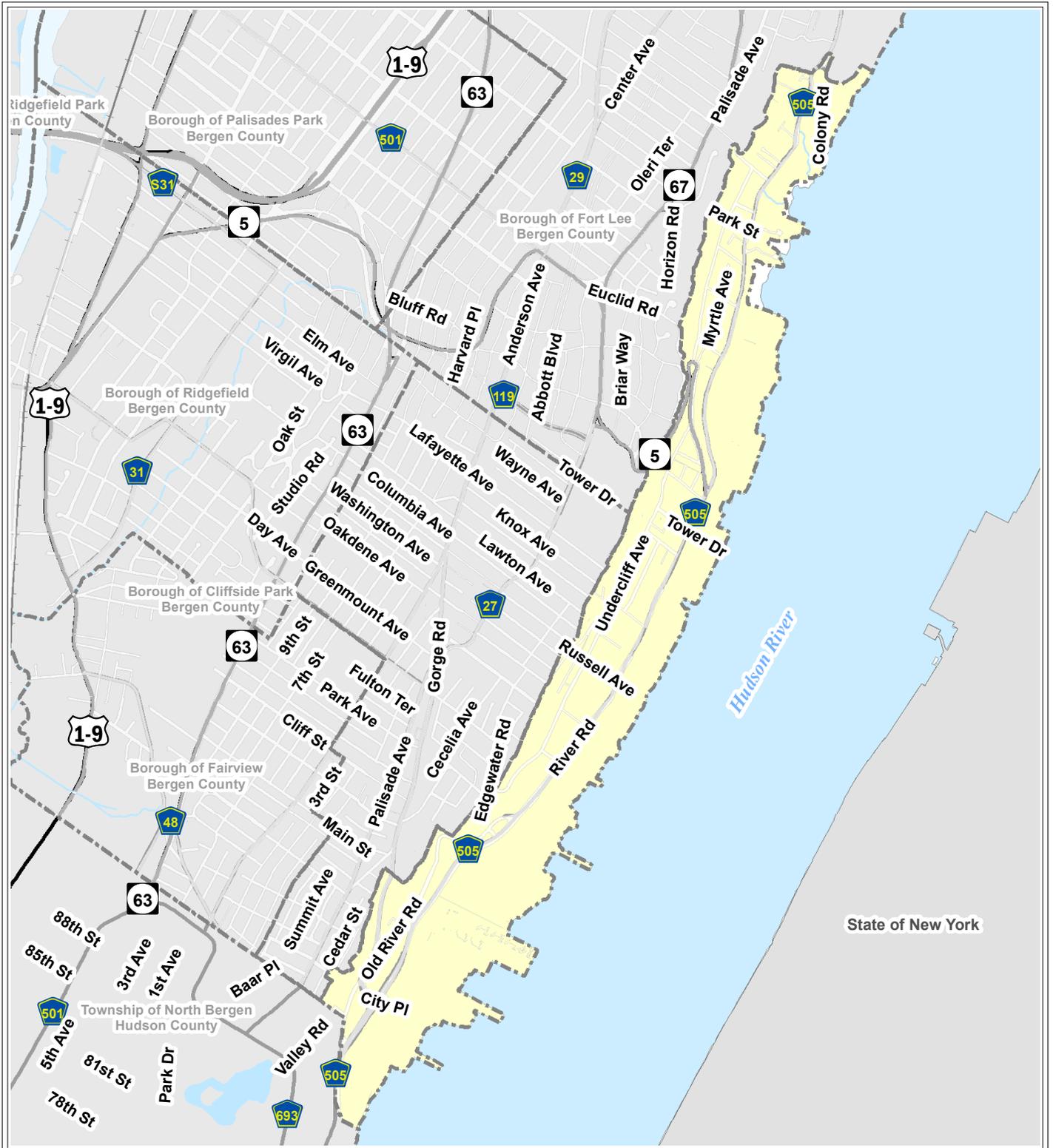
Figure C-4 Groundwater Recharge Areas Borough of Edgewater Bergen County, NJ

- Legend**
- 0 in/yr
 - 1 to 7 in/yr
 - 8 to 10 in/yr
 - 11 to 15 in/yr
 - 16 to 23 in/yr
 - Hydric Soils - No Recharge
 - Wetlands and Open Water- No Recharge



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Designed By:	Page:	EDGWADM20.010	Figure C-4
Field Book No:	Date: October 2020		

Map References:
New Jersey Office of GIS, NJDEP
Ground-Water Recharge May 2006



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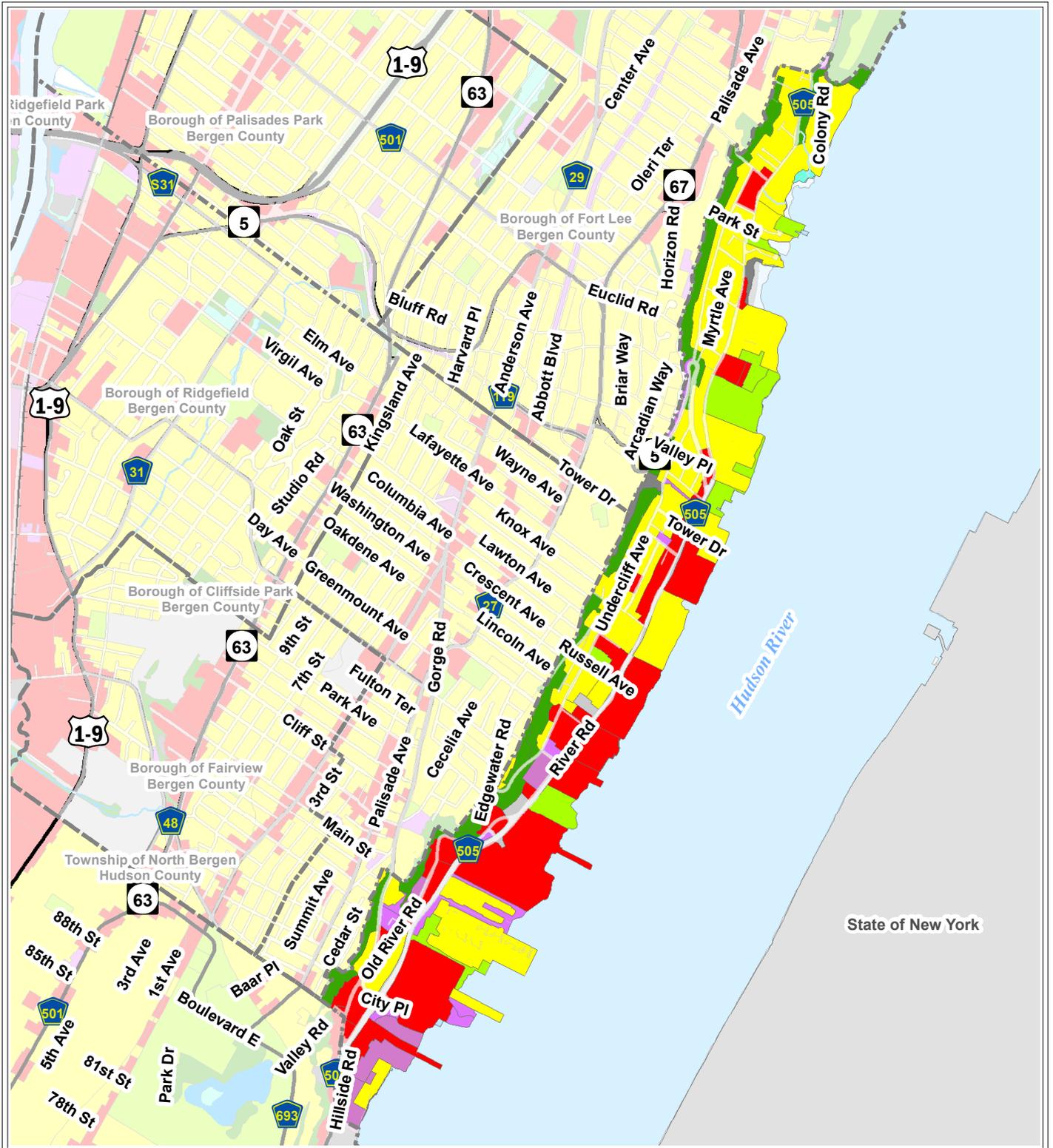
Figure C-5 Well Head Protection Areas Borough of Edgewater Bergen County, NJ

- Community and Non-Community Well Head Areas**
- Water Travel Time to Well**
- 2-year
 - 5-year
 - 12-year
 - Well Head Centropoints (For Reference)



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Map References:
New Jersey Office of GIS, NJDEP
Well Head Protection Areas May 2018



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0 1,250 2,500 5,000 Feet

Figure C-6
Land Use/Land Cover
Borough of Edgewater
Bergen County, NJ

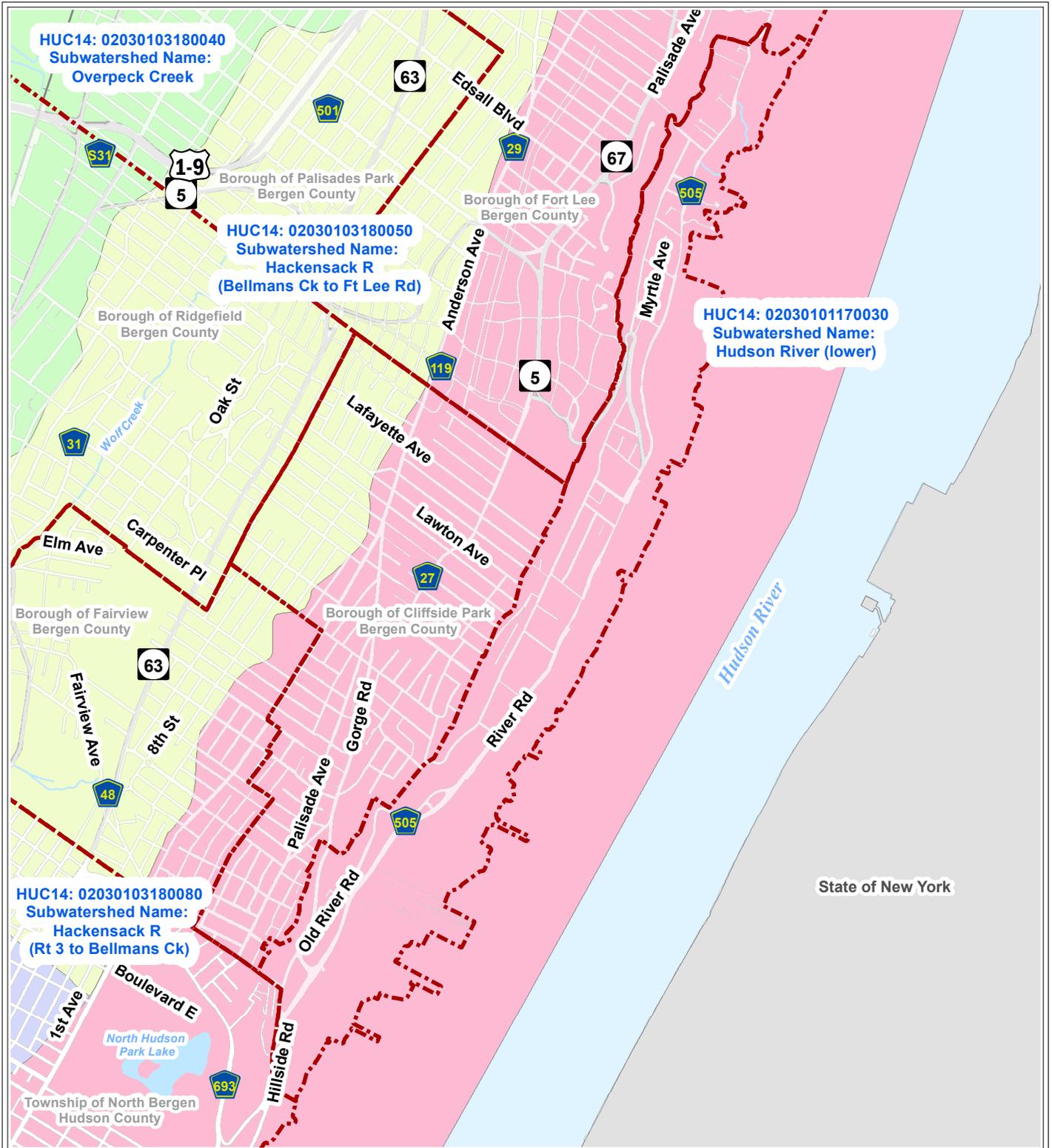
Classified Land Use Type

- Residential
- Commercial / Industrial
- Forest
- Recreational Land
- Transitional
- Urban Land
- Wetlands
- Water
- Barren Land
- Cemetery / Transportation / Utilities



Drawn By: R.K.C	Checked By: D.J.	Project No:	Sheet No:
Designed By:	Page:	EDGWADM20.010	Figure C-6
Field Book No:	Date: October 2020		

Map References:
 New Jersey Office of GIS, NJDEP
 Land Use/Land Cover 2015 Dataset
 Anderson Classification System



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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

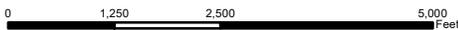


Figure C-7 NJDEP HUC14 Watersheds Borough of Edgewater Bergen County, NJ

Subwatershed Names

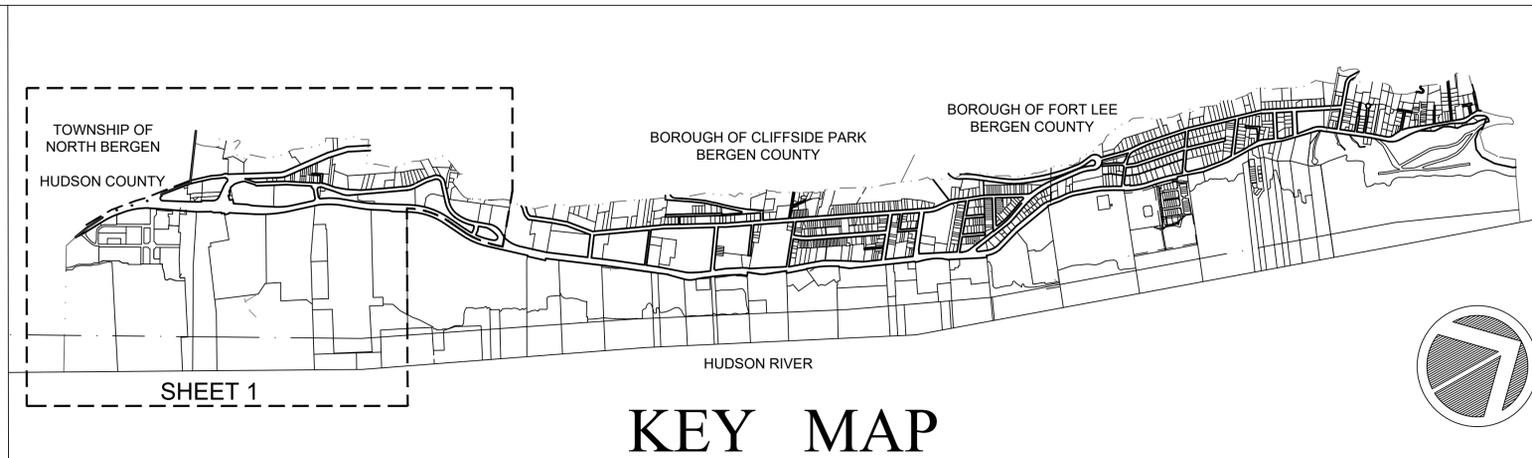
- Hackensack R (Bellmans Ck to Ft Lee Rd)
- Hackensack R (Rt 3 to Bellmans Ck)
- Hudson River (lower)
- Overpeck Creek



Drawn By: M.T.	Checked By: R.K.C.	Project No:	Sheet No:
Designed By:	Page:	EDGWADM20.010	Figure C-7
Field Book No:	Date: October 2020	Map References: New Jersey Office of GIS, NJDEP 14-Digit Hydrologic Unit Code Delineations 03/2016	

BOROUGH OF EDGEWATER

BERGEN COUNTY, NEW JERSEY

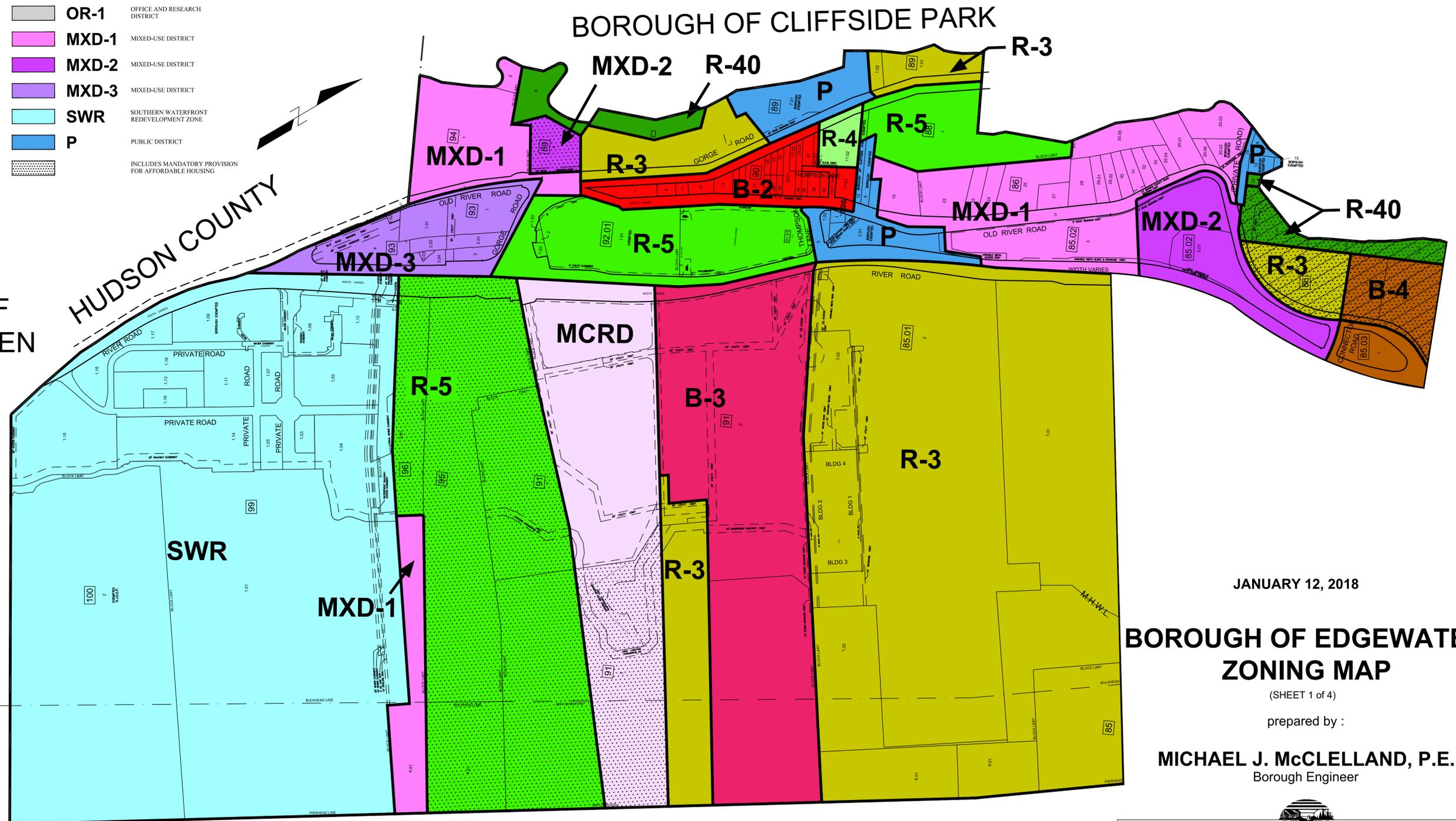


LEGEND

	R-1	SINGLE FAMILY RESIDENTIAL DISTRICT		B-3	WATERFRONT COMMERCIAL DISTRICT
	R-2	SINGLE AND TWO-FAMILY RESIDENTIAL DISTRICT		B-4	TRADESMAN COMMERCIAL DISTRICT
	R-3	MULTIFAMILY RESIDENTIAL DISTRICT		OR-1	OFFICE AND RESEARCH DISTRICT
	AHO	AFFORDABLE HOUSING OVERLAY ZONE		MXD-1	MIXED-USE DISTRICT
	R-4	MULTIFAMILY RESIDENTIAL DISTRICT		MXD-2	MIXED-USE DISTRICT
	R-5	MULTIFAMILY RESIDENTIAL DISTRICT		MXD-3	MIXED-USE DISTRICT
	R-40	SINGLE FAMILY RESIDENTIAL DISTRICT		SWR	SOUTHERN WATERFRONT REDEVELOPMENT ZONE
	SRH	SENIOR HOUSING DISTRICT		P	PUBLIC DISTRICT
	MCRD	MIXED-USE COMMERCIAL / RESIDENTIAL DEVELOPMENT DISTRICT			INCLUDES MANDATORY PROVISION FOR AFFORDABLE HOUSING
	CBD	CENTRAL BUSINESS DISTRICT			
	B-1	NEIGHBORHOOD BUSINESS DISTRICT			
	B-2	SHADYSIDE MIXED-USE DISTRICT			

TOWNSHIP OF NORTH BERGEN

HUDSON COUNTY



JANUARY 12, 2018

BOROUGH OF EDGEWATER ZONING MAP

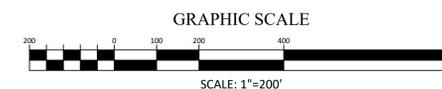
(SHEET 1 of 4)

prepared by :

MICHAEL J. McCLELLAND, P.E.
Borough Engineer

Adopted March 18, 2019 - ORD NO. 2019-001

HUDSON RIVER

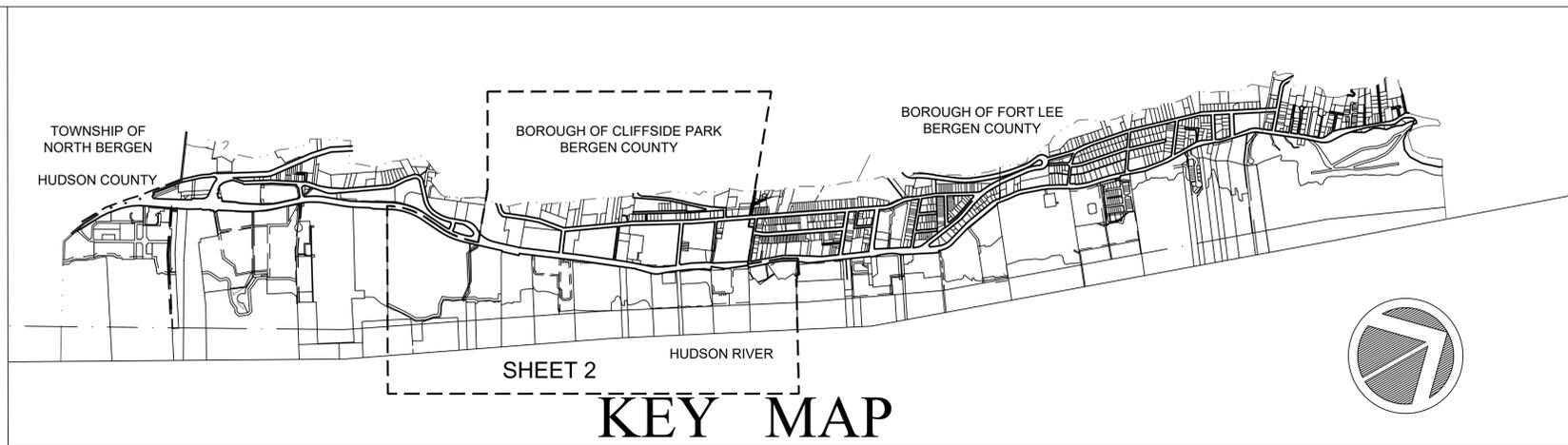


ASSOCIATES
CONSULTING AND MUNICIPAL ENGINEERS

3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859 — 1460 US HIGHWAY 9 SOUTH, HOWELL, NEW JERSEY 07731

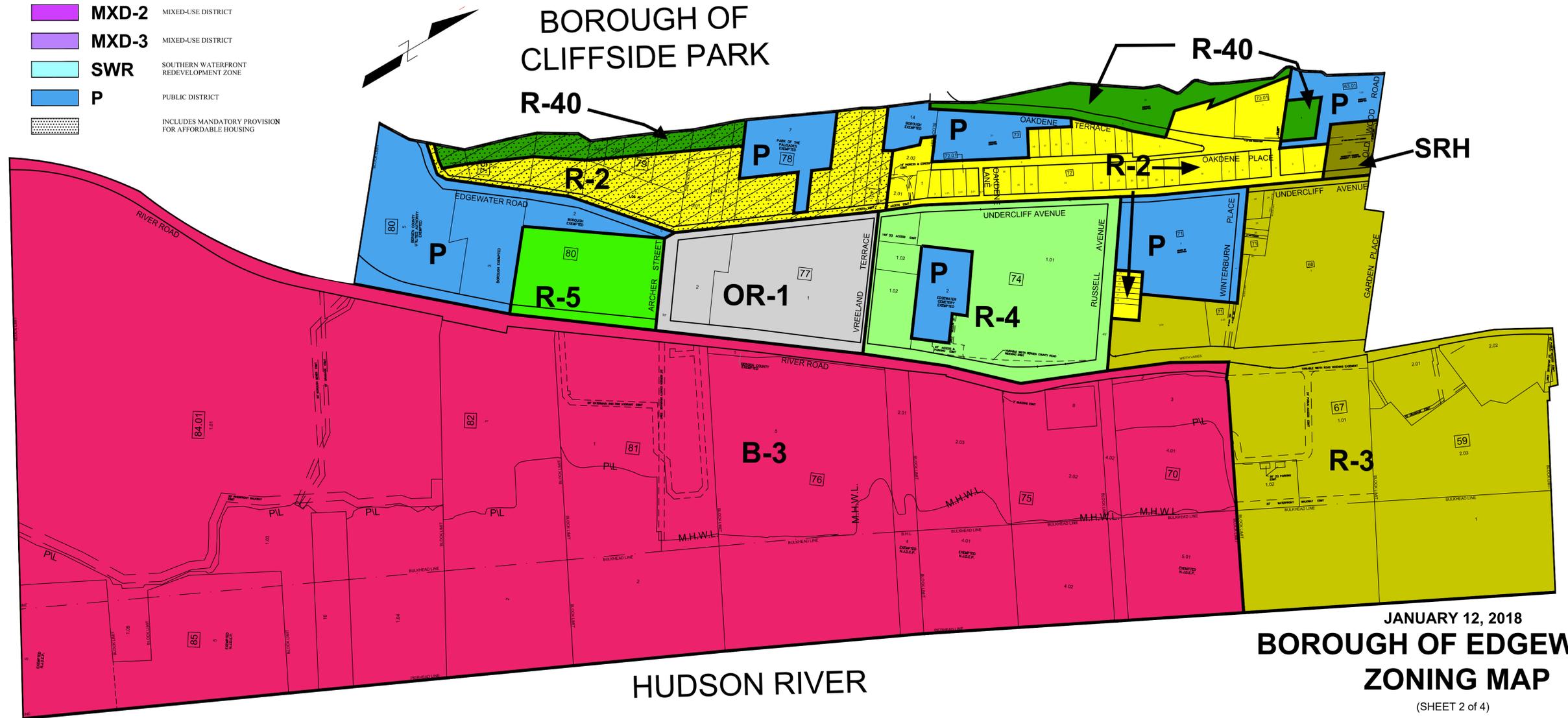
BOROUGH OF EDGEWATER

BERGEN COUNTY, NEW JERSEY



LEGEND

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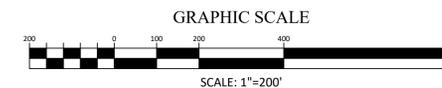


JANUARY 12, 2018
BOROUGH OF EDGEWATER
ZONING MAP
 (SHEET 2 of 4)

prepared by :

MICHAEL J. McCLELLAND, P.E.
 Borough Engineer

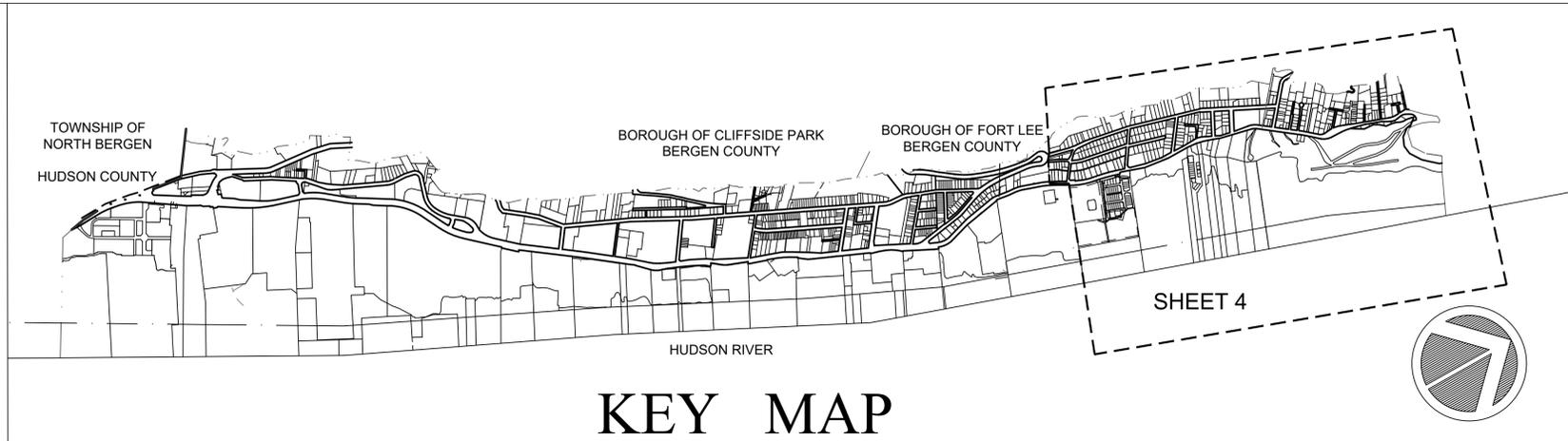
Adopted March 18, 2019 - ORD NO. 2019-001



3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859 — 1460 US HIGHWAY 9 SOUTH, HOWELL, NEW JERSEY 07731

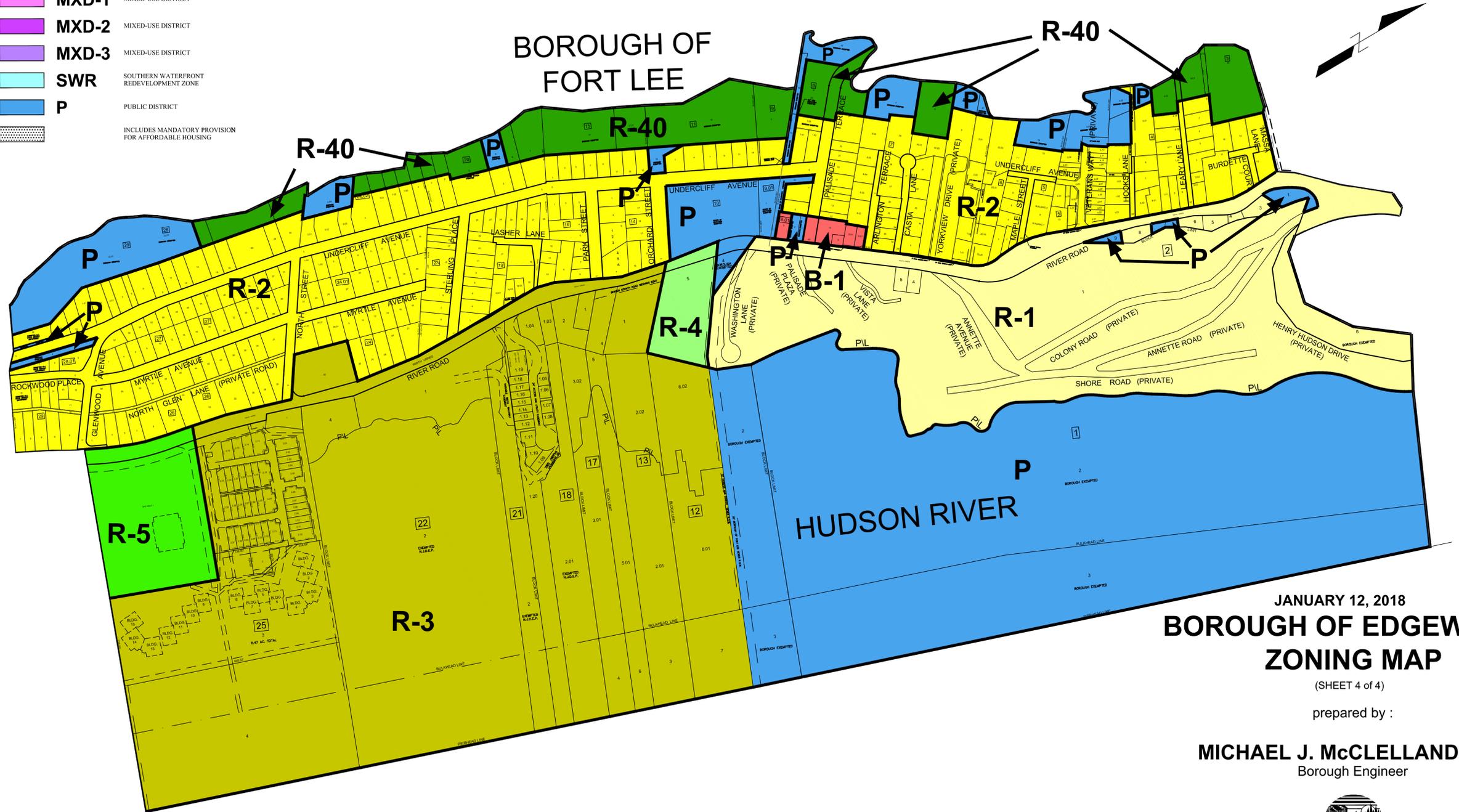
BOROUGH OF EDGEWATER

BERGEN COUNTY, NEW JERSEY



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	B-2	SHADYSIDE MIXED-USE DISTRICT			

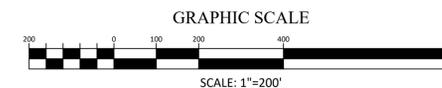


JANUARY 12, 2018
BOROUGH OF EDGEWATER
ZONING MAP
 (SHEET 4 of 4)

prepared by :

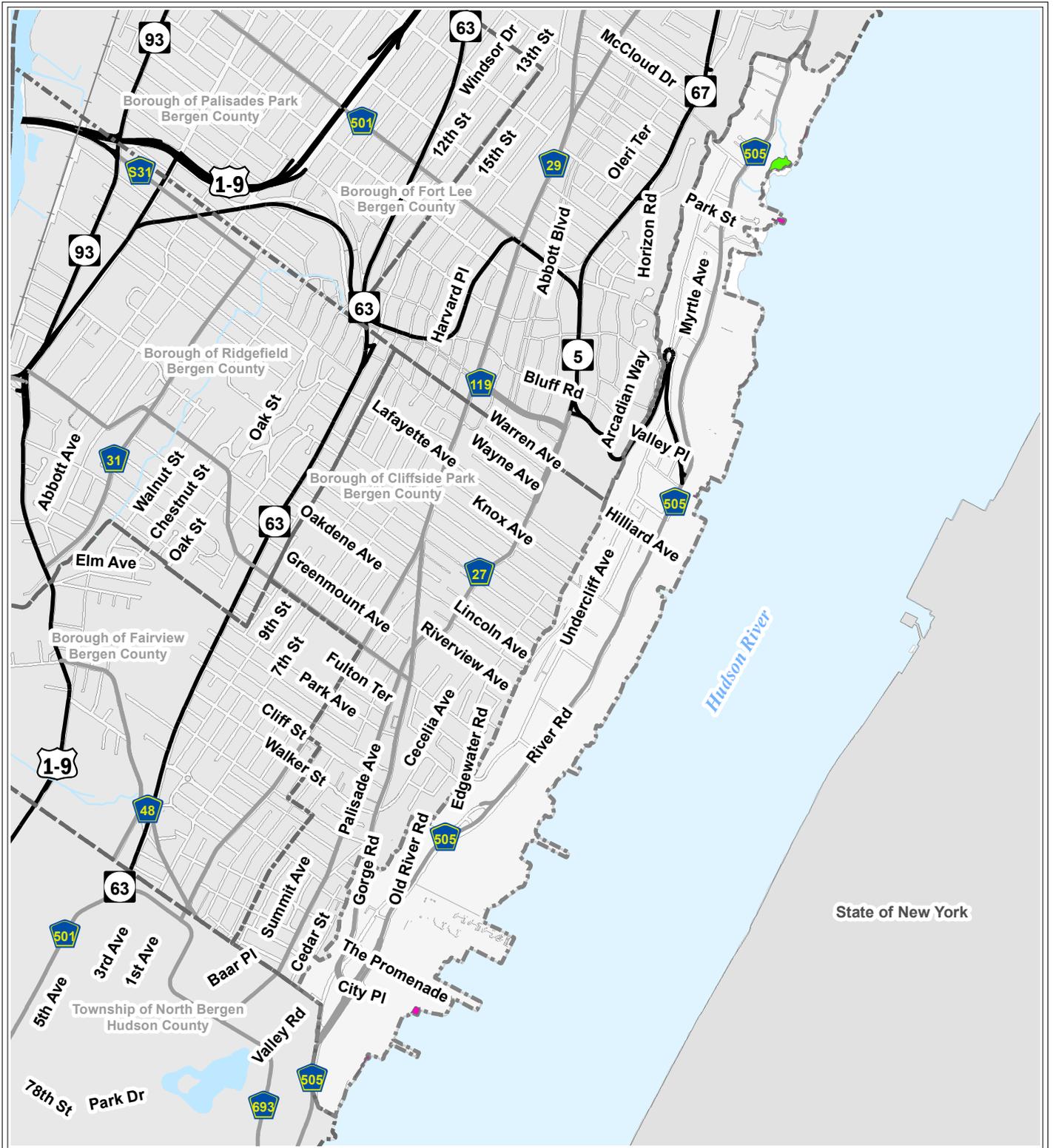
MICHAEL J. McCLELLAND, P.E.
 Borough Engineer

Adopted March 18, 2019 - ORD NO. 2019-001



CONSULTING AND MUNICIPAL ENGINEERS

3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859 — 1460 US HIGHWAY 9 SOUTH, HOWELL, NEW JERSEY 07731



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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000



Figure C-9 Wetlands Borough of Edgewater Bergen County, NJ



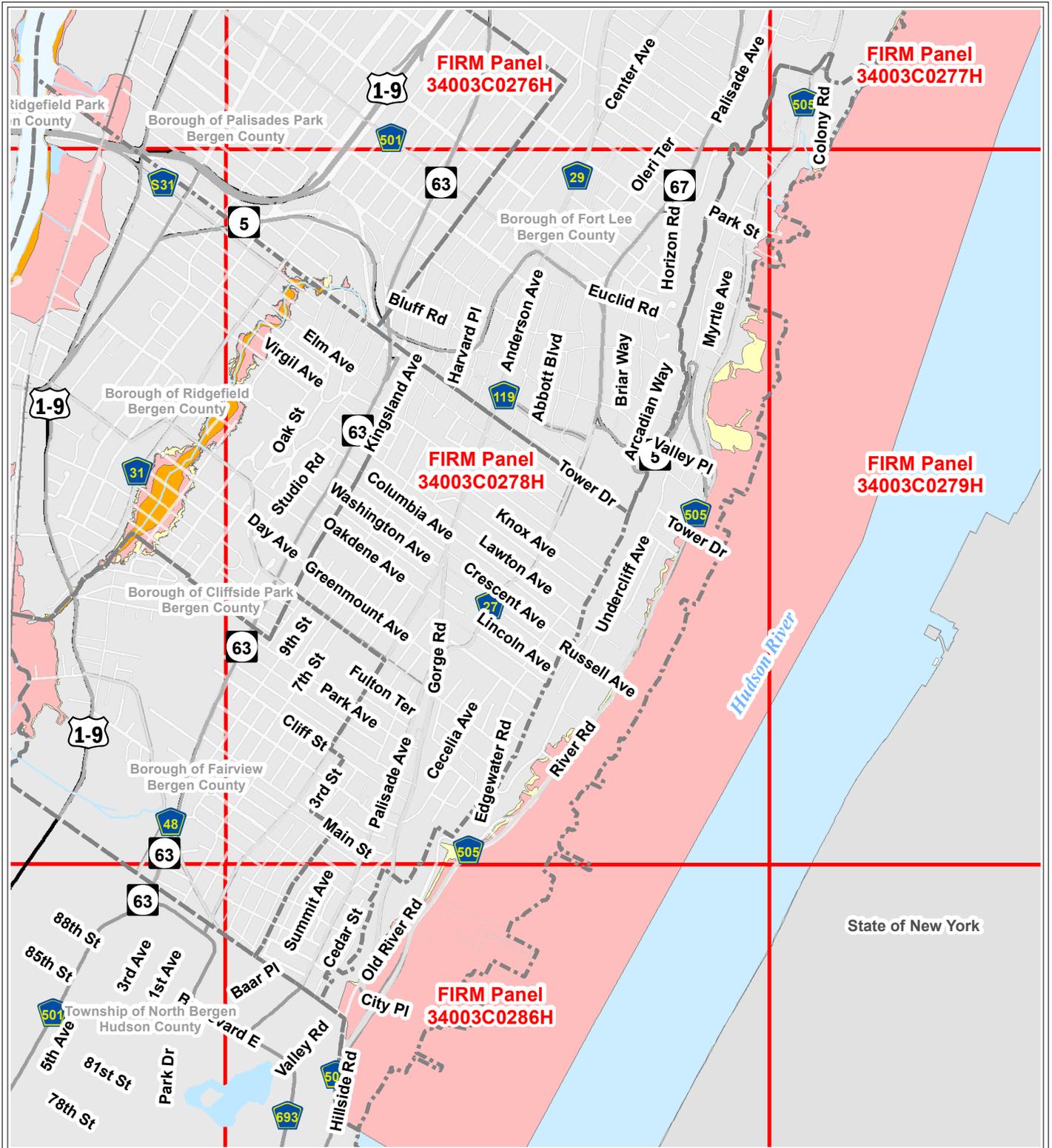
Wetlands and Water Land Use

- Phragmites Dominate Coastal Wetlands
- Tidal Rivers, Inland Bays, and Other Tidal Waters
- Tidal Mud Flat

Drawn By: M.T.	Checked By: R.K.C.	Project No:
Designed By:	Page:	EDGWADM20.010
Field Book No:	Date: October 2020	

Sheet No:	Figure C-9	Map References:
		New Jersey Office of GIS, NJDEP, Land Use/Land Cover 2015 Dataset Anderson Classification System

Sheet No:	Figure C-9	Map References:
		New Jersey Office of GIS, NJDEP, Land Use/Land Cover 2015 Dataset Anderson Classification System



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Figure C-10

FEMA Flood Hazard Areas Borough of Edgewater Bergen County, NJ

Legend

- FEMA FIRM Panels
- Zone AE, Special Flood Hazard
- Zone AE - Special Flood Hazard Area, Floodway
- Zone X - 0.2% Annual Chance Flood Hazard



Drawn By: R.K.C	Checked By: D.J.	Project No:	Sheet No:
Designed By:	Page:	EDGWADM20.010	Figure C-10
Field Book No:	Date: October 2020		

Map References:
New Jersey Office of GIS, NJDEP,
FEMA National Flood Hazard Layer
(NFHL) 08/28/2019

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New Jersey State Plane 2900 zone. The **horizontal datum** was NAD 83. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was provided in digital format by the State of New Jersey Office of Information Technology. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

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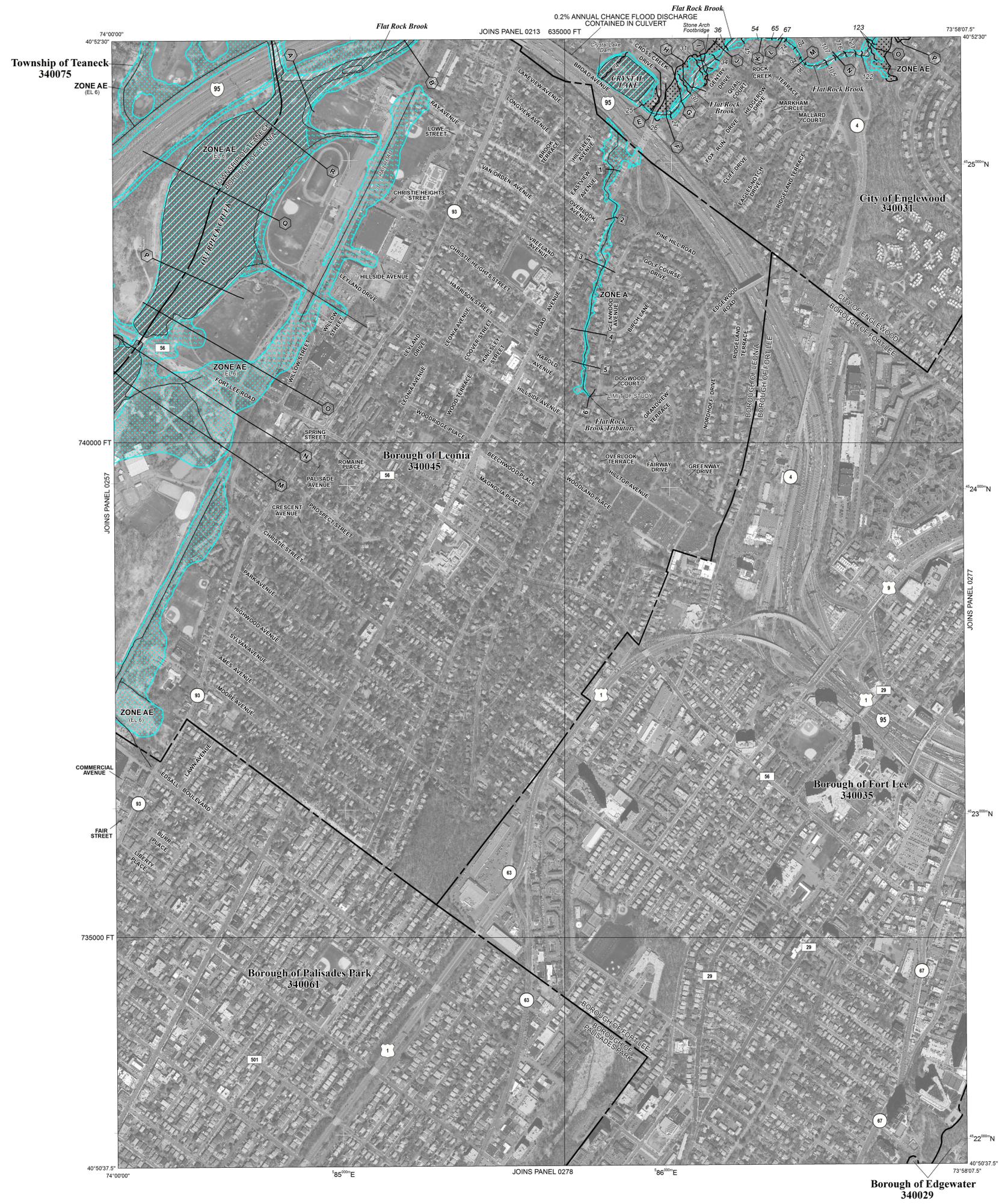
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If you have questions about this map, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <https://www.fema.gov/national-flood-insurance-program>.



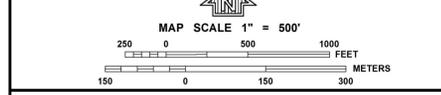
This digital FIRM was produced through a unique cooperative partnership between the New Jersey Department of Environmental Protection (NJDEP) and FEMA. As part of the effort, NJDEP has joined in a Cooperative Technical Partnership agreement to produce and maintain FEMA's digital FIRMs.

NJFHDF is equal to the 1-percent-annual chance flood plus an additional 25% in flow, and not to exceed the 0.2-percent-annual chance flood. NJFHDF boundary is to regulate disturbance to the land and vegetation within flood hazard area of a water body. This regulation is set forth by the State of New Jersey Flood Hazard Area Control Act Rules N.J.A.C. 7:13, and is administered by New Jersey Department of Environmental Protection (NJDEP).



LEGEND

- SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
- The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently derelict. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
- OTHERWISE PROTECTED AREAS (OPAs)
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
- New Jersey Flood Hazard Area Design Flood (NJFHDF)
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- Base Flood Elevation line and value; elevation in feet* (EL. 987)
- Base Flood Elevation value where uniform within zone; elevation in feet*
- * Referenced to the North American Vertical Datum of 1988
- Cross section line
- Limited detail cross section line
- Transsect line
- 87°07'45", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 26°00'N 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT 5000-foot grid values: New Jersey State Plane coordinate system (FIPSZONE 2900), Transverse Mercator projection
- DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile
- MAP REPOSITORY Refer to listing of Map Repositories on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP September 20, 1995
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL September 30, 2005, August 28, 2019 - For Reason of Revision See Notice to Users in Flood Insurance Study Report
- For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.
- To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0276H

FIRM

FLOOD INSURANCE RATE MAP

BERGEN COUNTY, NEW JERSEY (ALL JURISDICTIONS)

PANEL 276 OF 332

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EDGEWATER, BOROUGH OF	340029	0276	H
ENGLEWOOD, CITY OF	340031	0276	H
FORT LEE, BOROUGH OF	340035	0276	H
LEONIA, BOROUGH OF	340045	0276	H
PALISADES PARK, BOROUGH OF	340061	0276	H
TEANECK, TOWNSHIP OF	340075	0276	H

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

MAP NUMBER 340030276H

MAP REVISED AUGUST 28, 2019

Federal Emergency Management Agency

NOTES TO USERS

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The AE Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

For information on available products associated with this FIRM visit the Map Service Center (MSC) website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

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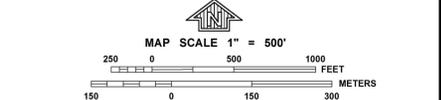
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- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently identified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE D** Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
- OTHERWISE PROTECTED AREAS (OPAs)
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
- New Jersey Flood Hazard Area Design Flood (NJFHADF)
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- Base Flood Elevation line and value; elevation in feet* (EL. 987)
- Base Flood Elevation value where uniform within zone; elevation in feet*
- * Referenced to the North American Vertical Datum of 1988
- Cross section line
- Limited detail cross section line
- Transect line
- 87°07'45", 32°22'30"
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 18
- 5000-foot grid values: New Jersey State Plane coordinate system (FIPSZONE 2900), Transverse Mercator projection
- DX5510 x
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5
- River Mile
- MAP REPOSITORY
- Refer to listing of Map Repositories on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
- September 20, 1995
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
- September 30, 2005, August 28, 2019 - For Reason of Revision See Notice to Users in Flood Insurance Study Report
- For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.
- To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0277H

FIRM

FLOOD INSURANCE RATE MAP

BERGEN COUNTY, NEW JERSEY (ALL JURISDICTIONS)

PANEL 277 OF 332

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EDGEWATER, BOROUGH OF	340029	0277	H
ENGLEWOOD CLIFFS, BOROUGH OF	340580	0277	H
BOROUGH OF EDGEMOUNT, CITY OF	340031	0277	H
FORT LEE, BOROUGH OF	340035	0277	H

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

MAP NUMBER 34003C0277H

MAP REVISED AUGUST 28, 2019

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New Jersey State Plane 2900 zone. The **horizontal datum** was NAD 83. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was provided in digital format by the State of New Jersey Office of Information Technology. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LMWA)**. The LMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LMWA (or between the shoreline and the LMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

For information on available products associated with this FIRM visit the Map Service Center (MSC) website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information Exchange (FMIX) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <https://www.fema.gov/national-flood-insurance-program>.



This digital FIRM was produced through a unique cooperative partnership between the New Jersey Department of Environmental Protection (NJDEP) and FEMA. As part of the effort, NJDEP has joined in a Cooperative Technical Partnership agreement to produce and maintain FEMA's digital FIRMs.

NJFHADF is equal to the 1-percent-annual chance flood plus an additional 25% in flow, and not to exceed the 0.2-percent-annual chance flood. NJFHADF boundary is to regulate disturbance to the land and vegetation within flood hazard area of a water body. This regulation is set forth by the State of New Jersey Flood Hazard Area Control Act Rules N.J.A.C. 7:13, and is administered by New Jersey Department of Environmental Protection (NJDEP).

Borough of Fort Lee 340035



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently destroyed. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS
ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS
ZONE X Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
OTHERWISE PROTECTED AREAS (OPAs)

- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
- New Jersey Flood Hazard Area Design Flood (NJFHADF)
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Limit of Moderate Wave Action
513 Base Flood Elevation line and value; elevation in feet*
(EL 587) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

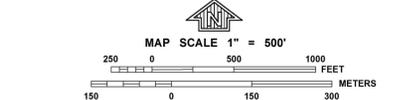
- A Cross section line
- 1 Limited detail cross section line
- 2 Transsect line

87°07'45", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
1000-meter Universal Transverse Mercator grid values, zone 18
600000 FT 5000-foot grid values; New Jersey State Plane coordinate system (FIPSZONE 2900), Transverse Mercator projection

DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
September 20, 1995
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 30, 2005, August 28, 2019 - For Reason of Revision See Notice to Users in Flood Insurance Study Report

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.
To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0278H

FIRM FLOOD INSURANCE RATE MAP

BERGEN COUNTY, NEW JERSEY (ALL JURISDICTIONS)

PANEL 278 OF 332
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLIFFSIDE PARK, BOROUGH OF	340582	0278	H
EDGEWATER, BOROUGH OF	340029	0278	H
FAIRVIEW, BOROUGH OF	340034	0278	H
FORT LEE, BOROUGH OF	340035	0278	H
PALISADES PARK, BOROUGH OF	340061	0278	H
RIIDGEFIELD, BOROUGH OF	340065	0278	H

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

MAP NUMBER 34003C0278H

MAP REVISED AUGUST 28, 2019

Federal Emergency Management Agency

FLOOD HAZARD INFORMATION IS NOT SHOWN ON THIS MAP IN AREAS OUTSIDE OF BERGEN COUNTY

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New Jersey State Plane 2900 zone. The **horizontal datum** was NAD 83. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

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1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was provided in digital format by the State of New Jersey Office of Information Technology. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LIMWA)**. The LIMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LIMWA (or between the shoreline and the LIMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

For information on available products associated with this FIRM visit the Map Service Center (MSC) website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

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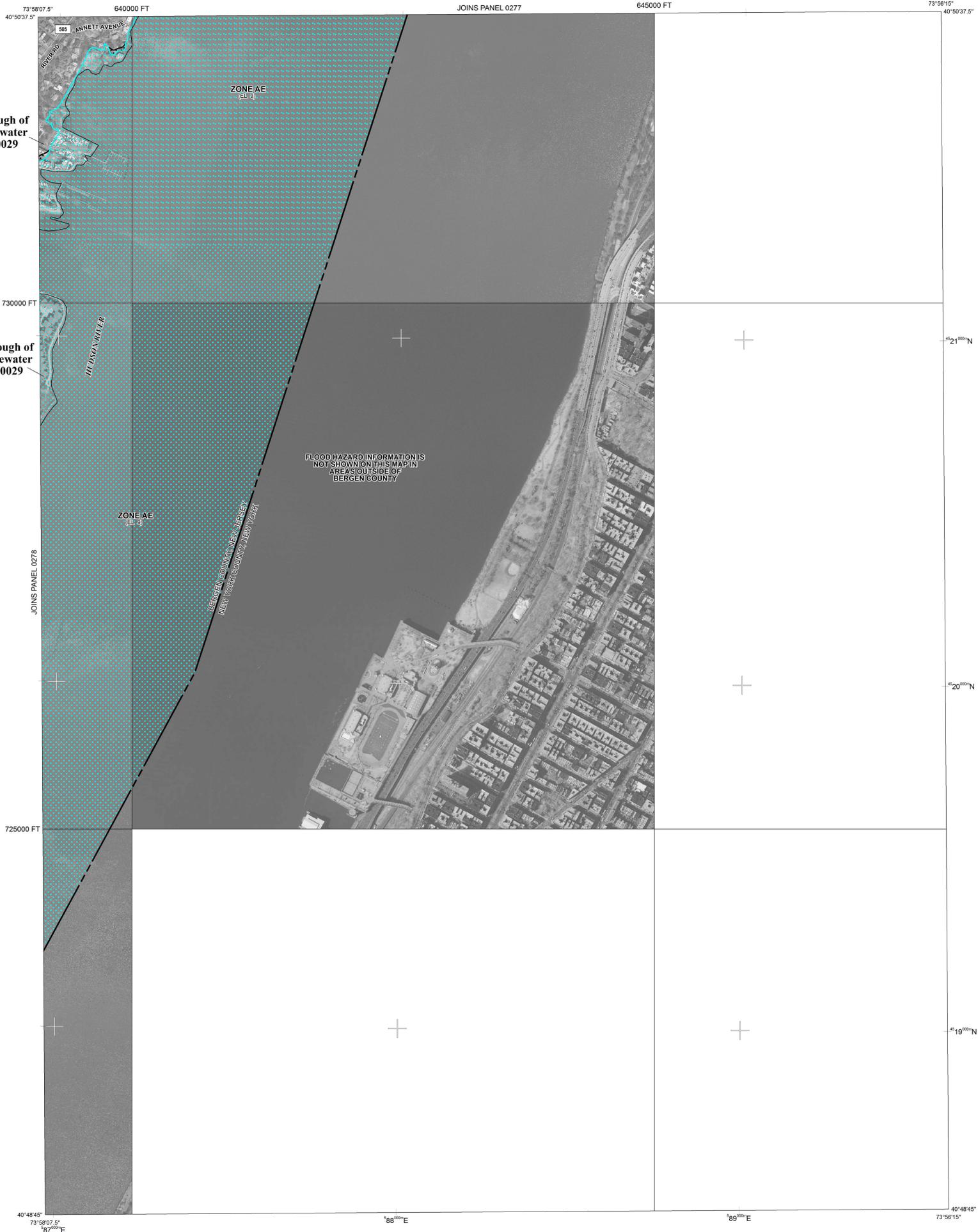
This digital FIRM was produced through a unique cooperative partnership between the New Jersey Department of Environmental Protection (NJDEP) and FEMA. As part of the effort, NJDEP has joined in a Cooperative Technical Partnership agreement to produce and maintain FEMA's digital FIRMS.

NJFHADF is equal to the 1-percent-annual chance flood plus an additional 25% in flow, and not to exceed the 0.2-percent-annual chance flood. NJFHADF boundary is to regulate disturbance to the land and vegetation within flood hazard area of a water body. This regulation is set forth by the State of New Jersey Flood Hazard Area Control Act Rules N.J.A.C. 7:13, and is administered by New Jersey Department of Environmental Protection (NJDEP).

Borough of Edgewater 340029

Borough of Edgewater 340029

FLOOD HAZARD INFORMATION IS NOT SHOWN ON THIS MAP IN AREAS OUTSIDE OF BERGEN COUNTY, NEW JERSEY



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently destroyed. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS
ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS
ZONE X Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

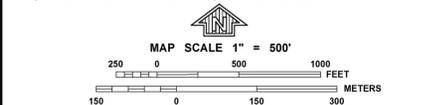
COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
OTHERWISE PROTECTED AREAS (OPAs)
CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- New Jersey Flood Hazard Area Design Flood (NJFHADF)
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- 513 Base Flood Elevation line and value; elevation in feet* (EL 987)
- Base Flood Elevation value where uniform within zone; elevation in feet*

- * Referenced to the North American Vertical Datum of 1988
- 87°07'45", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 2176'00"N 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT 5000-foot grid values: New Jersey State Plane coordinate system (FIPSZONE 2900), Transverse Mercator projection
- DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile
- MAP REPOSITORY Refer to listing of Map Repositories on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP September 20, 1995
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL September 30, 2005, August 28, 2019 - For Reason of Revision See Notice to Users in Flood Insurance Study Report

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0279H

FIRM
FLOOD INSURANCE RATE MAP

BERGEN COUNTY, NEW JERSEY
(ALL JURISDICTIONS)

PANEL 279 OF 332
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
EDGEWATER, BOROUGH OF 340029 0279 H

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

MAP NUMBER 34003C0279H

MAP REVISED AUGUST 28, 2019

Federal Emergency Management Agency

NOTES TO USERS

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Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New Jersey State Plane 2900 zone. The **horizontal datum** was NAD 83. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

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NOAA, N/NGS12
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1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

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This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

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The AE Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

For information on available products associated with this FIRM visit the Map Service Center (MSC) website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <https://www.fema.gov/national-flood-insurance-program>.



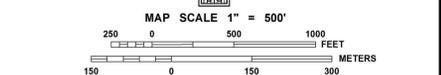
This digital FIRM was produced through a unique cooperative partnership between the New Jersey Department of Environmental Protection (NJDEP) and FEMA. As part of the effort, NJDEP has joined in a Cooperative Technical Partnership agreement to produce and maintain FEMA's digital FIRMS.

NJFHADF is equal to the 1-percent-annual chance flood plus an additional 25% in flow, and not to exceed the 0.2-percent-annual chance flood. NJFHADF boundary is to regulate disturbance to the land and vegetation within flood hazard area of a water body. This regulation is set forth by the State of New Jersey Flood Hazard Area Control Act Rules N.J.A.C. 7:13, and is administered by New Jersey Department of Environmental Protection (NJDEP).



LEGEND

- SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
- The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently derelict. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
- OTHERWISE PROTECTED AREAS (OPAs)
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
- New Jersey Flood Hazard Area Design Flood (NJFHADF)
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- Base Flood Elevation line and value; elevation in feet* (EL. 587)
- Base Flood Elevation value where uniform within zone; elevation in feet*
- * Referenced to the North American Vertical Datum of 1988
- Cross section line
- Limited detail cross section line
- Transect line
- 87°07'45", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 27°06'N 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT 5000-foot grid values: New Jersey State Plane coordinate system (FIPSZONE 2900), Transverse Mercator projection
- DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile
- MAP REPOSITORY Refer to listing of Map Repositories on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP September 20, 1995
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL September 30, 2005, August 28, 2019 - For Reason of Revision See Notice to Users in Flood Insurance Study Report
- For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.
- To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0286H

FIRM

FLOOD INSURANCE RATE MAP

BERGEN COUNTY, NEW JERSEY (ALL JURISDICTIONS)

PANEL 286 OF 332

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLIFFSIDE PARK, BOROUGH OF	340582	0286	H
EDGEWATER, BOROUGH OF	340029	0286	H
FAIRVIEW, BOROUGH OF	340034	0286	H

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

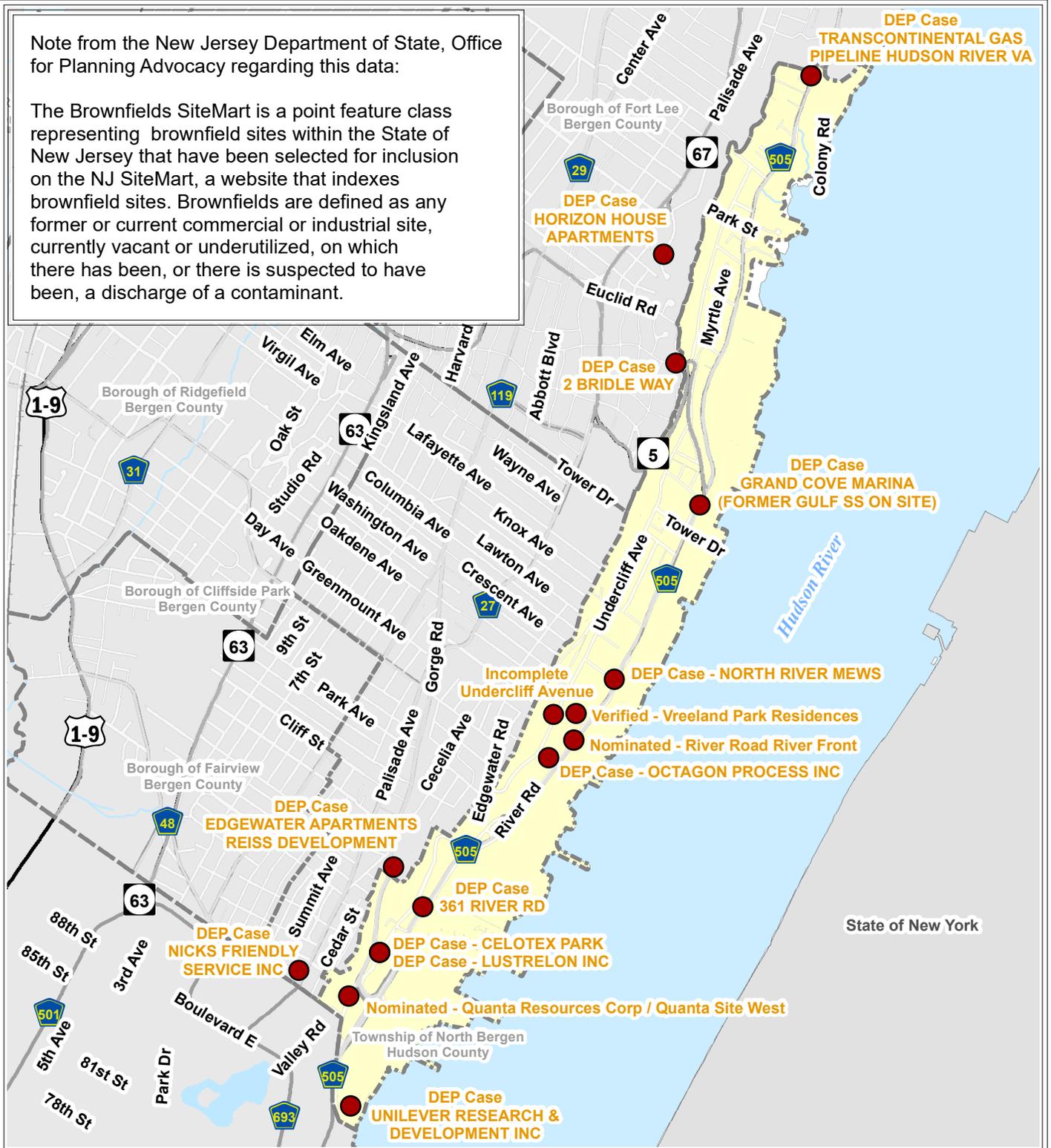
MAP NUMBER 34003C0286H

MAP REVISED AUGUST 28, 2019

Federal Emergency Management Agency

Note from the New Jersey Department of State, Office for Planning Advocacy regarding this data:

The Brownfields SiteMart is a point feature class representing brownfield sites within the State of New Jersey that have been selected for inclusion on the NJ SiteMart, a website that indexes brownfield sites. Brownfields are defined as any former or current commercial or industrial site, currently vacant or underutilized, on which there has been, or there is suspected to have been, a discharge of a contaminant.



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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000



Figure C-16 Brownfield SiteMart Locations Borough of Edgewater Bergen County, NJ

Legend

- Brownfield SiteMart
- Locations - Edgewater and 500' Radius



Drawn By: R.K.C	Checked By: D.J.	Project No:	Sheet No:	Map References:
Designed By:	Page:	EDGWADM20.010	Figure C-16	New Jersey Office of GIS, NJDEP
Field Book No:	Date: October 2020			New Jersey Department of State
				Office for Planning Advocacy, 2013

APPENDIX

Chapter 374

STORMWATER MANAGEMENT

GENERAL REFERENCES

- Disposal of pet waste; feeding of wildlife — See Ch. 129.**
- Disposal of pet waste; feeding of wildlife — See Ch. 129.**
- Flood damage prevention — See Ch. 210.**
- Land use and development — See Ch. 240.**
- Sewers — See Ch. 347.**
- Soil removal — See Ch. 362.**
- Streets and sidewalks — See Ch. 380.**

ARTICLE I
Major Development
[Amended 6-15-2009 by Ord. No. 1416-2009]

§ 374-1. Scope and purpose.

- A. Policy statement. Flood control, groundwater recharge, and pollutant reduction through nonstructural or low-impact techniques shall be explored before relying on structural best management practices (BMPs). Structural BMPs should be integrated with nonstructural stormwater management strategies and proper maintenance plans. Nonstructural strategies include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.
- B. Purpose. It is the purpose of this article to establish minimum stormwater management requirements and controls for "major development," as defined in § 374-2.
- C. Applicability.
- (1) This article shall be applicable to all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:
- (a) Nonresidential major developments; and
- (b) Aspects of residential major developments that are not preempted by the Residential Site Improvement Standards at N.J.A.C. 5:21.
- (2) This article shall also be applicable to all major developments undertaken by the Borough of Edgewater.
- D. Compatibility with other permit and ordinance requirements. Development approvals issued for subdivisions and site plans pursuant to this article are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of this article shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This article is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law, except that, where any provision of this article imposes restrictions different

from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

§ 374-2. Definitions.

Unless specifically defined below, words or phrases used in this article shall be interpreted so as to give them the meaning they have in common usage and to give this article its most reasonable application. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1 and 7:8-2.

AGRICULTURAL DEVELOPMENT — Land uses normally associated with the production of food, fiber and livestock for sale.

COMPACTION — The increase in soil bulk density.

CORE — A pedestrian-oriented area of commercial and civic uses serving the surrounding municipality, generally including housing and access to public transportation.

COUNTY REVIEW AGENCY — An agency designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinances. The county review agency may either be:

- A. A county planning agency; or
- B. A county water resource association created under N.J.S.A. 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

DEPARTMENT — The New Jersey Department of Environmental Protection.

DESIGNATED CENTER — A State Development and Redevelopment Plan Center as designated by the State Planning Commission, such as urban, regional, town, village, or hamlet.

DESIGN ENGINEER — A person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design and preparation of drawings and specifications.

DEVELOPMENT — The division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, by any person, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. In the case of development of agricultural lands, "development" means: any activity that requires a state permit; any activity reviewed by the County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC); and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A. 4:1C-1 et seq.

DRAINAGE AREA — A geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving water body or to a particular point along a receiving water body.

ENVIRONMENTALLY CRITICAL AREA — An area or feature which is of significant environmental value, including, but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and wellhead protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Non-game Species Program.

EMPOWERED NEIGHBORHOOD — A neighborhood designated by the Urban Coordinating Council in consultation and conjunction with the New Jersey Redevelopment Authority pursuant to N.J.S.A. 55:19-59.

EROSION — The detachment and movement of soil or rock fragments by water, wind, ice or gravity.

IMPERVIOUS SURFACE — A surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

INFILTRATION — The process by which water seeps into the soil from precipitation.

MAJOR DEVELOPMENT — Any development that provides for ultimately disturbing one or more acres of land or increasing the impervious area by 1/4 of an acre. "Disturbance," for the purpose of this rule, is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation.

MUNICIPALITY — Any city, Borough, town, township, or village.

NODE — An area designated by the State Planning Commission concentrating facilities and activities which are not organized in a compact form.

NUTRIENT — A chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

PERSON — Any individual, corporation, company, partnership, firm, association, Borough of Edgewater or political subdivision of this state subject to municipal jurisdiction pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.

POLLUTANT — Any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance [except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2011 et seq.)], thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, groundwaters or surface waters of the state, or

to a domestic treatment works. Pollutant includes both hazardous and nonhazardous pollutants.

RECHARGE — The amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

REVIEW AGENCY — See "county review agency."

SEDIMENT — Solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water or gravity as a product of erosion.

SITE — The lot or lots upon which a major development is to occur or has occurred.

SOIL — All unconsolidated mineral and organic material of any origin.

SOLID AND FLOATABLE MATERIALS — Sediment, debris, trash, and other floating, suspended, or settleable solids.

SOURCE MATERIAL — Any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater.

STATE DEVELOPMENT AND REDEVELOPMENT PLAN METROPOLITAN PLANNING AREA (PA1) — An area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the state's future redevelopment and revitalization efforts.

STATE PLAN POLICY MAP — The geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

STORMWATER — Water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, or conveyed by snow removal equipment.

STORMWATER MANAGEMENT BASIN — An excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

STORMWATER MANAGEMENT MEASURE — Any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal nonstormwater discharges into stormwater conveyances.

STORMWATER RUNOFF — Water flow on the surface of the ground or in storm sewers, resulting from precipitation.

TIDAL FLOOD HAZARD AREA — A flood hazard area, which may be influenced by stormwater runoff from inland areas, but which is primarily caused by the Atlantic Ocean.

URBAN COORDINATING COUNCIL EMPOWERMENT NEIGHBORHOOD — A neighborhood given priority access to state resources through the New Jersey Redevelopment Authority.

URBAN ENTERPRISE ZONES — A zone designated by the New Jersey Enterprise Zone Authority pursuant to the New Jersey Urban Enterprise Zones Act, N.J.S.A. 52:27H-60 et seq.

URBAN REDEVELOPMENT AREA — Previously developed portions of areas:

- A. Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
- B. Designated as CAFRA Centers, Cores or Nodes;
- C. Designated as Urban Enterprise Zones; and
- D. Designated as Urban Coordinating Council Empowerment Neighborhoods.

WATERS OF THE STATE — The ocean and its estuaries, all springs, streams, wetlands, and bodies of surface water or groundwater, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

WETLAND or WETLANDS — An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as "hydrophytic vegetation."

§ 374-3. Design and performance standards for stormwater management measures.

- A. Stormwater management measures for major development shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in § 374-4. To the maximum extent practicable, these standards shall be met by incorporating nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design.
- B. The standards in this article apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards are applicable under a regional stormwater management

plan or water quality management plan adopted in accordance with Department rules.

§ 374-4. Requirements for major development.

- A. The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with § 374-11.
- B. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department's Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlenbergi* (bog turtle).
- C. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Subsections F and G:
 - (1) The construction of an underground utility line, provided that the disturbed areas are revegetated upon completion;
 - (2) The construction of an aboveground utility line, provided that the existing conditions are maintained to the maximum extent practicable; and
 - (3) The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.
- D. A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Subsections F and G may be obtained for the enlargement of an existing public roadway or railroad, or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:
 - (1) The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
 - (2) The applicant demonstrates, through an alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of Subsections F and G to the maximum extent practicable;
 - (3) The applicant demonstrates that, in order to meet the requirements of Subsections F and G, existing structures currently in use, such as homes and buildings, would need to be condemned; and
 - (4) The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through

condemnation lands not falling under Subsection D(3) above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Subsections F and G that were not achievable on-site.

E. Nonstructural stormwater management strategies.

- (1) To the maximum extent practicable, the standards in Subsections F and G shall be met by incorporating nonstructural stormwater management strategies set forth in this subsection into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management strategies identified under Subsection E(2) below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for the contention.
- (2) Nonstructural stormwater management strategies incorporated into site design shall:
 - (a) Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;
 - (b) Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;
 - (c) Maximize the protection of natural drainage features and vegetation;
 - (d) Minimize the decrease in the "time of concentration" from preconstruction to post construction. "Time of concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed;
 - (e) Minimize land disturbance including clearing and grading;
 - (f) Minimize soil compaction;
 - (g) Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;
 - (h) Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas;
 - (i) Provide other source controls to prevent or minimize the use or exposure of pollutants at the site, in order to prevent or minimize the release of those pollutants into stormwater runoff. Such source controls include, but are not limited to:

- [1] Site design features that help to prevent accumulation of trash and debris in drainage systems, including features that satisfy Subsection E(3) below;
 - [2] Site design features that help to prevent discharge of trash and debris from drainage systems;
 - [3] Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and
 - [4] When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.
- (3) Site design features identified under Subsection E(2)(i)[2] above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For exemptions to this standard, see Subsection E(3)(c) below.
- (a) Grates.
 - [1] Design engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:
 - [a] The New Jersey Department of Transportation (NJDOT) bicycle-safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or
 - [b] A different grate, if each individual clear space in that grate has an area of no more than seven square inches, or is no greater than 0.5 inch across the smallest dimension.
 - [2] Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater basin floors.
 - (b) Whenever design engineers use a curb-opening inlet, the clear space in that curb opening (or each individual clear space, if the curb opening has two or more clear spaces) shall have an

area of no more than seven square inches, or be no greater than two inches across the smallest dimension.

- (c) This standard does not apply:
- [1] Where the review agency determines that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;
 - [2] Where flows from the water quality design storm as specified in Subsection G(1) are conveyed through any device (e.g., end-of-pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:
 - [a] A rectangular space 4 5/8 inches long and 1 1/2 inches wide (this option does not apply for outfall netting facilities); or
 - [b] A bar screen having a bar spacing of 0.5 inch.
 - [3] Where flows are conveyed through a trash rack that has parallel bars with one-inch spacing between the bars, to the elevation of the water quality design storm as specified in Subsection G(1); or
 - [4] Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.
- (4) Any land area used as a nonstructural stormwater management measure to meet the performance standards in Subsections F and G shall meet one of the following requirements:
- (a) Be dedicated to a government agency as approved by the appropriate reviewing agency; or
 - (b) Be subject to a conservation restriction filed with the Bergen County Clerk's office; or
 - (c) Be subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.
- (5) Guidance for nonstructural stormwater management strategies is available in the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the

address identified in § 374-8, or found on the Department's website at www.njstormwater.org.

- F. Erosion control, groundwater recharge and runoff quantity standards.
- (1) This subsection contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.
 - (a) The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules.
 - (b) The minimum design and performance standards for groundwater recharge are as follows:
 - [1] The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at § 374-5, either:
 - [a] Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100% of the average annual preconstruction groundwater recharge volume for the site; or
 - [b] Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from preconstruction to post construction for the two-year storm is infiltrated.
 - [2] This groundwater recharge requirement does not apply to projects within the urban redevelopment area, or to projects subject to Subsection F(1)(b)[3] below.
 - [3] The following types of stormwater shall not be recharged:
 - [a] Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied; areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with a Department-approved remedial action work plan or landfill closure plan and areas with high risks

for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

- [b] Industrial stormwater exposed to "source material." Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.
- [4] The design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or down gradient of the groundwater recharge area.
- (c) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at § 374-5, complete one of the following:
 - [1] Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the two-, ten-, and one-hundred-year storm events do not exceed, at any point in time, the preconstruction runoff hydrographs for the same storm events;
 - [2] Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the preconstruction condition, in the peak runoff rates of stormwater leaving the site for the two-, ten-, and one-hundred-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;
 - [3] Design stormwater management measures so that the post-construction peak runoff rates for the two-, ten-, and one-hundred-year storm events are 50%, 75% and 80%, respectively, of the preconstruction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the

site on which the proposed development or project is to be constructed. The percentages shall not be applied to post-construction stormwater runoff into tidal flood hazard areas if the increased volume of stormwater runoff will not increase flood damages below the point of discharge; or

[4] In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with Subsection F(1)(c)[1], [2] and [3] above shall only be applied if the increased volume of stormwater runoff could increase flood damages below the point of discharge.

(2) Any application for a new agricultural development that meets the definition of major development at Section 2 shall be submitted to the appropriate Soil Conservation District for review and approval in accordance with the requirements of this section and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. Such uses do not include the development of land for the processing or sale of food and the manufacturing of agriculturally related products.

G. Stormwater runoff quality standards.

(1) Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff by 80% of the anticipated load from the developed site, expressed as an annual average. Stormwater management measures shall only be required for water quality control if an additional 1/4 acre of impervious surface is being proposed on a development site. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. The water quality design storm is 1.25 inches of rainfall in two hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 1. The calculation of the volume of runoff may take into account the implementation of nonstructural and structural stormwater management measures.

Table 1: Water Quality Design Storm Distribution

Time	Cumulative	Time	Cumulative
(minutes)	Rainfall	(minutes)	Rainfall
	(inches)		(inches)
0	0.0000	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.0500

Table 1: Water Quality Design Storm Distribution

Time (minutes)	Cumulative Rainfall (inches)	Time (minutes)	Cumulative Rainfall (inches)
15	0.0250	80	1.0840
20	0.0500	85	1.1170
25	0.0750	90	1.1500
30	0.1000	95	1.1750
35	0.1330	100	1.2000
40	0.1660	105	1.2250
45	0.2000	110	1.2334
50	0.2583	115	1.2417
55	0.3583	120	1.2500
60	0.6250		

- (2) For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in § 374-8, or found on the Department's website at www.njstormwater.org. The BMP Manual and other sources of technical guidance are listed in § 374-8. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, P.O. Box 418 Trenton, New Jersey 08625-0418.
- (3) If more than one BMP in series is necessary to achieve the required eighty-percent TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

$$R = A + B - (A \times B)/100$$

Where:

- R = total TSS percent load removal from application of both BMPs
- A = TSS percent removal rate applicable to the first BMP
- B = TSS percent removal rate applicable to the second BMP

Table 2: TSS Removal Rates for BMPs

Best Management Practice	TSS Percent Removal Rate
Bioretention systems	90%
Constructed stormwater wetland	90%
Extended detention basin	40% to 60%
Infiltration structure	80%
Manufactured treatment device	See § 374-6C
Sand filter	80%
Vegetative filter strip	60% to 80%
Wet pond	50% to 90%

- (4) If there is more than one on-site drainage area, the eighty-percent TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site, in which case the removal rate can be demonstrated through a calculation using a weighted average.
- (5) Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Subsections F and G.
- (6) Additional information and examples of stormwater quality BMPs are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in § 374-8.
- (7) In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.
- (8) Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the County Soil Surveys, within the associated HUC14 drainage area. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

- (a) The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:
- [1] A three-hundred-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of the bank outwards or from the center line of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession.
 - [2] Encroachment within the designated special water resource protection area under Subsection G(8)(a)[1] above shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top of bank of the waterway or center line of the waterway where the bank is undefined. All encroachments proposed under this subsection shall be subject to review and approval by the Department.
- (b) All stormwater shall be discharged outside of and flow through the special water resource protection area and shall comply with the Standard for Off-Site Stability in the Standards For Soil Erosion and Sediment Control in New Jersey, established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq.
- (c) If stormwater discharged outside of and flowing through the special water resource protection area cannot comply with the Standard For Off-Site Stability in the Standards for Soil Erosion and Sediment Control in New Jersey, established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:
- [1] Stabilization measures shall not be placed within 150 feet of the Category One waterway;
 - [2] Stormwater associated with discharges allowed by this subsection shall achieve a 95% TSS post-construction removal rate;

- [3] Temperature shall be addressed to ensure no impact on the receiving waterway;
 - [4] The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable;
 - [5] A conceptual project design meeting shall be held with the appropriate Department staff and Soil Conservation District staff to identify necessary stabilization measures; and
 - [6] All encroachments proposed under this subsection shall be subject to review and approval by the Department.
- (d) A stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan, or by a municipality through an adopted municipal stormwater management plan. If a stream corridor protection plan for a waterway subject to Subsection G(8) has been approved by the Department of Environmental Protection, then the provisions of the plan shall be the applicable special water resource protection area requirements for that waterway. A stream corridor protection plan for a waterway subject to Subsection G(8) shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in Subsection G(8)(a)[1] above. In no case shall a stream corridor protection plan allow the reduction of the special water resource protection area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.
- (e) Subsection G(8) does not apply to the construction of one individual single-family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision approval on or before February 2, 2004, provided that the construction begins on or before February 2, 2009.

§ 374-5. Calculation of stormwater runoff and groundwater recharge.

- A. Stormwater runoff shall be calculated in accordance with the following:
- (1) The design engineer shall calculate runoff using one of the following methods:
 - (a) The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS

National Engineering Handbook Section 4 — Hydrology and Technical Release 55 — Urban Hydrology for Small Watersheds or superseding document; or

- (b) The Rational Method for peak flow and the Modified Rational Method for hydrograph computations.
- (2) For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the preconstruction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology at Subsection A(1)(a) and the Rational and Modified Rational Methods at Subsection A(1)(b). A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover has existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).
 - (3) In computing preconstruction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce preconstruction stormwater runoff rates and volumes.
 - (4) In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release 55 — Urban Hydrology for Small Watersheds and other methods may be employed.
 - (5) If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures.
- B. Groundwater recharge may be calculated in accordance with the following:
- (1) The New Jersey Geological Survey Report GSR-32, A Method for Evaluating Ground-Water Recharge Areas in New Jersey,

incorporated herein by reference, as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at <http://www.state.nj.us/dep/njgs/>; or at New Jersey Geological Survey, 29 Arctic Parkway, P.O. Box 427, Trenton, New Jersey 08625-0427; (609) 984-6587.

§ 374-6. Standards for structural stormwater management measures.

- A. Standards for structural stormwater management measures are as follows:
- (1) Structural stormwater management measures shall be designed to take into account the existing site conditions, including, for example, environmentally critical areas, wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone).
 - (2) Structural stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate, and shall have parallel bars with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than 1/3 the width of the diameter of the orifice or 1/3 the width of the weir, with a minimum spacing between bars of one-inch and a maximum spacing between bars of six inches. In addition, the design of trash racks must comply with the requirements of § 374-9D.
 - (3) Structural stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion-resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement.
 - (4) At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of 2 1/2 inches in diameter.
 - (5) Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins at § 374-9.
 - (6) Where tailwater will affect the hydraulic performance of a stormwater management measure, the design engineer shall include such effects in the measure's design.
- B. Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other

stormwater management measures may be utilized, provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by § 374-4 of this article.

- C. Manufactured treatment devices may be used to meet the requirements of § 374-4 of this article, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

§ 374-7. Nonstructural stormwater strategies.

The applicant shall comply with the following nonstructural stormwater strategies to the greatest extent practicable in accordance with N.J.A.C. 7:8-5.3 and also with the Land Use Ordinance of the Borough of Edgewater, Chapter 240, to address stormwater management.

- A. **Buffers:** Buffer areas are required along all lot and street lines separating residential uses from arterial and collector streets, separating a nonresidential use from either a residential use or residential zoning district line, and along all street lines where loading and storage areas can be seen from the street. The buffer area shall use native vegetation, which requires less fertilization and watering than non-native species. Buffer areas may be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces. Preservation of natural wood tracts and limiting land disturbance for new construction must be incorporated where practical.
- B. **Curbs and gutters:** Curb cuts or flush curbs with curb stops are encouraged where practical to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious areas where practical.
- C. **Drainage systems:** All streets should be provided with inlets and pipes where the same are necessary for proper drainage. The use of natural vegetated swales in lieu of inlets and pipes is encouraged where practical.
- D. **Driveways and accessways:** The use of pervious paving materials to minimize stormwater runoff and promote groundwater recharge should be considered for driveways and accessways where practical. Consideration should be given for subsurface soil conditions. The use of crowned driveways is also encouraged to promote disconnectivity between impervious surfaces and grass areas to promote groundwater recharge.
- E. **Natural features:** Natural features, such as trees, brooks, swamps, hilltops, and views, are to be preserved whenever possible, and care shall be taken to preserve selected trees to enhance soil stability and

landscaped treatment of the area. In addition, forested areas shall be maintained to ensure that leaf litter and other beneficial aspects of the forest are maintained in addition to the trees.

- F. Nonconforming uses, structures or lots: The applicant/owner of an existing use may be allowed to propose additions or alterations that exceed the permitted building and/or lot coverage percentages. The applicant should mitigate the impact of the additional impervious surfaces unless the stormwater management plan for the development provided for these increases in impervious surfaces. This mitigation effort must address water quality, flooding and groundwater recharge.
- G. Off-site and off-tract improvements: Any off-site and off-tract stormwater management and drainage improvements must conform to the design and performance standards described.
- H. Off-street parking and loading: Parking lots with more than 10 spaces and all loading areas should allow for flush curb with curb stop, or curbing with curb cuts to encourage developers to allow for the discharge of impervious areas into landscaped areas for stormwater management. The use of natural vegetated swales for the water quality design storm, with overflow for larger storm events into storm sewers, should be utilized where practical. A developer may demonstrate that fewer spaces would be required, provided area is set aside for additional spaces if necessary. Pervious paving could be provided overflow parking areas.
- I. Performance standards: Pollution source control must be evaluated in order to prohibit materials or wastes from being deposited upon a lot in such form or manner that they can be transferred off the lot, directly or indirectly, by natural forces such as precipitation, evaporation or wind. Materials and wastes that might create a pollutant or a hazard shall be enclosed in appropriate containers.
- J. Shade trees: A minimum amount of shade trees per lot to be planted in the front yard may be required. In addition to this subsection, the Borough may have a Tree Preservation Ordinance¹ that restricts and otherwise controls the removal of mature trees throughout the Borough. This article should recognize that the preservation of mature trees and forested areas must be considered in the management of environmental resources, particularly watershed management, air quality, and ambient heating and cooling. A "critical disturbance area" that extends beyond the driveway and building footprint where clearing of trees cannot occur shall be depicted on the plan minimizing land disturbance. Identification of forested areas and the percentage of wooded areas to be protected from disturbance shall also be provided.

1. Editor's Note: See Ch. 421, Trees.

- K. Sidewalks: Sidewalks should be designed to discharge stormwater to neighboring lawns where feasible to disconnect these impervious surfaces or use permeable paving materials where appropriate.
- L. Soil erosion and sediment control: The applicant shall comply with the New Jersey Soil Erosion and Sediment Control Standards and should incorporate designs to retain and protect natural vegetation; minimize and retain water runoff to facilitate groundwater recharge; and install diversions, sediment basins and similar required structures prior to any on-site grading or disturbance. Further guidance on the implementation of these strategies can be found in the NJDEP Stormwater Best Management Practices Manual, April 2004, as amended.

§ 374-8. Sources for technical guidance.

- A. Technical guidance for stormwater management measures can be found in the documents listed at Subsection A(1) and (2) below, which are available from Maps and Publications, New Jersey Department of Environmental Protection, 428 East State Street, P.O. Box 420, Trenton, New Jersey 08625; telephone (609) 777-1038.
 - (1) Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended. Information is provided on stormwater management measures such as: bioretention systems, constructed stormwater wetlands, dry wells, extended detention basins, infiltration structures, manufactured treatment devices, pervious paving, sand filters, vegetative filter strips, and wet ponds.
 - (2) The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, as amended.
- B. Additional technical guidance for stormwater management measures can be obtained from the following:
 - (1) The Standards for Soil Erosion and Sediment Control in New Jersey promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540;
 - (2) The Rutgers Cooperative Extension Service, (732) 932-9306; and
 - (3) The Bergen County Soil Conservation District can be contacted at the following:

Bergen County Soil Conservation District

700 Kinderkamack Road, Suite 106

Oradell, New Jersey 07649

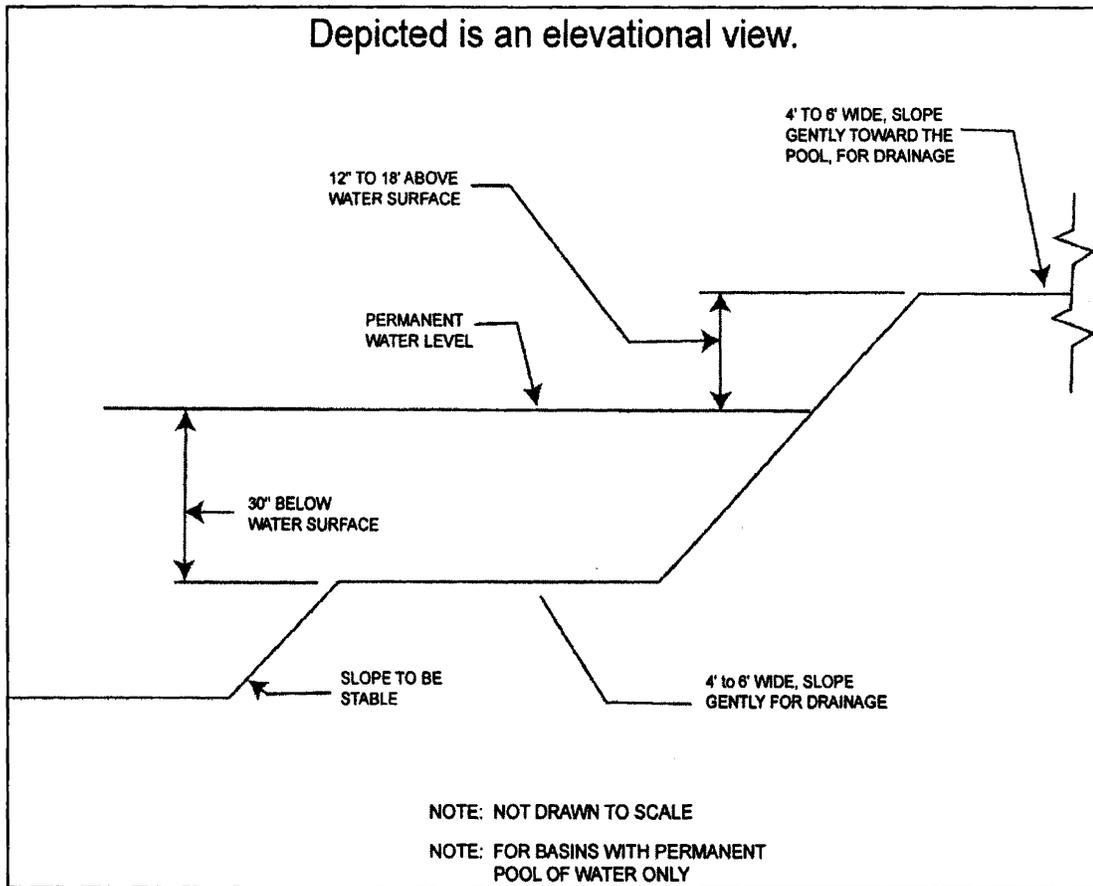
Phone: (201) 261-4407

Fax: (201) 261-7573

§ 374-9. Safety standards for stormwater management basins.

- A. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This section applies to any new stormwater management basin. The provisions of this section do not preempt more stringent municipal or county safety requirements for new or existing stormwater management basins. Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management basins to be retrofitted to meet one or more of the safety standards in Subsection B(1), (2) and (3) for trash racks, overflow grates, and escape provisions at outlet structures.
- B. Requirements for trash racks, overflow grates and escape provisions.
- (1) A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management basin to ensure proper functioning of the basin outlets in accordance with the following:
- (a) The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars.
 - (b) The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.
 - (c) The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.
 - (d) The trash rack shall be constructed and installed to be rigid, durable, and corrosion-resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.
- (2) An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:
- (a) The overflow grate shall be secured to the outlet structure but be removable for emergencies and maintenance.

- (b) The overflow grate spacing shall be no less than two inches across the smallest dimension.
 - (c) The overflow grate shall be constructed and installed to be rigid, durable, and corrosion-resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.
- (3) For purposes of this Subsection B(3), "escape provisions" means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management basins. Stormwater management basins shall include escape provisions as follows:
- (a) If a stormwater management basin has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency identified in Subsection C, a freestanding outlet structure may be exempted from this requirement.
 - (b) Safety ledges shall be constructed on the slopes of all new stormwater management basins having a permanent pool of water deeper than 2 1/2 feet. Such safety ledges shall be comprised of two steps. Each step shall be four feet to six feet in width. One step shall be located approximately 2 1/2 feet below the permanent water surface, and the second step shall be located one foot to 1 1/2 feet above the permanent water surface. See Subsection D for an illustration of safety ledges in a stormwater management basin.
 - (c) In new stormwater management basins, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one vertical.
- C. Variance or exemption from safety standards. A variance or exemption from the safety standards for stormwater management basins may be granted only upon a written finding by the appropriate reviewing agency (municipality, county or Department) that the variance or exemption will not constitute a threat to public safety.
- D. Illustration of safety ledges in a new stormwater management basin.



§ 374-10. Requirements for site development stormwater plan.

- A. Submission of site development stormwater plan.
 - (1) Whenever an applicant seeks municipal approval of a development subject to this article, the applicant shall submit all of the required components of the Checklist for the Site Development Stormwater Plan at Subsection C below as part of the submission of the applicant's application for subdivision or site plan approval.
 - (2) The applicant shall demonstrate that the project meets the standards set forth in this article.
 - (3) The applicant shall submit 16 copies of the materials listed in the checklist for site development stormwater plans in accordance with Subsection C of this article.
- B. Site development stormwater plan approval. The applicant's site development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall

consult the engineer retained by the Planning and/or Zoning Board (as appropriate) to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this article.

- C. Checklist requirements. The following are several checklists required for development within the Borough of Edgewater.²

§ 374-11. Maintenance and repair.

- A. Applicability. Projects subject to review in § 374-1C of this article shall comply with the requirements of Subsections B and C.

- B. General maintenance.

- (1) The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.
- (2) The maintenance plan shall include the following:
 - (a) Contain specific preventative maintenance tasks and schedules; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement).
 - (b) Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.
- (3) Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project.
- (4) If the person responsible for maintenance identified under Subsection B(2) above is not a public agency, the maintenance plan and any future revisions based on Subsection B(7) below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

2. Editor's Note: The checklists are included at the end of this chapter.

- (5) Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of nonvegetated linings.
 - (6) The person responsible for maintenance identified under Subsection B(2) above shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.
 - (7) The person responsible for maintenance identified under Subsection B(2) above shall evaluate the effectiveness of the maintenance plan at least once per year. Any adjustments to the management plan or deed shall require notification and approval from the applicable board prior to the filing of a revised deed.
 - (8) The person responsible for maintenance identified under Subsection B(2) above shall retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and the documentation required by Subsections B(6) and B(7) above.
 - (9) The requirements of Subsections B(3) and B(4) do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency.
 - (10) In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance or repair, the municipality shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have 14 days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. The municipality, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or county may immediately proceed to do so and shall bill the cost thereof to the responsible person.
- C. Nothing in this section shall preclude the municipality in which the major development is located from requiring the posting of a performance or maintenance guarantee in accordance with N.J.S.A. 40:55D-53.

§ 374-12. Violations and penalties.

Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this article shall be subject to penalties in accordance with Chapter 1, Article II, of the Code of the Borough of Edgewater.

ARTICLE II

**Single- and Two-Family Residential Development
[Added 4-20-2009 by Ord. No. 1408-2009]****§ 374-13. Findings.**

- A. Development of residential and nonresidential properties within the Borough of Edgewater generally increases the volume of stormwater runoff and the peak flow of the same.
- B. The Borough of Edgewater's storm sewer collection system is impacted by the increases in stormwater flows, which if unregulated will severely impede the operation of the storm sewer system.
- C. Stormwater runoff created by development and construction activities which are not subject to Planning Board review is currently unregulated.
- D. It is in the best interests of the Borough of Edgewater to establish limitations on stormwater runoff for:
 - (1) All applications involving the demolition of any single- and two-family residential structure for the purposes of constructing a new single- or two-family residential structure;
 - (2) Any application for the expansion of an existing single- or two-family residential structure;
 - (3) Any application involving or creating additional impervious coverage area; or
 - (4) Grading changes which would increase the quantity or peak rate of stormwater discharge.

§ 374-14. Purpose.

It is the purpose of this article to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- A. Protect human life and health;
- B. Minimize expenditure of public money for costly flood control projects;
- C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- D. Minimize damage to public facilities and infrastructure, such as water, sewer, gas, electric and other utility facilities, streets, bridges and other public improvements; and
- E. Help maintain a stable tax base by avoiding overutilization of municipal stormwater facilities.

§ 374-15. Applicability.

This article shall apply to:

- A. All applications for building permits for construction of a single- or two-family residential structure or demolition permits relative to the same;
- B. All applications for building permits for enlargement or addition to an existing single- or two-family residential structure; and
- C. Any application whereby additional impervious area is being added, or the grade of the property is being altered or modified, or which involves soil movement, including, but not limited to, porches, decks, swimming pools, retaining walls and other similar site construction items.

§ 374-16. Stormwater management requirements.

- A. All applications for a building permit for properties to which this article applies shall contain a plan or certification providing for a zero increase in stormwater runoff for the completed project, using one of the calculation methods described in §374-5 of the Code of the Borough of Edgewater.
- B. The Borough Engineer shall review each application for a building permit for properties to which this article applies and approve the same as providing for a zero increase in stormwater runoff for the completed project.
- C. No building permit or other permit shall be issued for any project to which this article applies when, in the opinion of the Borough Engineer or the Construction Code Official, the applicant fails to provide for a zero increase in stormwater runoff.
- D. At the time of application for a construction permit for any project to which this article applies, the applicant shall deposit \$500 in escrow to cover or defray the cost of the Borough Engineer's review of the application relative to stormwater runoff.

§ 374-17. Violations and penalties.³

Violators of the provisions of this article shall be subject to penalties in accordance with Chapter 1, Article II, of the Code of the Borough of Edgewater.

3. Editor's Note: Added at time of adoption of Code (see Ch. 1, General Provisions, Art. I).

ARTICLE III
Storm Drains
[Added 6-15-2009 by Ord. No. 1414-2009]

§ 374-18. Purpose.

The Mayor and Council of the Borough of Edgewater have determined that in order to protect public health, safety and welfare, it is necessary and advisable to adopt an ordinance requiring the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction, or resurfacing or alterations of facilities on private property, to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system(s) operated by the Borough of Edgewater, and to prescribe penalties for the failure to comply with such ordinance.

§ 374-19. Definitions.

For the purpose of this article, the following terms, phrases, words, and their derivations shall have the meanings stated herein unless their use in the text of this article clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) — A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by the Borough of Edgewater or other public body, and is designed and used for collecting and conveying stormwater. MS4s do not include combined sewer systems, which are sewer systems that are designed to carry sanitary sewage at all times and to collect and transport stormwater from streets and other sources.

PERSON — Any individual, corporation, company, partnership, firm, association, or political subdivision of this state subject to municipal jurisdiction.

STORM DRAIN INLET — An opening in a storm drain used to collect stormwater runoff and includes, but is not limited to, a grate inlet, curb-opening inlet, slotted inlet, and combination inlet.

WATERS OF THE STATE — The ocean and its estuaries, all springs, streams and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

§ 374-20. Prohibited conduct.

No person in control of private property (except a residential lot with one single-family house) shall authorize the repaving, repairing (excluding the repair of individual potholes), resurfacing (including top coating or chip

sealing with asphalt emulsion or a thin base of hot bitumen), reconstructing or altering any surface that is in direct contact with an existing storm drain inlet on that property unless the storm drain inlet either:

- A. Already meets the design standard below to control passage of solid and floatable materials; or
- B. Is retrofitted or replaced to meet the standard in § 374-21, below, prior to the completion of the project.

§ 374-21. Design standard.

Except as otherwise provided, storm drain inlets identified in § 374-20, above, shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this subsection, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids.

A. Grates.

- (1) Design engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:
 - (a) The New Jersey Department of Transportation (NJ DOT) bicycle-safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or
 - (b) A different grate, if each individual clear space in that grate has an area of no more than seven square inches, or is no greater than 0.5 inch across the smallest dimension.
- (2) Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater basin floors.

B. Whenever design engineers use a curb-opening inlet, the clear space in that curb opening (or each individual clear space, if the curb opening has two or more clear spaces) shall have an area of no more than seven square inches, or be no greater than two inches across the smallest dimension.

C. This standard does not apply:

- (1) Where the municipal engineer agrees that this standard would cause inadequate hydraulic performance that could not practicably

be overcome by using additional or larger storm drain inlets that meet these standards;

- (2) Where flows are conveyed through any device (e.g., end-of-pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:
 - (a) A rectangular space 4 5/8 inches long and 1 1/2 inches wide (this option does not apply for outfall netting facilities); or
 - (b) A bar screen having a bar spacing of 0.5 inch.
- (3) Where flows are conveyed through a trash rack that has parallel bars with one-inch spacing between the bars; or
- (4) Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

§ 374-22. Enforcement.

This article shall be enforced by the Police Department and/or other municipal officials of the Borough of Edgewater.

§ 374-23. Violations and penalties.

Any person(s) who is found to be in violation of the provisions of this article shall be subject to a fine not to exceed \$500 per day for each storm drain inlet that is not retrofitted to meet the design standard.

ARTICLE IV

Refuse Containers and Dumpsters
[Added 6-15-2009 by Ord. No. 1415-2009]**§ 374-24. Purpose.**

The Mayor and Council of the Borough of Edgewater have determined that in order to protect public health, safety and welfare, it is necessary and advisable to adopt an ordinance requiring dumpsters and other refuse containers that are outdoors or exposed to stormwater to be covered at all times and prohibits the spilling, dumping, leaking, or otherwise discharge of liquids, semi-liquids or solids from the containers to the municipal separate storm sewer system(s) operated by the Borough of Edgewater and/or the waters of the state, and to prescribe penalties for the failure to comply with such ordinance.

§ 374-25. Definitions.

For the purpose of this article, the following terms, phrases, words, and their derivations shall have the meanings stated herein unless their use in the text of this article clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory.

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PERSON — Any individual, corporation, company, partnership, firm, association, or political subdivision of this state subject to municipal jurisdiction.

STORM DRAIN INLET — An opening in a storm drain used to collect stormwater runoff and includes, but is not limited to, a grate inlet, curb-opening inlet, slotted inlet, and combination inlet.

WATERS OF THE STATE — The ocean and its estuaries, all springs, streams and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

§ 374-26. Prohibited conduct.

Except as otherwise provided in this article:

- A. Any person who controls, whether owned, leased, or operated, a refuse container or dumpster must ensure that such container or dumpster is covered at all times and shall prevent refuse from spilling out or overflowing.
- B. Any person who owns, leases or otherwise uses a refuse container or dumpster must ensure that such container or dumpster does not leak or otherwise discharge liquids, semi-liquids or solids to the municipal separate storm sewer system(s) operated by the Borough of Edgewater.

§ 374-27. Exceptions.

Notwithstanding the provisions of this article, the following containers shall be exempt from the requirements of § 374-26:

- A. Permitted temporary demolition containers;
- B. Litter receptacles (other than dumpsters or other bulk containers);
- C. Individual homeowner trash and recycling containers;
- D. Refuse containers at facilities authorized to discharge stormwater under a valid NJPDES permit; and
- E. Large bulky items (e.g., furniture, bound carpet and padding, white goods placed curbside for pickup).

§ 374-28. Enforcement.

This article shall be enforced by the Police Department and/or other municipal officials of Borough of Edgewater.

§ 374-29. Violations and penalties.

Any person(s) who is found to be in violation of the provisions of this article shall be subject to a fine not to exceed \$500 per day.