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STORMWATER POLLUTION PREVNTION PLAN

BOROUGH OF RIVER EDGE
BERGEN COUNTY, NEW JERSEY
NJPDES # NJG0150142

Originally Prepared: March 14, 2024

Prepared for:
Borough of River Edge
705 Kinderkamack Road,
River Edge, NJ 07661

ANNUAL REVIEW DATE:
April 17, 2026

Prepared by:
River Edge Borough Engineer

Stormwater Program Coordinator:
Robert. L. Costa, PE, CME

STATE OF NEW JERSEY ROBERT LOUIS COSTA GE34702 PROFESSIONAL ENGINEER

ROBERT L. COSTA
NEW JERSEY PROFESSIONAL
ENGINEER - LICENSE NUMBER GE34702

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Form 1 – Team Members

Stormwater Program Coordinator (SPC)			
Name and Title	Robert L. Costa, P.E., P.E., C.M.E, Borough Engineer, Jeyson F. Flores, P.E,; C.M.E.		
Phone	201-487-0015	Email	Robertc@costaeng.com/Jeysonf@costaeng.com
Individual(s) Responsible for Major Development Project Stormwater Management Review			
Name and Title	Robert L. Costa, P.E., P.E., C.M.E, River Edge Borough Engineer		
Phone	201-487-0015	Email	Robertc@costaeng.com/Jeysonf@costaeng.com
Name and Title			
Phone		Email	
Other Municipal Stormwater Team Members			
Name and Title	Lissette Aportela, Borough Administrator		
Phone	201-599-6304	Email	laportela@riveredgenj.org
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Phone	201-599-6275	Email	jmilito@riveregenj.org
Name and Title	Edwin Alter, Land Use, Zoning Secretary		
Phone	201-599-6306	Email	ealter@riveredgenj.org
Name and Title	Arthur DeRosa, Code Enforcement/Property Maintenance		
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Shared/Contracted Service Providers			
Provider Name	Service Provided	Term of Service	

Form 2 – Revision History

Revision Date	Form # Changed	Reason for Revision (Updates to staff, policy, webpage, etc.)
4/23/19	4/23/19	Using the New NJDEP Template
3/14/24	3/14/24	Mandatory five (5) year update
9/15/2025	9/15/2025	Updated to address comments from NJDEP

Form 3 – Public Announcements

Part IV.B. and C.

1. Provide the link to the dedicated stormwater webpage for your municipality.
www.riveredgenj.org
2. List the name and title of person(s) responsible for stormwater webpage postings/updates.
Lissette Aportela, Borough Administrator
3. List the newspapers, social media outlets, websites, direct mailings (Email or postal), and other communication approaches typically used to inform/educate the public on stormwater program information and related events/activities.
The Municipality employs the following communication approaches to inform the public the stormwater program: 1. Newspaper Ads 2. Stormwater displays. 3. Litter clean ups. 4. Community activities 5. Borough Website

Form 4 – Post-Construction Stormwater Management in New Development and Redevelopment

Part IV.E.

1. How does the municipality define "major development"? If it is different from the definition in N.J.A.C. 7:8, explain the difference.

Major Development

Any individual development, as well as multiple developments that individually or collectively result in:

1. The disturbance of one or more acres of land since February 2004;
2. The creation of ¼ acre or more of regulated impervious surface since February 2, 2004;
3. The creation of ¼ acre or more of regulated motor vehicle surface since March 2, 2021;
4. or the combination of 1 and 2 above that totals an area or ¼ acre or more.

Disturbance, for the purpose of this rule, is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cuffing, or removing of vegetation. Projects undertaken by any government agency which otherwise meet the definition of "major development" but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., are also considered major development.

Motor Vehicle Surface

Land vehicles propelled other than by muscular power, such as automobiles, motorcycles, autocycles, and low-speed vehicles. For the purposes of this definition, "motor vehicle" does not include farm equipment, snowmobiles, all-terrain vehicles, motorized wheelchairs, go-carts, gas buggies, golf carts, ski-slope grooming machines, or vehicles that run only on rails or tracks.

2. Is the municipality's stormwater control ordinance (SCO) the same as or more stringent than NJDEP's model SCO? If more stringent, explain the difference.

The NJDEP Model SCO was adopted without change.

3. Describe the process for reviewing major development project applications for compliance with the SCO and Residential Site Improvement Standards (RSIS).

Major Development projects are reviewed as part of an application to the Borough of River Edge Planning Board.

Following a determination of completeness, the Planning Board Engineer reviews the plans, reports, and associated documents for conformance with the Borough of River Edge Land Development Ordinance, and the Stormwater Control Ordinance (Chapter 360), the RSIS, as well as any other applicable the Borough Ordinance sections.

The design calculation, details, and plans are reviews for compliance with the Stormwater Control Ordinance and the NJDEP Stormwater Management Rules (NJAC 7:8), and to ensure conformance with the current BMP manual, and guidance provided by NJDEP and Bergen County Soil Conservation District.

Applicants are also required to file and record a Stormwater Maintenance Agreement and associated Operations & Maintenance Manual with the deed at the Bergen County Clerk's Office to establish the responsibility and obligation of the property owner to adequately maintain and operate their facilities following construction.

4. Does your municipality have a mitigation plan included in your Municipal Stormwater Management Plan and Stormwater Control Ordinance? Indicate the location of records of all variances granted.

The Borough of River Edge Municipal Stormwater Plan and Stormwater Control Ordinance do not contain a mitigation plan.

5. Indicate the dates of each iteration of the township's Stormwater Control Ordinance, starting with the initial adoption and including revisions.

Date:	Revision:
06/21/2006	Adopted
04/12/2020	Revised as per Green Infrastructure

6. Indicate the dates of each iteration of the township's Municipal Stormwater Management Plan, starting with the initial adoption and including revisions.

The Borough's Municipal Stormwater Management Plan is reviewed, updated, and re-adopted as needed every 10 years when the Municipal Master Plan is reviewed. This Section will be updated upon revision of the Borough's Stormwater Management Plan.

Date:	Revision:
07/21/2005	Adopted

Form 5 – Ordinances

Part IV.F.1.

Ordinance	Date Adopted	Was the DEP model adopted without change? If not, explain how the municipality's is more stringent.	Entity Responsible for Enforcement	Fees & Fines
1. Pet Waste	9-23-2024	No	Animal Control Officer	*$___*
2. Wildlife Feeding	9-2-2003	No	Police Dept.	*$___*
3. Litter Control	07/07/2008	No	Police Dept. Health Dept.	*$__*
4. Improper Disposal of Waste	2/16/2010	No	Code Official Police Dept.	*$__*
5. Yard Waste	4/20/2006	No	DPW CPWM Code Official	*$___*
6. Private Storm Drain Inlet Retrofitting	4-19-2010	No	Borough Engineer	*$___*
7. Illicit Connections	3-22-2021	No	DPW CPWM Health Dept.	*$___*
8. Privately-Owned Salt Storage	12-11-2023	No	Code Official Police Dept.	*$___*
9. Tree Removal-Replacement	9/9/2024	No	*DPW*	*$___*

List any additional stormwater-related ordinances the municipality has adopted that address issues beyond the scope of the MS4 permit. Include adoption date, entity responsible for enforcement, and related fees and fines.

Refuse Container/ Dumpster Ordinance
Adopted 4-19-2010
Entity Responsible for Enforcement – Zoning Officer., Bldg. Dept.

Indicate the location of records associated with ordinances and related violations and enforcement actions below.

The Borough of River Edge
705 Kinderkamack Road
River Edge, NJ 07661

Form 6 – Street Sweeping

Part IV.F.2.a.i. and ii.

1. Provide a written description and/or attach a map outlining the sweeping schedule for the following:
   - Segments of municipal roads with storm drain inlets that discharge to surface water (required at least 3 times each year)
   - Segments of municipal roads that do not have storm drain inlets but do discharge to surface water (required at least 1 time each year)

   Note: Only asphalt and concrete roads need to be swept. Roads that do not have storm drain inlets and do not discharge to surface water do not need to be swept.

A weekly map is kept indicating the date on which each street is swept. This is indicated on a color-coded borough map. A log indicating the operator, number of miles swept, and yards of material picked up is also kept. The information is on file at the Public Works Office located at 500 Riverside Drive, River Edge, NJ 07661 (see attached).

2. Indicate if sweeping work is outsourced and if so, describe the arrangement.

No sweeping work is outsourced.

Form 7 – MS4 Infrastructure

Part IV.F.2-4. and Part IV.G.2-3.

1. Municipal Storm Drain Inlets

a. Describe how you ensure that municipal inlets without permanent wording cast into the design have been properly labelled.
b. Describe how you ensure that municipal and private storm drain inlets have been retrofitted.
c. Describe how you ensure that newly installed storm drain inlets include corresponding catch basins or other BMPs to collect solids.
d. Describe when and how you conduct inspections of storm drain inlets and the criteria used to determine when they need to be cleaned.

Section a:

Inlet labels are inspected annually during the catch-basing and inlet cleaning program. Labels are checked by the Borough for legibility and visibility.

Section b:

DPW staff, or the Borough Engineer's representative are responsible for implementing the retrofits in the course of the municipal work as defined above. In the case of a contractor completing the work, the Borough Engineer, or a designee will approve the required grate and curb piece replacements prior to installation, and a Borough Inspector will observe the work as it is being completed to ensure it is constructed per the approved plans. In the event of an application to the Borough for the development, or redevelopment of a property, or an application for repaving of a privately-owned facility, the owner is made aware prior to the issuance of a permit that the storm drain inlets are to be retrofitted per the Borough ordinance and to comply with the NJDEP/NJDOT approved inlet grates and curb pieces. The Borough Engineer or a designee will approve the required grate and curb piece replacements prior to ordering by the private property owner. A Borough Inspector will observe the work as it is being completed to ensure it is constructed per the approved plans.

Section c:

The Engineer reviews the plans for all road projects and major developments to verify that a catch basin or other department-approved BMP is provided with, or downstream of, any newly installed storm drain inlets. An inspector will observe the work as it is being completed to ensure it is constructed per the approved plans.

Section d:

The Borough has implemented an annual inlet inspection and cleaning program to maintain inlet function and efficiency. If inlets are found to be in disrepair, or filled with sediment, trash, or debris on or off their usual maintenance schedule they will be repaired/cleaned as soon as possible to ensure continued service.

2. Municipal Catch Basins

a. Describe when and how you conduct inspections of catch basins.
b. Describe the criteria used to determine when catch basins need to be cleaned.

The Borough has implemented a catch basin inspection and cleaning program to maintain catch basin function and efficiency. Catch basins are being cleaned and inspected annually and after a heavy storm event. If catch basins are found to be in disrepair, or filled with sediment, trash, or debris on or off their usual maintenance schedule they will be repaired/cleaned immediately to ensure continued service.

3. Municipal Conveyance System

Describe when and how inspections of MS4 conveyance systems are conducted, and the criteria used to determine when they need to be cleaned. Include a description of the equipment and techniques used.

MS4 conveyance inspections will be performed concurrently with catch basin and outfall inspections. If MS4 conveyances are found to be in disrepair, or filled with sediment, trash, or debris on or off their usual maintenance schedule they will be repaired/cleaned immediately to ensure continued service.

Catch Basin Inspection and Cleaning:
Frequency: Regular inspections are crucial. The specific frequency varies based on local regulations and conditions.
Equipment and Techniques:
Visual Inspections: Personnel visually assess catch basins for debris, sediment, and signs of damage.
Sediment Removal: Vacuum trucks or mechanical equipment to remove accumulated sediment and debris.
Hydrojetting: High-pressure water jets dislodge clogs and clean the basin.
Lift Stations: For deeper basins, lift stations with pumps are used to remove sediment.

Criteria for Cleaning:
Sediment Depth: When sediment accumulates to a certain depth (e.g., 6 inches), cleaning is necessary.
Blockages: If blockages hinder flow, immediate cleaning is essential.
Seasonal Considerations: More frequent cleaning during fall (leaf accumulation) and spring (pollen) may be needed.

4. Municipal Outfall Inspections – Stream Scouring

Describe the program in place to detect, investigate, and control localized stream scouring from stormwater outfalls. Include a description of the equipment and techniques used.

Municipal outfalls in the Borough are inspected for stream scour annually. Inspections are performed on a regular rotating schedule to ensure that each outfall is inspected at least once at approximately the same frequency as annually. Outfalls will be inspected by the Borough of River Edge DPW as shown on the required MS4 system mapping. Reports of stream scouring will be investigated within 30 days of receipt.

In the course of the outfall inspection, all outfall locations will be inspected for signs of scouring. All sites which are identified locations of scour will be placed on a prioritized repair list, and repairs will be made in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey.

5. Municipal Outfall Inspections – Illicit Discharge Detection and Elimination

Describe the program in place for conducting visual dry weather inspections of municipally owned or operated outfalls. Include a description of the equipment and techniques used. Record cases of illicit discharges using the DEP's Illicit Connection Inspection Report Form from the Department's main stormwater webpage.

A minimum of 20% of the Borough's outfalls will be inspected annually in accordance with permit requirements. Outfalls will be inspected for dry weather discharges 72 hours after a rain event, intermittent stormwater flow, discoloration, or inappropriate debris in and immediately downstream of the outfall.

Outfalls found to have suspected illicit discharge will be re-inspected within 30 days and sampled as needed in accordance with NJDEP guidelines. Illicit discharges detected will be investigated to identify the source of the discharge. An NJDEP Illicit Connection Inspection Report Form will be completed and submitted to the NJDEP as part of the Annual Report.

If the source is identified, property owner(s) will be notified of their violation of the Illicit Connection Ordinance and will have the connection eliminated immediately. If the source of the illicit connection cannot be located within eleven months, the Borough will notify the NJDEP Enforcement Inspector and the MS4 case manager within one month of the situation and request an extension of the investigation period.

6. Other Municipal Infrastructure

List the types of MS4 infrastructure in your town that require inspection but are not noted above in items 1-5. Describe when and how you conduct inspections of this infrastructure and the criteria used to determine when they need to be maintained and/or cleaned.

The Borough of River Edge operates a stormwater management facility maintenance program to ensure that all stormwater facilities operated by the Brough function properly. The Borough of River Edge operates the following:

- Detention Basin

These stormwater facilities will be inspected and maintained in accordance with the approved maintenance manual to ensure that they are functioning properly. At a minimum, the borough will inspect the facilities at least 4 times annually, and after each rainstorm exceeding one inch. In high-risk areas, preventative maintenance will be performed to ensure that the facilities do not begin to deteriorate.

7. Stormwater Facilities Not Owned or Operated by the Municipality

Describe your program for ensuring adequate long-term cleaning, operation, and maintenance of stormwater facilities not owned or operated by the municipality. This should include your plan for ensuring annual inspections are being done on these private properties and describe how you record the locations and logs associated with private infrastructure.

The Borough maintains a list of stormwater facilities (detention basins) not owned or operated by the River Edge.

Certification forms are issued to the owners of these facilities on an annual basis to confirm the completion of the necessary maintenance or repairs to ensure the proper operation of the units.

In the instances where the owners do not perform the necessary maintenance, River Edge will conduct a visual inspection to verify if any maintenance or repair is necessary and review what remedial action is necessary to ensure proper operation of the facility.

8. Infrastructure Records

Indicate the location of records related to stormwater infrastructure inspection, cleaning, maintenance, and repair activities.

Records of inspections and maintenance conducted are kept in the DPW office. This includes records of inspections, cleanings, routine maintenance work, investigations of illicit connections and scouring near outfalls and any repairs conducted throughout the year. Information will be utilized as needed and reported in the annual stormwater report and supplemental questionnaire.

Form 8 – Community-wide Measures

Part IV.F.2.

1. Herbicide Application Management Describe your program for preventing herbicides from being washed into the waters of the State and to prevent erosion caused by de-vegetation.
The Borough does not apply herbicides. Any necessary de-vegetation is completed by mowing or clipping and no erosion has been experienced as a result of these activities.
2. Excess Deicing Material Management Describe your program for ensuring that excess salt piles are removed in a timely manner after storm events.
The Borough will schedule inspections of its roadways and parking areas after storm events to identify areas of excess deicing material. DPW personnel will be assigned to shovel/pick up the excess material within 72 hours after the storm is over, conditions permitting. Excess deicing material will be collected and returned to the Borough's salt dome to be reused during the next storm event as needed.
3. Roadside Vegetative Waste Describe your program for ensuring proper pickup, handling, storage, and disposal of wood waste and yard trimmings generated by the permittee along municipal roads or on municipal properties (trimming trees, mowing, etc.).
Residential yard waste including leaf and brush collection is conducted between November and December for leaf collection and from March to May for brush collection. The Borough is broken into 8 separate zones and fall and spring schedules for pickup are provided to residents annually. Bagged leaves and brush bundles are also accepted at the Borough Recycling Center. Leaves and brush are temporarily stored at the compose site.
4. Roadside Erosion Control Describe your program to detect and repair erosion along municipal roadways.
The DPW will continue to monitor Borough owned roads and streets for signs of potential erosion during their typical day to day operations. All identified road erosion problems will be reported to the DPW. Identified areas of erosion will be evaluated and repairs prioritized based on their severity. DPW personnel will then be assigned to complete the necessary repair work in accordance with all applicable standards for Soil Erosion and Sediment Control in New Jersey.

Form 9 – Municipal Maintenance Yards & Other Ancillary Operations

Part IV.F.5.

Please complete a separate Form 9 for each yard or site. Indicate the number of yards/sites the municipality owns or operates: 2

1. Site Name and Address

Address of municipal yard or ancillary operation:

500 Riverside Way
River Edge, NJ 07661

2. Monthly Site Inspections

Describe the nature of inspections conducted at this site and the location of inspection logs.

Visual observations are conducted by DPW staff during their day-to-day operations. Any deficiencies noted are reported for further evaluation and action. On a monthly basis, a more detailed inspection is conducted to verify that materials and machinery stored outdoors are stored in such a way that minimizes exposure to stormwater, ensuring the materials are on impervious surfaces where feasible and covered as needed. Any deficiencies are noted and reported for further action. The salt dome is also inspected to ensure that materials are protected from exposure to rain, snow, and stormwater running across the paved surfaces. Any deficiencies are noted and reported for further action.

3. Inventory List

List all materials and machinery that are potentially exposed to stormwater.

Materials	**Machinery/Equipment**
Raw material – road salt, stone, excavated soil	Dump truck, backhoes, loader, packer trucks, vehicle
Intermediate products – road grits	Fuel Tank
Final Product – recyclable (can & bottles), batteries, e-waste, white good	Waster Oil Tanks, Drums
By-product -n/a	Street Sweeper/Vacuum Truck
Lubricants-Various lubricant used for vehicle Maintence and DPW operation	Salt spreading vehicles/Plows
Solvents – various solvents used in DPW operations	Truck Washing Station
Detergents related to municipal maintenance yard or ancillary operation	
Car wash detergents, cleaning products	

4. Discharge of Stormwater from Secondary Containment Describe the process in place for discharging stormwater from secondary containment areas where outdoor containers are stored.	
Not applicable.	
5. Fueling Operations Does fueling occur on site? If so, describe the BMPs in place to minimize contamination of stormwater from fueling activities. If not, explain where fueling takes place.	
RIVER EDGE PUBLIC WORKS – 500 Riverside Way, River Edge, NJ 07661 Fueling equipment is inspected quarterly. Records of the inspection are kept in the vehicle maintenance garage. The above-ground storage tank and fuel equipment contractor performs annual maintenance and testing as required.	
6. Vehicle/Equipment Maintenance and Repair Do you perform maintenance and repair on site? Is this conducted indoors or outdoors? If outdoors, describe the BMPs in place to minimize contamination of stormwater from maintenance and repair activities.	
RIVER EDGE PUBLIC WORKS – 500 Riverside Way, River Edge, NJ 07661 The Borough has an electronic fleet inventory and maintenance management program that tracks repairs made to vehicles and equipment. Vehicle maintenance is performed indoors. Waste oil and materials are properly disposed of or recycled. Non-chlorinated solvents and environmentally friendly products are used, if possible.	
7. Wash Wastewater Containment Do you wash vehicles on site? If so, describe the BMPs in place to minimize contamination of stormwater from these activities. Note that on site containment structures require annual inspections by a NJ licensed professional engineer. If not, explain where vehicle washing takes place.	
Vehicles are washed indoors at the Public Works Department. The Public Works Department has a drainage system with an oil/water separator. If required, when vehicles are cleaned outside dry cleaning methods (i.e. sweeping debris off trucks) are used). Non-toxic and environmentally friendly car wash cleaning materials are used.	
8. Salt and Other Granular De-icing Materials Do you store salt and other granular deicing materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.	
RIVER EDGE PUBLIC WORKS – 500 Riverside Way, River Edge, NJ 07661 Salt is stored in a permanent concrete three side structure that has a roof and overhang that extends out over the open side to minimize rain entering the structure, The salt structure is inspected monthly to ensure that no salt in outside of the structure. When receiving deliveries if salt, the salt is immediately pushed into the structure with a front-end loader.	

9. Aggregate Material, Wood Chips, and Finished Leaf Compost Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
Clean soil is stored on a stockpile located on a concrete pad. The spill is periodically removed and recycled at other construction site. Second-grade stone is stored in a storage bin on top of an asphalt surface. The leaf compost is store at leaf composite site.
10. Cold Patch Asphalt Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
Yes. Cold patch asphalt is stored in a three-sided concrete bay with the open side of the bay sloped toward the structure to prevent stormwater run on and run through. The cold patch asphalt stockpiles are covered with a tarp.
11. Street Sweepings and Storm Sewer Cleanout Materials Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
Street sweeping and catch basin cleanout debris are placed in a container/dumpster. These containers are changed and brought to market approximately every three days. The Borough sweeps it's on roads and removes sweeping that is collected by the borough's garbage contractor.
12. Construction and Demolition Waste, Wood Waste, and Yard Trimmings Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
The Borough hires a contractor to perform curbside collections of yard trimming. The trimmings are taken away and recycled off-site. There is also a storage area in the recycling center where yard and wood waste can be dropped off by residents. The yard and wood waste is then loaded weekly into containers and delivered to an off-site recycling facility.

13. Scrap Tires

Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.

Yes. Scrap tires are stored in an enclosed municipal dumpster until they are removed for disposal at commercial facility in accordance with all applicable Local and State Regulations.

14. Inoperable Vehicles and Equipment

Do you store inoperable vehicles or equipment on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater. If not, explain where they are stored.

Yes. Inoperable vehicles are currently stored onsite. Inoperable vehicles with damaged exteriors which are not capable of preventing the contact of stormwater with internal components onsite are covered with a tarp. Inoperable vehicles are inspected monthly for leaks and exposure to stormwater. Drip pans will be used to capture any leaking fluids until they can be drained from inoperable vehicles. Inoperable vehicles will be removed for disposal at a commercial facility in accordance with all applicable Local and State Regulations as soon as feasible.

15. Site Name and Address

Address of municipal yard or ancillary operation:

Composting Site
10 River Edge Road (Just past NJTransit parking lot)
River Edge, NJ 07661

16. Monthly Site Inspections

Describe the nature of inspections conducted at this site and the location of inspection logs.

Inspections are done Monthly. Logs are stored at the DPW yard (500 Riverside Way). The inspection form used has been attached hereto.

17. Inventory List

List all materials and machinery that are potentially exposed to stormwater.

Materials	**Machinery/Equipment**
Tree Parts	Five (5) – 22-yard empty containers
Leaves (seasonal)	Tow (2) – 30-yard dumpsters for stumps

18. Discharge of Stormwater from Secondary Containment

Describe the process in place for discharging stormwater from secondary containment areas where outdoor containers are stored.

Not applicable.
19. Fueling Operations Does fueling occur on site? If so, describe the BMPs in place to minimize contamination of stormwater from fueling activities. If not, explain where fueling takes place.
No
20. Vehicle/Equipment Maintenance and Repair Do you perform maintenance and repair on site? Is this conducted indoors or outdoors? If outdoors, describe the BMPs in place to minimize contamination of stormwater from maintenance and repair activities.
No
21. Wash Wastewater Containment Do you wash vehicles on site? If so, describe the BMPs in place to minimize contamination of stormwater from these activities. Note that on site containment structures require annual inspections by a NJ licensed professional engineer. If not, explain where vehicle washing takes place.
No
22. Salt and Other Granular De-icing Materials Do you store salt and other granular deicing materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
No
23. Aggregate Material, Wood Chips, and Finished Leaf Compost Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
The leaf compost and wood parts are stored at leaf composite site.
24. Cold Patch Asphalt Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
No
25. Street Sweepings and Storm Sewer Cleanout Materials Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
No
26. Construction and Demolition Waste, Wood Waste, and Yard Trimmings Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.
No
27. Scrap Tires Do you store these materials on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater from these materials. If not, explain where these materials are stored.

No
28. Inoperable Vehicles and Equipment Do you store inoperable vehicles or equipment on site? If so, describe how they are stored and the BMPs in place to minimize contamination of stormwater. If not, explain where they are stored.
No

Form 10 – Training

Part IV.F.6-10.

Stormwater Program Coordinators
Describe the training provided for the municipal Stormwater Program Coordinator.
The Stormwater Program Coordinator (SPC) for the Borough will attend the NJDEP training seminar every permit cycle. Training shall cover SPC responsibilities, permit conditions, annual reporting and required submissions and documentation. Once training is completed, documentation will be included in the SPPP for reference.

Topic	Municipal Employees Examples: in-person or virtual group sessions, e-Learning, field trainings, and videos
Describe the training provided for municipal staff.	
SPPP	SPPP recordkeeping and Borough specific requirements are discussed in a group meeting with DPW employees and the municipal engineer or a qualified representative of the same annually. Municipal employees receive training on their specific duties upon adoption of the SPPP and within 3 months of being assigned new or additional stormwater program responsibilities.
Construction Site Stormwater Runoff	Construction site stormwater runoff training is provided by the municipal engineer and other stormwater reviewers annually using the online tools provided on the Department website. Municipal employees will receive training upon adoption of the SPPP and within 3 months of being assigned new or additional duties.
Post-Construction Stormwater Management in New and Redevelopment	Staff responsible for implementing stormwater permit requirements shall attend annual training to review the fundamentals of the Borough's post-construction stormwater management program to address stormwater runoff. Training shall discuss the Borough's definition of major development and the interconnection among the Stormwater Management rules at N.J.A.C. 7:8, the Borough's SCO, stormwater permit conditions, the Department's BMP Manual, and Guidance Documents.
Community-wide Ordinances	Staff responsible for approving and/or enforcing stormwater-related ordinances shall attend annual training on related MS4 permit conditions and review the purpose of each ordinance and what steps to take if violations are reported.
Community-wide Measures	Community-wide measures training is provided in person. The municipal engineer or a qualified representative of the same will meet with DPW and code enforcement employees annually to provide training on community-wide measures.
Stormwater Facilities Maintenance	Stormwater facilities maintenance training is conducted in person. The municipal engineer or a qualified representative of the same will meet with DPW employees annually to provide training on stormwater facility maintenance.
Municipal Maintenance Yards and Other Ancillary Operations	Municipal maintenance yard training is conducted in person. The municipal engineer or a qualified representative of the same will meet with DPW employees annually to provide training on best management practices at municipal maintenance yards.
MS4 Mapping	Outside personnel responsible for the preparation and submission of the Borough's electronic stormwater infrastructure map shall attend annual training to review the MS4 permit requirements for electronic mapping.

Outfall Stream Scouring	Staff responsible for conducting inspections and repairs of stormwater outfalls shall attend annual training to review how to identify, remediate, and document cases of stream scouring in accordance with the Borough's MS4 permit.
Illicit Discharge Detection and Elimination	Illicit discharge training is provided in person. The municipal engineer or a qualified representative of the same will meet with DPW employees and any other employees tasked with illicit discharge inspections annually to provide training on illicit discharge detection and elimination.

Stormwater Management Design Reviewers
Describe the training provided for individuals responsible for reviews and approvals of stormwater management designs.
Personnel who review and approve stormwater management designs for major developments on behalf of the Borough will attend the mandatory NJDEP Stormwater Management Design Review course at least once every 5 years, as well as attend mandatory NJDEP training on amendments to the stormwater management rules at N.J.A.C. 7:8 as needed. Once training is completed, records of attendance will be maintained by the Borough's consultants and provided to the Borough upon request.

Municipal Board and Governing Body Members
Describe the training provided for members of the planning/zoning board and municipal council.
Required for individuals who review and approve applications for development and redevelopment projects in the municipality. This includes members of the planning and zoning boards, town council, and anyone else who votes on such projects. Training is in the form of online videos, posted at www.nj.gov/dep/stormwater/training.htm. Within 6 months of commencing duties, watch *Asking the Right Questions in Stormwater Review Training Tool*. Once per term thereafter, watch at least one of the online DEP videos in the series available under Post-Construction Stormwater Management. Indicate the location of records documenting the names, video titles, and dates completed for each board and governing body member.

Training Records
Indicate the location of training records for the above required training.
Logs of training completed by DPW personnel, which include the type of training, date completed, names of attendees and trainers (if available) shall be kept by the DPW for reference and inclusion in the Borough's annual stormwater report.

A. **Municipal Employee Training:** Stormwater Program Coordinator (SPC) must ensure appropriate staff receive training on topics in the chart below as required due to job duties assigned within three months of commencement of duties and again on the frequency below. Indicate the location of associated training sign in sheets, dates, and agendas or description for each topic.

Topic	Frequency	Title of trainer or office to conduct training
1. Maintenance Yard Operations (including Ancillary Operations)	Every year	CPWM
2. Stormwater Facility Maintenance	Every year	CPWM
3. SPPP Training & Recordkeeping	Every year	CPWM
4. Yard Waste Collection Program	Every 2 years	CPWM
5. Street Sweeping	Every 2 years	CPWM
6. Illicit Connection Elimination and Outfall Pipe Mapping	Every 2 years	CPMW
7. Outfall Pipe Stream Scouring Detection and Control	Every 2 years	CPWM
8. Waste Disposal Education	Every 2 years	CPWM & BOROUGH ADMINISTRATOR
9. Municipal Ordinances	Every 2 years	BOROUGH ADMINISTRATOR
10. Construction Activity/Post-Construction Stormwater Management in New Development and Redevelopment	Every 2 years	BOROUGH ENGINEER

B. **Stormwater Management Design Reviewer Training:** All design engineers, municipal engineers, and others who review the stormwater management design for development and redevelopment projects on behalf of the municipality must attend the first available class upon assignment as a reviewer and every five years thereafter. The course is a free, two-day training conducted by DEP staff. Training dates and locations are posted at www.nj.gov/dep/stormwater/training.htm. Indicate the location of the DEP certificate of completion for each reviewer.

Form 11 – MS4 Mapping

Part IV.G.1.

1. Provide a link to the most current MS4 outfall/infrastructure map.

Note that ALL maps must be electronic by 21 Dec 2020 via the DEP's designated electronic submission service. For details, see http://www.nj.gov/dep/dwq/msrp_map_aid.htm.

PDF copies

https://www.riveredgenj.org/media/Public%20Works/Stormwater/River%20Edge%20Storm%20Sewer%20Maps%20OUTFALL%20FULL%20SET.pdf

2. Indicate the total of each type of MS4 infrastructure listed below (due 01 Jan 2026).

a. MS4 outfalls	57
b. MS4 ground water discharge points (basins or overland flow infiltration areas)	-
c. MS4 interconnections	*TBD*
d. MS4 storm drain inlets	*793*
e. MS4 manholes	*TBD*
f. Length of conveyance (channels, pipes, ditches, etc.)	*TBD*
g. MS4 pump stations	*1*
h. MS4 stormwater facilities (any that are not listed above)	-
i. Maintenance yard(s) and other ancillary operations	*1*

3. Describe how the municipality's outfall/infrastructure map is reviewed and updated to reflect any new or newly identified MS4 infrastructure (e.g., an outfall is closed, a new basin is constructed, ownership of an outfall has changed, etc.).

On an annual basis, DPW and Engineering staff will coordinate with their consultants to review any new major development projects completed throughout the year and identify new stormwater infrastructure constructed as part of those developments or capital projects completed by the Borough. GPS data will be obtained on these new structures/units as needed and the information uploaded into the Borough's MS4 Map. A copy of the data points will also be submitted to the Borough's MS4 Case Manager

4. Describe how the municipality will create and update its MS4 Infrastructure Map.

The MS4 Infrastructure Map is to be created and updated from survey of new and existing MS4 infrastructure. During the creation of the MS4 Infrastructure Map, there will be a survey effort to locate and gather information about existing MS4 infrastructure. The survey data will be used to create the MS4 Infrastructure Map.
In the case of new construction, any new MS4 infrastructure is to be surveyed and added to the MS4 Infrastructure Map along with any additional required information.

Form 12 – Watershed Improvement Plan

Part IV.H.

1. Describe how your municipality is developing its Watershed Improvement Plan.

The Borough and its representatives are evaluating the permit requirements to determine how best to initiate Phase 1 of the Watershed Improvement Plan, which is the development of the Borough Watershed Inventory Report. This includes the selection of stakeholders and coordination of public information sessions throughout the development of the overall improvement plan.

Once Phase 1 is completed, a copy of the report will be posted on the Township's stormwater webpage no later than January 1, 2026.

Currently, the Borough is focusing its effort on expanding its current outfall map to include the additional stormwater system components required as part of the inventory report.

2. Describe any regional projects or collaboration efforts with other municipalities.

Based on information available from the NJDEP's GeoWeb website, there are two (2) Watersheds (HUC11) within the Borough's municipal boundary.

- Hackensack, Hudson, and Pascack
- Lower Passaic and Saddle

Currently, discussions on potential collaboration efforts with these municipalities have not been initiated as of yet. The SPPP will be updated once additional information is available.

3. Indicate the location of records related to all public information sessions and meetings for discussions of the Watershed Improvement Plan.

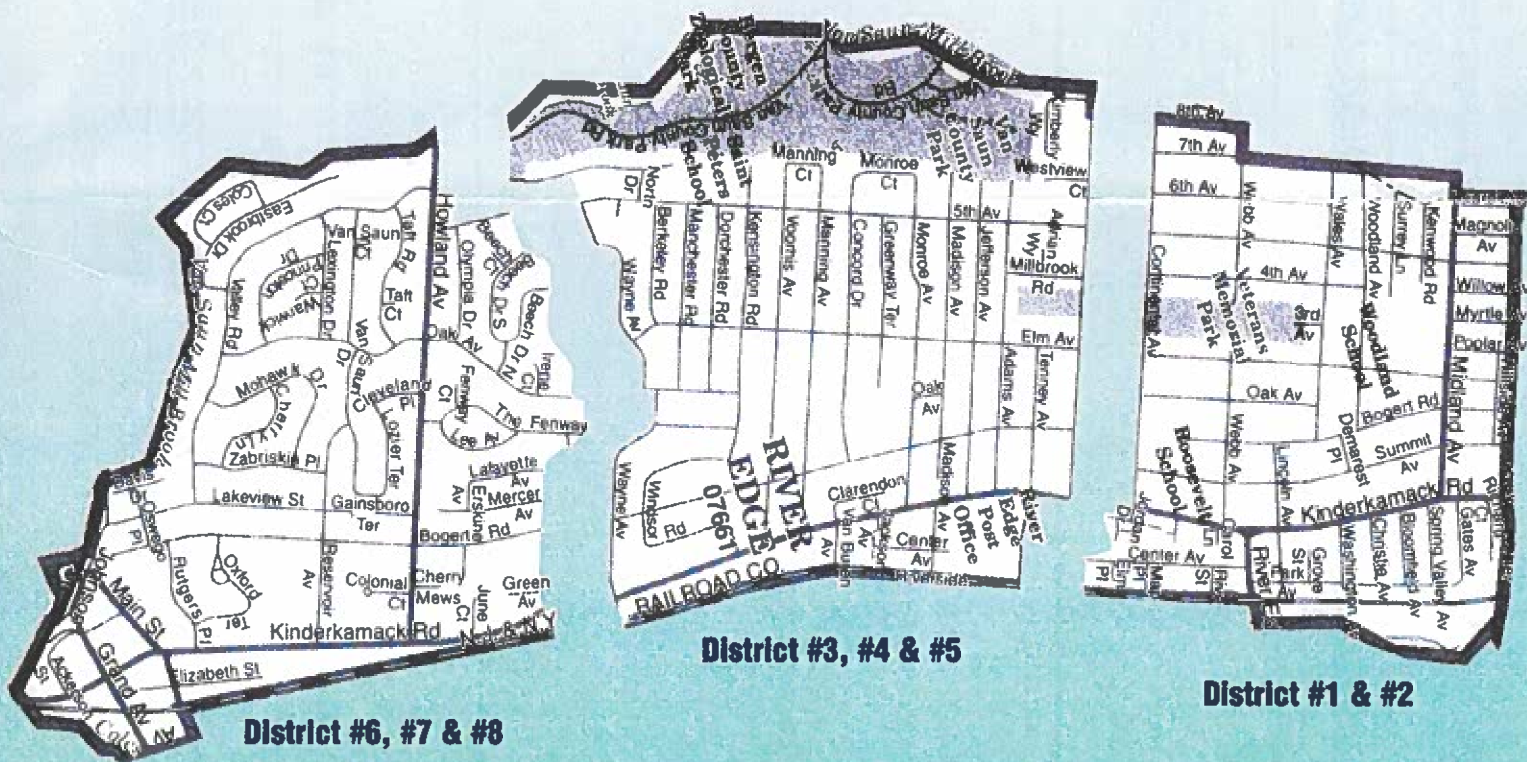
Records of all comments received during scheduled public information sessions and minutes of meetings held will be maintained by the Borough Clerk's office.

Appendix

DISTRICT MAP

RECYCLING

Tuesdays-District #1, #2 *(see map)*	**Both sides of Continental to the Oradell border.** ***(Includes Tenney Avenue & Center Avenue East of Kinderkamack Road)***
Wednesdays-District #3, #4, #5 **(see map)**	**Both sides of Wayne Avenue, North to Continental Avenue.** ***(Includes Fifth Avenue & Valley Road to Howland Avenue)***
Thursdays-District #6, #7, #8 **(see map)**	**From Hackensack border & Paramus border, North to Wayne Ave.** ***(Excludes Fifth Avenue & Valley Road North of Howland Avenue)***



District #6, #7 & #8
Recycle – Thursdays
Garbage – Wednesdays (Jan.1–May 31) (Sept.1–Dec. 31)
Wednesday & Saturdays (June 1 - August 31)

District #3, #4 & #5
Recycle – Wednesdays
Garbage – Tuesdays (Jan.1–May 31) (Sept.1–Dec. 31)
Tuesdays & Fridays (June 1 - August 31)

District #1 & #2
Recycle – Tuesdays
Garbage – Mondays (Jan.1–May 31) (Sept.1–Dec. 31)
Mondays & Thursdays (June 1 - August 31)

Solutions to Stormwater Pollution

Easy Things You Can Do Every Day To Protect Our Water

A Guide to Healthy Habits for Cleaner Water

Pollution on streets, parking lots and lawns is washed by rain into storm drains, then directly to our drinking water supplies and the ocean and lakes our children play in. Fertilizer, oil, pesticides, detergents, pet waste, grass clippings: You name it and it ends up in our water.

Stormwater pollution is one of New Jersey's greatest threats to clean and plentiful water, and that's why we're all doing something about it.

By sharing the responsibility and making small, easy changes in our daily lives, we can keep common pollutants out of stormwater. It all adds up to cleaner water, and it saves the high cost of cleaning up once it's dirty.

As part of New Jersey's initiative to keep our water clean and plentiful and to meet federal requirements, many municipalities and other public agencies including colleges and military bases must adopt ordinances or other rules prohibiting various activities that contribute to stormwater pollution. Breaking these rules can result in fines or other penalties.

As a resident, business, or other member of the New Jersey community, it is important to know these easy things you can do every day to protect our water.

Limit your use of fertilizers and pesticides

- Do a soil test to see if you need a fertilizer.
- Do not apply fertilizers if heavy rain is predicted.
- Look into alternatives for pesticides.
- Maintain a small lawn and keep the rest of your property or yard in a natural state with trees and other native vegetation that requires little or no fertilizer.
- If you use fertilizers and pesticides, follow the instructions on the label on how to correctly apply it.

Make sure you properly store or discard any unused portions.

Properly use and dispose of hazardous products

- Hazardous products include some household or commercial cleaning products, lawn and garden care products, motor oil, antifreeze, and paints.
- Do not pour any hazardous products down a storm drain because storm drains are usually connected to local waterbodies and the water is not treated.

- If you have hazardous products in your home or workplace, make sure you store or dispose of them properly. Read the label for guidance.
- Use natural or less toxic alternatives when possible.
- Recycle used motor oil.
- Contact your municipality, county or facility management office for the locations of hazardous-waste disposal facilities.

Keep pollution out of storm drains

- Municipalities and many other public agencies are required to mark certain storm drain inlets with messages reminding people that storm drains are connected to local waterbodies.
- Do not let sewage or other wastes flow into a stormwater system.

Clean up after your pet

- Many municipalities and public agencies must enact and enforce local pet-waste rules.
- An example is requiring pet owners or their keepers to pick up and properly dispose of pet waste dropped on public or other people's property.
- Make sure you know your town's or agency's requirements and comply with them. It's the law. And remember to:
  - Use newspaper, bags or pooper-scoopers to pick up wastes.
  - Dispose of the wrapped pet waste in the trash or un-wrapped in a toilet.
  - Never discard pet waste in a storm drain.

Don't feed wildlife

- Do not feed wildlife, such as ducks and geese, in public areas.
- Many municipalities and other public agencies must enact and enforce a rule that prohibits wildlife feeding in these areas.

Don't litter

- Place litter in trash receptacles.
- Recycle. Recycle. Recycle.
- Participate in community cleanups.

Dispose of yard waste properly

- Keep leaves and grass out of storm drains.
- If your municipality or agency has yard waste collection rules, follow them.
- Use leaves and grass clippings as a resource for compost.
- Use a mulching mower that recycles grass clippings into the lawn.

Contact information

For more information on stormwater related topics, visit www.njstormwater.org or www.nonpointsource.org

Additional information is also available at U. S. Environmental Protection Agency Web sites www.epa.gov/npdes/stormwater or www.epa.gov/nps

New Jersey Department of Environmental Protection
Division of Water Quality
Bureau of Nonpoint Pollution Control
Municipal Stormwater Regulation Program
(609) 633-7021

www.cleanwaternj.org

CLEAN WATER
It's Up to You New Jersey

BOROUGH OF RIVER EDGE

PET WASTE AND WATER POLLUTION

Borough of River Edge has adopted and enforces an ordinance that requires immediate and proper disposal of solid pet waste deposited on any property not owned or possessed by the pet owner or keeper. https://www.riveredgenj.org/departments/PublicWorks/stormwater-information.

Pet waste is carried by rain, melting snow, and ice to storm drains that empty into rivers, lakes, and the ocean. It also reaches reservoirs which supply much of the drinking water in New Jersey.

Pollution due to pet waste negatively impacts swimming, boating and fishing in these water bodies.

Pet waste contains microorganisms that can cause bacterial diseases, roundworms and parasitic infections.

In addition, pet waste contains harmful levels of nutrients which promote excessive algae and plant growth. This can rob the waterbody of oxygen, potentially killing all aquatic life in the area. Such nutrient pollution also causes waters to become cloudy and green.

Proper Pet Waste Disposal

Flush it down the toilet.

But do not flush bags, debris, or nonbiodegradable items

OR

Put it in the trash.

THANK YOU FOR DOING YOUR PART TO KEEP NEW JERSEY'S WATERS CLEAN

For More Info

- See the Pet Waste Ordinance [insert municipal page/hotlink]
- NJDEP Municipal Stormwater Regulation https://www.nj.gov/dep/dwq/msrp_home.htm
- EPA- Polluted Runoff: Nonpoint Source Pollution https://www.epa.gov/nps

STORMWATER POLLUTION: WHAT DO YOU THINK?

- **You may think littering is no big deal (it is).**
- **You may think that whatever runs into the storm drains gets treated before it reaches local rivers and streams (it isn't).**
- **You may think motor oil and other hazardous materials doesn't harm the water very much (it does).**

Pollution seeps into the ground and is carried by stormwater (rain and snow) directly to our drinking water, streams, lakes and oceans. Contaminated stormwater is the #1 cause of water pollution in New Jersey. Simple things, like proper clean-up after oneself and careful use of chemicals in the home, office and yard, are helpful ways for businesses and residents to protect the water.

Borough of River Edge **has ordinances aimed at reducing pollution from litter, fertilizer, oil, pesticides, detergents, animal waste, grass clippings and other debris. For details, see** https://www.riveredgenj.org/departments/Pu. **Thank you for keeping them in mind and doing your share.**

Clean Water NJ

Keep grass, leaves and trash out of storm drains

Don't feed wildlife

Clean up after your pet

Limit use of fertilizers & pesticides

Properly handle hazardous products

NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION

www.nj.gov/dep/dwq

www.cleanwaternj.org

COMPLIANCE ADVISORY

New Jersey Department of Environmental Protection

Enforcement Alert

Making You Aware of Anticipated Enforcement Activities

Compliance and Enforcement | Issued: April 16, 2013 | #2013-07

Illegal Dumping of Solid Waste

Who is affected by this initiative?

Anyone generating, transporting or disposing of construction and demolition debris in New Jersey is affected by this initiative. All those engaged in rebuilding are encouraged to be aware of how construction and demolition debris is being handled. All citizens are invited to help by reporting any illegal dumping.

What is occurring?

As the rebuilding from Hurricane Sandy progresses, it remains imperative that illegal dumping of solid waste not occur – and will not be tolerated. Illegal dumping will further set back our State's recovery efforts and work against our rebuilding goals for a vibrant, healthy, safe and resilient New Jersey.

What is NJDEP doing?

1. NJDEP invites the public to help with vigilance against improper disposal of waste and the resulting degradation to our lands and waterways. Citizens, officials, community groups and businesses are asked to report any illegal dumping promptly to the NJDEP emergency hotline number at **1-877-WARNDEP** (1-877-927-6337). If you are able to take pictures or video (after calling the hotline) please email them to solidwasteemergencies@dep.state.nj.us with the location, date and time, and vehicle make, model and license plate number, if available.

2. NJDEP has advised the New Jersey State Police and local officials of the dumping laws available and to take immediate and strong enforcement actions against illegal dumpers. The Solid Waste Management Act authorizes NJDEP, local boards of health and county health departments to initiate civil actions for violations of the Act.

3. NJDEP's solid waste inspectors and its solid waste transportation oversight unit will be focusing on areas generating significant amounts of debris from the rebuilding efforts. Investigations may include following waste haulers or contractors to their destinations, periodic surveillance of past illegal dumping areas and roadside inspections of waste hauling vehicles.

4. Illegal dumping and other harmful unauthorized activity will result in swift and severe action up to and including:

a. A mandatory fine of **$2,500.00** for first offense, increasing to **$10,000** for subsequent offenses;
b. Mandatory **loss of driver's license** for six months to one year;
c. **Forfeiture of vehicles** used or intended for use in the unlawful transportation or disposal of solid waste;
d. **Mandatory community service** up to 90 days.

What should I do?

1. Ensure that any waste or debris is removed by transporters registered with the NJDEP and all equipment involved displays the NJDEP Hauler identification number along with a current decal, as follows:

    a. *Contractors* who transport self-generated waste from their own construction or demolition jobs should display decals which state "A-901 Exempt" or "Self-Generator." These decals are cross-hatched in yellow or teal with an expiration date of 6-30-2013 (yellow) or 6-30-2015 (teal), as shown below:

    b. *Contractors who transport waste generated by someone else should display decals which state, "Licensed" or "A-901 Licensed".* These decals are yellow or teal with an expiration date of 6-30-2013 (yellow) or 6-30-2015 (teal), as shown below:

    c. *Containers* such as "roll-offs," "dumpsters" or "cans" are often staged at large job sites. All containers must also have current decals which state "Container Only", "A-901 Licensed Container" or "Self-Generator Container." These decals are cross-hatched in yellow or teal with an expiration date of 6-30-2013 (yellow) or 6-30-2015 (teal), as shown below:

2. Be aware of useful information that explains, enables and supports legal disposal. The following website http://www.nj.gov/dep/special/hurricane-sandy/debris.htm contains information relating to contacts, locations and hours of operation for approved disposal facilities. Questions on this information may be directed to (609) 292-9880.

3. Report illegal dumping or unlicensed transportation to the NJDEP emergency hotline number at **1-877-WARNDEP** (1-877--927-6337). If you are able to take a picture or video with your phone or camera, (after calling the hotline) please email it to: solidwasteemergencies@dep.state.nj.us with the location, date and time, and vehicle make, model and license plate if available.

Who can I contact with questions?

During Business Hours:

Duty Officer
NJDEP Bureau of Solid Waste Enforcement
P.O. Box 420
Mail Code 09-02
9 Ewing Street, 2nd Floor
Trenton, NJ 08625-0420
(609) 292-6305

Non-Business Hours: 1-877-WARNDEP (1-877-927-6337)

Where can I get more information?

- Hurricane Sandy information page: http://www.nj.gov/dep/special/hurricane-sandy/
- Hurricane Sandy solid waste info: http://www.nj.gov/dep/special/hurricane-sandy/debris.htm
- General NJDEP contact information: http://www.nj.gov/cgi-bin/dep/contactdep.pl

For more information about our Compliance Advisory program or to comment on this advisory:

NJDEP Compliance Advisories are an electronic notification service of the NJDEP Compliance & Enforcement Program providing information to subscribers notifying them of upcoming important developments involving NJDEP's Compliance & Enforcement Program and their customers including changes in regulations, training opportunities, compliance assistance information and more. We generally issue 15-20 compliance advisories annually.

- Compliance Advisory Homepage: http://www.nj.gov/dep/enforcement/advisories.html
- Advisory Comments may be directed to: http://www.nj.gov/dep/enforcement/survey.html

WHEN YOU'RE WASHING YOUR CAR IN THE DRIVEWAY, REMEMBER YOU'RE NOT JUST WASHING YOUR CAR IN THE DRIVEWAY.

Rain washes pollutants into storm drains and directly into our lakes, rivers and the ocean.
So what can you do? Take your car to a car wash where
the water gets treated and recycled.

www.cleanwaterNJ.org

CLEAN WATER
It's Up to You New Jersey

Bradley M. Campbell, Commissioner
NJ Department of Environmental Protection

Thanks to the Washington Department of Ecology, King County and the cities of Bellevue, Seattle and Tacoma

WHAT'S THE PROBLEM WITH WASHING YOUR CAR?

Washing your car on a paved surface can allow the soapy wash water and other pollutants, like oil and grease, to run off into a storm drain. Most soap contains phosphates and other chemicals that, in large amounts can contaminate your drinking water, as well as kill fish, wildlife and plants. The soap, together with the dirt and oil washed from your car, flows into nearby storm drains, which flows directly into lakes, rivers and the ocean. The phosphates from the soap can cause excess algae to grow, which can be harmful to the water quality.

YOU CAN HELP!

- Take your car to a car washing facility, rather than washing it yourself. Commercial car washes treat and recycle the water.
- If you can't get to a car washing facility, wash your car on an unpaved surface and use biodegradable soap.
- Organize a Car Wash Fundraiser for a local organization. Visit **www.cleanwaterNJ.org** to learn how.

WHY SHOULD YOU CARE ABOUT CLEAN WATER?

Stormwater pollution is one of the greatest threats to New Jersey's clean water supply. Clean water provides access to safe drinking water, places for recreation, commercial opportunities, healthy wildlife habitats, and adds beauty to our landscape. Rain washes pollution from streets, parking lots, and lawns into storm drains, then directly to our streams, rivers, lakes and oceans.

Did you know more than 60 percent of water pollution comes from things like motor oil, fertilizers, pet waste, and detergents? By sharing the responsibility and making small, easy changes in our daily lives, we can keep common pollutants out of stormwater.

CLEAN WATER
It's Up to You New Jersey

www.cleanwaterNJ.org

Thanks to the Washington State Department of Ecology, King County, and the cities of Bellevue, Seattle and Tacoma.

WHEN YOUR CAR'S LEAKING OIL ON THE STREET, REMEMBER IT'S NOT JUST LEAKING OIL ON THE STREET.

Rain washes pollutants into storm drains and directly into our lakes, rivers and the ocean. So what can you do? Recycle used oil at certified facilities and maintain your vehicle to prevent leaks.

www.cleanwaterNJ.org

CLEAN WATER
It's Up to You New Jersey

Bradley M. Campbell, Commissioner
NJ Department of Environmental Protection

WHAT'S THE PROBLEM WITH MOTOR OIL?

Oil does not dissolve in water. When motor oil runs into storm drains either from changing your car's oil or from leaky cars, it goes directly to our lakes, rivers and the ocean. Oil and other petroleum products are toxic and can contaminate your drinking water, as well as kill fish, wildlife and plants. Did you know that one pint of oil can make a slick larger than a football field? Used motor oil is the largest single source of all oil pollution in lakes, streams and rivers. Americans spill 180 million gallons of used oil each year into our waters.

YOU CAN HELP!

- Keep your car well maintained.
- Regularly check your car for leaks and schedule tune-ups. If you find leaks or drips, have your car repaired.
- Take your car to a service center to the change oil.
- If you do change your own oil, do it in a garage, never on the street. Use a self-contained oil pan and discard the oil at a local service center for recycling.
- NEVER discard oil, gas, or antifreeze into a storm drain.
- If you spill hazardous fluids, contain it immediately with rags and cat litter. Clean up the spill and properly dispose of the waste.

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www.cleanwaterNJ.org

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WHEN YOUR PET GOES ON THE LAWN,

REMEMBER IT DOESN'T JUST

GO ON THE LAWN.

Rain washes pollutants into storm drains and directly into our lakes, rivers and the ocean. So what can you do? Properly dispose of your pet's waste by flushing it down the toilet or by placing it in a bag and throwing it in the trash.

www.cleanwaterNJ.org

CLEAN WATER

It's Up to You New Jersey

Bradley M. Campbell, Commissioner
NJ Department of Environmental Protection

WHAT'S THE PROBLEM WITH PET WASTE?

Rain can wash pet waste that sits on a lawn or unpaved surface into storm drains, ultimately ending up in our lakes, rivers and the ocean. Pet waste contains coliform bacteria and other pollutants that can make people sick, and often cause beach closures on lakes or the ocean. Coliform bacteria can contaminate shellfish, which causes people to get very sick when they are eaten. Bacteria from pet waste can also pollute your drinking water, as well as kill fish, wildlife and plants. Pet waste is not only a health hazard but also a nuisance in our neighborhoods.

YOU CAN HELP!

- Use newspaper, plastic bags, or a pooper-scooper to pick up the waste when you walk your pet.
- Properly dispose of pet waste into the trash or toilet. (Do NOT dispose of newspaper or plastic bags in the toilet.)
- Do not dispose of pet waste in storm drains.

WHY SHOULD YOU CARE ABOUT CLEAN WATER?

Stormwater pollution is one of the greatest threats to New Jersey's clean water supply. Clean water provides access to safe drinking water, a place for recreation, commercial opportunities, healthy wildlife habitats, and adds beauty to our landscape. Rain washes pollution from streets, parking lots, and lawns into storm drains, then directly to our streams, rivers, lakes and the ocean.

Did you know more than 60 percent of water pollution comes from things like motor oil, fertilizers, pet waste, and detergents? By sharing the responsibility and making small, easy changes in our daily lives, we can keep common pollutants out of stormwater.

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Thanks to the Washington State Department of Ecology, King County, and the cities of Bellevue, Seattle and Tacoma.

WHEN YOU'RE FERTILIZING THE LAWN, REMEMBER YOU'RE NOT JUST FERTILIZING THE LAWN.

Rain washes pollutants into storm drains and directly into our lakes, rivers and the ocean.
So what can you do? Follow the directions on the fertilizer bag,
do not apply before it rains and use only when necessary.

www.cleanwaterNJ.org

CLEAN WATER
It's Up to You New Jersey

Bradley M. Campbell, Commissioner
NJ Department of Environmental Protection

WHAT'S THE PROBLEM WITH FERTILIZERS AND PESTICIDES?

Fertilizers help plants grow by adding nutrients to the soil. Pesticides (including herbicides) are any toxic substances used to kill insects, animals or plants. If fertilizers or pesticides are improperly applied, they can wash off your lawn or garden into storm drains and directly to our lakes, rivers, and the ocean. These chemicals can contaminate your drinking water, as well as kill fish, wildlife and plants. Too much fertilizer washing into a lake can cause algae to bloom in lakes, which will affect swimming, fishing and boating.

YOU CAN HELP!

- Test your soil at your County's Rutgers Cooperative Research and Extension office, or buy a self-test kit.
- Use natural, slow-release nitrogen, or low phosphorus fertilizers.
- Look into natural alternatives to fertilizers and pesticides, such as integrated pest management (IPM).
- If you need to use fertilizers or pesticides, follow the instructions on the label on how to correctly apply.
- Do not apply fertilizers or pesticides before it rains. This will not allow the fertilizers or pesticides to penetrate through the soil.
- Use drought-resistant native plants in gardens; they require less fertilizer and less water.
- Use a mulching mower instead of bagging grass clippings.

WHY SHOULD YOU CARE ABOUT CLEAN WATER?

Stormwater pollution is one of the greatest threats to New Jersey's clean water supply. Clean water provides access to safe drinking water, places for recreation, commercial opportunities, healthy wildlife habitats, and adds beauty to our landscape. Rain washes pollution from streets, parking lots, and lawns into storm drains, then directly to our streams, rivers, lakes and the ocean.

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Thanks to the Washington State Department of Ecology, King County, and the cities of Bellevue, Seattle and Tacoma.

IF YOU LITTER IN THE STREET, YOU MIGHT AS WELL LITTER IN THE RIVER.

Rain washes pollutants into storm drains and directly into our lakes, rivers and the ocean.
So what can you do? Recycle and dispose of your trash properly.

CLEAN WATER
It's Up to You New Jersey

www.cleanwaterNJ.org

THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS COOPERATIVE EXTENSION
New Jersey Agricultural Experiment Station
www.rce.rutgers.edu

FS074

Fact sheet

Backyard Leaf Composting

Franklin Flower, Extension Specialist Emeritus in Environmental Science
Peter Strom, Assistant Professor in Environmental Science

Many New Jersey homeowners have an excessive quantity of leaves in the fall. One alternative for deal-ing with leaves is backyard composting. This process involves primarily the microbial decomposition of organic matter. Compost - the end result - is a dark, friable, partially decomposed substance similar to natural organic matter found in the soil.

The Composting Process

Composting speeds natural decomposition under semi-controlled conditions. Raw organic materials can be converted into compost by microorganisms. As microorganisms decompose organic matter, temperatures within the pile increase, sometimes approaching 150 degrees F. at the center. These inside-pile temperatures speed the process, and kill many weed and disease organisms.

Leaves may be composted by piling them in a heap. Locate the pile where drainage is adequate and there is no standing water. The composting pile should be damp enough that when a sample taken from the interior is squeezed by hand a few drops of water will appear. A shaded area will reduce moisture evaporation from the surface, but tree roots may grow into the pile. If the surface of the pile becomes excessively dry, it will not compost, and those leaves may blow away.

The leaf pile should be at least 4 feet in diameter and 3 feet in height. If it is too small, it is difficult to maintain adequate temperatures for rapid decomposition. The maximum size should be about 5 feet in height and 10 feet in diameter. If the pile is too large, the interior will not obtain the oxygen needed for adequate, odor-free decomposition. If more material is available, lengthen the pile into a rectangular shape while keeping it 10 feet wide and 5 feet high. If there is sufficient space and material, two or three piles will provide greater flexibility. One pile can contain compost for immediate use; the second is actively composting; and the third receives newly fallen leaves. If there is space for only one pile, new material may be added gradually to the top while removing the decomposed product from the bottom.

Containing the Pile

Composting may be done in a loose pile. However, for the most efficient use of space, it can be contained in a bin or other enclosure. The sides of this bin should be loose enough to permit air movement. One side should be open, or easily opened, for turning the pile and for removing the finished compost.

Woven wire or wooden slat fencing, or cement blocks on their sides have been used successfully. Wood gradually decomposes, and wire fencing may rust, so these materials will need periodic replacement. Wooden stakes driven into the ground may attract termites, so lumber treated with wood preservative or metal snow-fence posts may be better.

Constructing the Pile

Many instruction sheets advocate constructing the pile in layers that may include grass clippings, fertilizer, limestone, manure, soil, and leaves. However, we have found this practice to be unnecessary. The pile can be constructed of leaves only. A small amount of grass clippings may be added to the leaves as the pile is being constructed. However, because of its high demand for oxygen, too much grass tends to cause an anaerobic (without oxygen) condition. This greatly reduces the composting rate, and can produce unpleasant odors. Fresh vegetable peelings may be included, but do not add meat or grease because they may cause odors or attract pests.

Unless leaves are collected in a very wet condition, add water while placing them in the pile. Without moisture, the microorganisms will not function. Moist-en to the point

where it is possible to squeeze droplets of water from a hand-held mass of leaves.

Dead leaves lack adequate nitrogen for rapid decomposition. Therefore, a high-nitrogen fertilizer added to the pile may speed up decomposition. However, since leaves fall only for about 2 months a year, there are 10 months for decomposition before space is needed for the next batch. So, while it is generally unnecessary to add fertilizer, for more rapid decomposition and a product with a higher nutritive content, 5 ounces (about 1/2 cup) of 10% nitrogen fertilizer per 20-gallon can of hand-compacted leaves could be added. Fresh manure could be substituted, but it may cause odor problems.

Ordinarily it is unnecessary to add ground limestone because the pile seldom becomes too acidic. If fertilizer has been added, an equivalent quantity of limestone will counteract any acidity. Little or no limestone should be added if the compost is to be used on acid-loving plants.

Some guides on leaf composting recommend adding layers of soil periodically to the piles to supply the microorganisms needed for decomposition. We have not found this practice to be necessary, because leaves, themselves, contain a multitude of microorganisms. Available commercial activators or starters definitely are not needed.

Avoid packing the materials too tightly. Too much compaction will limit movement of air through the pile. Shredding the leaves generally speeds up composting.

To reduce weed germination, weeds in flower or with seeds should not be composted. Also, it is best to avoid composting diseased plants, or herbicide-treated lawn clippings until after at least three mowings.

Care of the Pile

The composting pile must be kept moist, but not soggy, for proper decomposition. Inadequate moisture reduces microbial activity, while excessive water may cause anaerobic conditions. A thin outer layer of dry leaves is unavoidable.

The pile should be periodically turned or mixed. The main objectives of turning are to shift materials from the outer parts of the pile closer to the center for better decomposition, and to incorporate oxygen. During warm weather, turn the pile once a month. In cool weather frequent turning is not recommended because it allows too much heat to escape. Piles should be turned immediately if ammonia or other offensive odors are detected. If space is available, turning may be accomplished by shifting the entire pile to an adjacent area or bin.

Within a few weeks after starting, the pile should be hot in the center. Heating generally indicates that the pile is decomposing properly. Failure to heat may be caused by too little or too much water, improper aeration, packing too tightly, or a pile that is too small. As leaves decompose, they should shrink to less than one-half of their original volume. During dry weather it may be necessary to add more water. The moisture content of the interior of the pile should be observed while turning.

Using Leaf Compost

Finished compost should be dark and crumbly with much of the original appearance no longer visible. It should have an earthy odor. Normally, compost will be ready in 4-9 months.

The major horticultural use for leaf compost is to improve the organic content of soil. Most New Jersey soils need an increase of 1/2 to 1% in organic content, particularly to improve moisture-holding capacity and tilth. Leaf compost is not normally a fertilizer, because it is too low in nutrients. Compost serves primarily as an organic amendment and as a soil conditioner. Soil mulch is another valuable use for leaf compost.

Based in part on Experiment Station Research Project No. 07526.

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FS389

Fact sheet

Minimizing Waste Disposal: Grass Clippings

Peter F. Strom, Ph.D., Associate Professor of Environmental Science; James A. Murphy, Ph.D., Specialist in Turfgrass Management; and Henry W. Indyk, Ph.D., Specialist Emeritus in Turfgrass Management

Since refuse disposal costs have dramatically increased, and some landfills no longer accept grass clippings, many individuals and governmental agencies are seeking alternatives for disposal of clippings. During the maximum grass growing period, the municipal refuse load in some New Jersey suburban communities may contain nearly one-third grass clippings. Collected clippings become anaerobic very quickly because of their high demand for oxygen. After becoming anaerobic they emit strongly unpleasant odors. Therefore, grass clippings (in quantity) are difficult to handle and to process.

From our own experience with the handling and disposal of grass clippings, and discussions with others such as lawn care professionals, we suggest considering the following methods to reduce landfilling:

1. RETURN TO LAWN — It is most desirable to leave grass clippings uncollected on the lawn so that they are recycled, contributing to soil organic matter and supplying part of the fertilizer needs of the lawn. Adopt a mowing schedule to keep clippings short enough to filter through growing grass and not remain as a mat on top of the lawn. Research and experience indicate that only 1/3 of the grass length should be removed during mowing. Never allow the lawn grass to double its height between mowings. This approach not only eliminates clipping collection and disposal problems, but also can contribute to improvement of the lawn.

Clippings are not a cause of thatch in lawns. Rather, thatch is formed primarily from a dense accumulation of grass roots and stemmy material. Returning clippings along with proper mowing frequency will not increase disease problems.

Use caution when removing collection bags from mowers. Some machines are not designed to operate safely without a bag or other attachment in place. If you are unsure, check with your equipment supplier.

2. GARDEN MULCH — Grass clippings can be used as a garden mulch. To minimize any tendency to protect slugs, clippings can be dried in the sun for a day prior to being used in this way. Clippings can be spread on garden soil to check weed growth, reduce soil spattering and crusting, moderate soil temperatures, etc. As a precaution, do not use grass clippings from herbicide-treated lawns until after two grass cuttings have been made.

3. SOIL INCORPORATION — Clippings can serve as a source of organic matter for soil improvement when incorporated into the garden.

4. BACKYARD COMPOSTING — Grass clippings can be composted, particularly when incorporated into a backyard leaf composting pile. However, grass has a high nitrogen content, a much higher demand for oxygen than leaves, and a tendency to mat, thereby greatly reducing the passage of oxygen. Composting piles containing

grass clippings thus readily become anaerobic. This, in turn, can produce strong, unpleasant odors. These odors are particularly noticeable when the pile is disturbed.

Because of these problems, grass clippings should not be composted alone, but rather mixed with composting leaves. The partially decayed leaves which now (6-9 months after leaf fall) have a low demand for oxygen, will serve as a bulking agent permitting more oxygen to reach the grass. Grass, which is high in nitrogen, will provide a more rapid decomposition of the remaining leaves as long as it remains under aerobic conditions. Grass clippings will also contribute to a better end product (higher nitrogen content) than that obtained from composting leaves alone. One must be aware, however, that an excess of damp grass in the pile will soon become anaerobic, produce very unpleasant odors, and reduce the rate of decomposition. The objective is to keep the material **aerobic**. Also, to ensure that excess nitrogen is not given off as ammonia, do not add more than 1 part fresh grass clippings to 3 parts partially composted leaves.

The resulting compost can be used as a soil amendment, as a mulch for gardens, flower or shrub beds, or as a potting medium.

5. MUNICIPAL COMPOSTING — Some grass clippings can be incorporated into a municipal leaf composting operation. However, problems that may be experienced with backyard grass composting could be greatly magnified at a municipal facility. Even grass stored for one day or less in plastic bags or the back of a lawn maintenance pick-up truck may emit very unpleasant odors when being unloaded at the site. For this reason, grass clippings are banned at many leaf composting facilities, unless they are very isolated. Research is continuing in this area, but other problems include the high cost of collection and an inadequate supply of leaves for the amount of clippings.

Partially composted leaves should be mixed with the grass in a 3:1 ratio, or more. Because the leaves have already decomposed by the time the grass comes to the site, however, this means the ratio actually collected must be at least 6:1. For most towns this would be possible only if most of the grass clippings are handled directly by residents on their own property.

6. CLIPPING REDUCTION — Fertilizing and watering above the requirements of the grasses may be more detrimental than beneficial to the lawn. One of the effects is increased production of clippings. (Another is potential ground or surface water pollution.) Judicious and proper use of fertilizer and water can provide an attractive lawn with a reduction in the costs, effort, susceptibility to disease, and amount of clippings produced. A fertilization program should emphasize fertilizing the lawn in the fall season rather than in the spring. This can be effective not only in reducing the amount of clippings produced, but also in contributing to a better lawn.

Two related fact sheets: "Backyard Leaf Composting" (FS074) and "Using Leaf Compost" (FS117), and assistance with procedures covered above, may be obtained from the Rutgers Cooperative Extension office in your county. The telephone number appears under County Government in your local phone directory.

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FS117

Fact sheet

Using Leaf Compost

Roy L. Flannery, Specialist in Soils, Emeritus and
Franklin Flower, Specialist in Environmental Science, Emeritus

Composting involves primarily the microbial decomposition of organic matter. Compost - the end product - is a dark, friable, partially decomposed substance similar to natural organic matter found in the soil. The organic matter content of soils is very important. It influences the physical condition, water-holding capacity, and temperature of the soil, and especially the soil bacterial processes which affect the availability of mineral salts to plants.

Why Compost Leaves

If newly fallen leaves are added directly to the soil without first being composted, the microbes that decompose the leaves compete with growing plants for soil nitrogen. The temporary nitrogen shortage caused by the microbes can reduce plant growth. To reduce or eliminate this competition for nitrogen, composting of the leaves is recommended prior to incorporating them into soils.

Need for Organic Matter

Most New Jersey soils need an increase of 1/2 to 1% in organic matter. Sandy soils, such as loamy sands and sands, and soils with very high clay content are improved the most by an increase in organic matter content.

Benefits of Adding Leaf Compost to Soil

- Among the benefits derived from adding leaf compost to New Jersey soils are:
- Drought damage to plants is reduced because of an increased water-holding capacity of the soils.
- Soil tilth is improved making the soils easier to cultivate.
- Very small amounts of the 16 essential elements needed for plant growth are supplied.
- Adverse effects of excessive alkalinity, acidity, or over-fertilization are reduced by the added buffering of the soil.
- The cation exchange capacity of soils is increased, enabling the soils to hold more plant nutrients for longer periods.
- Decomposition of the organic matter produces organic acids which combine with iron and aluminum ions, thereby reducing their potential toxicity to plants. This also makes more phosphorus available for plants because free iron and aluminum can tie up the phosphates.
- The added organic matter provides a food source for desirable soil micro-organisms.
- When incorporated into the soil, or used in a thin mulch 1/16- to 1/8-inch thick, compost helps seeds to germinate.

Overall, compost improves the physical, chemical, and biological properties of soils. Leaf compost, however, is not normally considered a fertilizer as it is too low in nutrient content. It serves primarily as an organic amendment and a soil conditioner. The nitrogen content of composted leaves on a dry basis is about 1/2 to 1% by weight. For other materials commonly added to backyard leaf compost piles, the nitrogen content is: blood meal 10-14%; grass clippings 2-4%; coffee grounds 1 1/2-2%; eggshells 1-2%; horse manure 1-5%; cow manure 1-1 1/2%; poultry manure 3-5%; ammonium sulfate 20 1/2%; urea 45%; bone meal 1 1/2-4%; and cotton seed meal 6-7%.

When Compost is Ready to Use

When compost is ready to use (6 to 18 months after starting) its temperature will generally have decreased to slightly above air temperature. Finished compost will usually be drier than leaves during composting. The material also will be crumbly in texture. Before using compost, "screening" may be necessary to remove the larger partially decomposed materials. These materials will sometimes be present in composting piles because not all items decompose at the same rate. The undecomposed organic matter clumps may be broken up and added to another active compost pile for additional decomposition.

Adding Leaf Compost to the Soil

A good rate of organic matter to work into the top 6 1/2 to 7 inches of most New Jersey cultivated soils is 0.5 to 1.0% organic matter by weight. This is equivalent to adding 900 to 1,800 wet pounds (25 to 50 bushels) of leaf compost per 1,000 square feet of area. To accomplish this, spread a 3/8- to 3/4-inch depth of leaf compost uniformly over the soil surface and mix into the top 6 to 8 inches of soil.

Little or no nitrogen will be released from compost for plant use during the season immediately following incorporation into the soil. It is generally necessary to add nitrogen to soils containing compost to prevent the compost from "robbing" the soil of nitrogen and creating deficiency problems in plants grown in the soil. Adding 1 to 1 1/2 lbs. of 10% nitrogen fertilizer to each 100 lbs. (about 3 bushels) of leaf compost is recommended.

The preceding recommendations supply only the needs of the leaf compost. Most plants require an additional 1 to 3 lbs. of actual nitrogen per 1,000 square feet for normal feeding. This nitrogen should be applied to the soil in addition to that applied in the leaf compost.

Using Leaf Compost as a Mulch

Leaf compost can also be used as an organic mulch on the surface of soil in place of peatmoss, straw, etc. Organic mulches are valuable because they:

- Reduce rainfall runoff, thereby making more water available for plant growth.
- Decrease water evaporation losses from the soil.
- Keep the soils cooler in hot weather and warmer in cold weather.
- Reduce alternate freezing and thawing of soils which can injure the fibrous roots of plants.
- Help to prevent soil erosion by wind or water.
- Keep soils friable, therefore easier to cultivate.
- Increase biological activity of earthworms and other soil organisms.
- Prevent soil spattering on leaves, flowers, or fruits such as strawberries.
- Reduce soil compaction from rain and irrigation water.
- Help to control weeds.
- Present a pleasing appearance.

Recommended thicknesses of mulch layers: 2-3 inches for deciduous shrubs and trees, vegetables, and rosebeds; 3 inches for flower beds; and 3-4 inches for shallow-rooted, acid-loving plants.

Other Uses for Leaf Compost

Leaf compost may also be used in potting soil. However, no more than 25 to 30% of the potting soil should be leaf compost. Frequently leaf compost will continue to decompose. If more that 25 to 30% of the potting soil is leaf compost, there will be a significant volume reduction of the potting soil after 1 year.

Composting generally destroys most weed seeds contained in the compost material; however, not all of them will be destroyed. Some are heat resistant, and others will not be fully exposed to the high temperatures. If a completely pasteurized leaf compost is desired for potting soil, it will be necessary to heat it in an oven until the temperature of the center of the mass reaches 180°F and is maintained for 30 minutes.

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FS806

Fact sheet

Yard Trimmings Management Strategies in New Jersey

Jonathan H. Forsell, Agricultural and Resource Management Agent, Essex County

Introduction

Most yard debris consists of leaves, grass clippings, prunings, branches, trunks of trees, and their root systems. There are various options for managing these materials. The following are some guidelines to assist decision makers and others in determining best management strategies.

Materials Management Guidelines

Leaves: In New Jersey, leaves were banned from landfills, transfer stations, and incinerators in 1988. Collected leaves are generally composted at municipal, regional, commercial, or farm sites in large windrows (elongated piles) using the Leaf Composting Manual for New Jersey Municipalities as a guide. Municipal, regional, and private facilities can use a Type 1.11 simplified New Jersey Department of Environmental Protection (NJDEP) permit, if fewer than 20,000 cubic yards of leaves are composted annually, or a more detailed Type 2.1 permit, if the volume is greater.

Farmers can accept leaves for composting with the simplified permit if the volume is less than 20,000 cubic yards or can receive leaves to be mulched into the soil at no greater than a six-inch depth on the soil and within seven days from delivery without need of a permit. This requires that the leaves be incorporated into the soil no later than the next tillage season.

Backyard composting (household scale) is the most cost-effective method of leaf composting because of avoided collection costs, tipping fees, permits, equipment, and management costs. Refer to fact sheets FS074 and FS117. Further detailed information about composting and trimmings management can be obtained through Rutgers Cooperative Extension and the NJDEP, Bureau of Resource Recovery.

Grass Clippings: Ideally, lawns should be mowed frequently (about five-day intervals) removing only one-third of the grass blade. The clippings will biodegrade at the soil surface providing nitrogen and organic matter. Although any type mower may be used, mulching mowers or mulching attachments on traditional rotary machines can improve the results by chopping more finely. If clippings are long and clump on the lawn, the excess can be raked up and used as a nitrogen source in the backyard composting pile. Permits can be issued by the

NJDEP to include a limited volume of grass clippings in large-scale leaf composting facilities, but the rules are quite stringent to prevent odor problems, which are common, when grass is composting in an anaerobic (oxygen- deficient) environment. A one-year farm grass clippings demonstration permit is available to farmers from NJDEP to apply grass around seasonal crops under a nutrient management plan.

Prunings: Trimmings from trees, shrubs, hedges, and perennials are composted at some permitted facilities, but can also be composted in the backyard pile. A shredder-grinder is helpful to break down larger woody material to a more compostable size.

Tree Limbs: Limbs can be cut for firewood or chipped to make a mulch for landscape use. If finely ground, the product can be composted, but at a slower rate than leaves or grass clippings. Woodchips can be used as a carbon source, when composting sewage sludge.

Tree Trunks: Trunks are usually cut, split, and dried for use as firewood. Some desirable species are used to make furniture and cabinetry, and others are ground for mulch or pulp.

Tree Root Systems: Excavated tree roots are generally ground into mulch material. Massive root systems and trunks that are not made into firewood or mulch cannot be stockpiled at a site and are classified as Type 13 Bulky Waste, which must be hauled away for grinding or other processing.

Summary

Because yard trimmings are recyclable through composting or other means, it is prudent for government, businesses, farmers, and other people to avoid non-recycling avenues for managing this important fraction of the solid waste stream.

References

1. **Backyard Leaf Composting**, FS074, Franklin Flower and Peter F. Strom, Dept. of Environmental Science, Cook College.

2. **Grass—Cut It and Leave It**, NJDEP Division of Solid Waste Management, Office of Recycling, in cooperation with Rutgers Cooperative Extension. 1991.

3. **Leaf Composting Manual for New Jersey Municipalities**, Peter F. Strom and Melvin Finstein, Dept. of Environmental Science, Cook College and NJDEP. 1989.

4. **Using Leaf Compost**, FS117, Roy Flannery and Franklin Flower.

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FS811

Fact sheet

Home Composting

William T. Hlubik, Middlesex County Agricultural Agent; Jonathan Forsell, Former Essex County Agricultural Agent (deceased); Richard Weidman, Middlesex County Program Associate; and Mark Winokur, Former Program Assistant

What is Composting?

Composting is a natural process where organic materials decompose and are recycled into a dark, crumbly, earthy smelling soil conditioner known as "compost". Compost improves soil structure and moisture retention, and contributes to healthy plant growth by providing plant nutrients.

Why Should I Compost?

- Composting can save money!
- Reduces fertilizer and water use
- Avoids garbage collection and landfill fees
- Reduces the need for soil and plant amendments
- Composting helps the environment
- Reduces the volume of garbage going to landfills, transfer stations and incinerators
- Composting benefits your soil and plants
- Improves soil structure and texture
- Increases aeration and water holding
- Promotes soil fertility
- Stimulates healthy root development
- Aids in erosion control
- Reduces chemical inputs
- Composting is easy
- Save time bagging grass and leaves
- Quick and fun way to do part for the environment

Compost Ingredients

Do Compost:

- ✓ Vegetable food scraps
- ✓ Grass clippings
- ✓ Leaves
- ✓ Flowers
- ✓ Weeds
- ✓ Sawdust and wood ash
- ✓ Chopped twigs and branches
- ✓ Coffee grounds w/filters

Don't compost:

- × Meat scraps
- × Diseased or insect infested plants
- × Weeds with seeds
- × Dog and Cat feces
- × Food with grease or soap residues

Composting Methods

Slow Harvest: Ready in 12-18 Months

Made by adding layers of available yard waste over several months.

1. Set compost bin where is will get rain.
2. Put yard waste in bin as it is generated in your yard. The material at the bottom and in the center will compost first.

Fast Harvest: Ready in 5-15 Weeks

Made by mixing equal weights of green and brown materials at once.

1. Add green materials such as grass clippings or vegetable scraps mixed with brown materials such as leaves (no woody-type materials should be included).
2. Add water to pile until it's as wet as a wrung out sponge.
3. Turn pile with a pitch fork or compost aerator tool twice a week for faster compost production (less often in wintertime).

Types of Compost Bins

Compost can be made in open piles. However, to help keep a pile neat and maintain conditions needed for rapid decomposition, consider simple homemade or store bought bins. See back page for demonstration sites in New Jersey.

Homemade Bins:


- Made from wood pallets
- Made from snow fences

Store Bought:

- Compost Tumbler
- Durable Plastic Bin

Troubleshooting

Here is how to solve problems should they occur:

Symptom	Problem	Solution
Pile has a rotten odor	Not enough air	Turn pile
Pile has ammonia odor	Too many greens	Add brown material like leaves/straw
Pile is dry	Not enough water; too much woody material	Turn and moisten; add fresh greens
Low pile temperature (pile is not composting)	Pile is too small	Add new materials
	Insufficient moisture	Add water
	Poor aeration	Turn pile
	Lack of nitrogen	Mix in greens like grass or food scraps
	Cold weather	Insulate pile with layer of straw or cover with tarp
Pests (rats, raccoons, insects)	Presence of meat or fatty food scraps	Remove from pile

Keys to Good Compost

Water: The microorganisms in the compost pile need water to live. Water pile only as needed, to maintain compost as moist as a wrung out sponge. Don't let your pile dry out completely.

Nutrients: The microorganisms in the pile need carbon for energy and nitrogen for protein in order to survive. A good balance can be achieved by mixing two parts of nitrogen rich green materials such as grass clippings, with one part of carbon rich brown materials such as leaves. However, carbon-rich leaves by themselves will compost.

Aeration: To speed up decomposition, turn the pile frequently using a pitch fork. This provides the microorganisms with enough oxygen to thrive so they can heat up the compost. Placing large branches at the bottom of the pile will also help add air to the pile. Minimal turning would be once per month and less frequently during the year.

Surface area: The more surface area the microorganisms have to work on, the faster materials will decompose. Consider chopping materials, particularly brush or branches which have a diameter of ¼ inch or more. Pile size is also important. For quicker decomposition, pile should be at least 3 feet x 3 feet to hold the heat of microbial activity, but not so large (larger than 5 feet x 5 feet) that air can't reach microbes at the center of the pile.

Use for Compost

Mulch: Spread compost around flower and vegetable plantings, trees, shrubs, and on exposed slopes. This will smother weeds, keep plant roots moist, and prevent soil erosion.

Soil Conditioner: Mix 1-3 inches of compost into vegetable and flower beds before planting. This returns organic matter to the soil in a usable form.

Potting Mix: Make your own mix by using equal parts of compost and sand or soil. Make sure compost is fully decomposed and screened.

Resources

Some books to help you along...

Backyard Composting, Harmonious Technologies, P.O. Box 1865-100 Ojai, CA 93024

How to Grow More Vegetables, John Jeavons, Ecology Action, 5798 Ridgewood Rd. Willits, CA 09590

Let it Rot, Stu Campbell, Storey Communications, Inc., Schoolhouse Rd., RD #1, Box 105, Pownal, VT 05261

The Rodale Guide to Composting, R.A. Simpson, Rodale Press, 33 E. Miner St., Emmaus, PA 18098

Worms Eat My Garbage, Mary Appelhof, Flower Press, 10322 Shaver Rd., Kalamazoo, MI 49002

For additional information on composting or where to get compost materials, call your Rutgers Cooperative Extension county office, found in the telephone directory blue pages, under "County Government" or your county recycling office.

Compost Deconstruction Areas

These areas in New Jersey have various types of compost bins on display. Call ahead for hours and when tours or workshops are given.

Atlantic County
Atlantic County Utilities Authority Geo Garden
6700 Delilah Rd.,
Egg Harbor Township, NJ
Contact: (609) 646-6600

Burlington County
Burlington County Resource Recovery Geo Garden Complex, Rt 543,
Border of Florence and Mansfield Township
Contact: (609) 499-5210

Mazza & Sons, Inc. Recycling Facility
3230 Shafto Rd.,
Tinton Falls, NJ
Contact: (732) 922-9292

Middlesex County
Davidson's Mill Pond Park, Riva Avenue, South Brunswick, NJ
Contact: (732) 745-3443

Monmouth County
Deep Cut Park, Red Hill Rd.,
Middletown, NJ
Contact: (732) 842-4000

Morris County
Frelinghuysen Arboretum, 53 E. Hanover Ave.,
Morris Township, NJ
Contact: (973) 326-7600

Passaic County
Passaic County Office of Recycling
1310 Rt. 23 N,
Wayne, NJ
Contact: (973) 305-5734

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FS805

Fact sheet

Vermicomposting

(Worm Composting)

Jonathan H. Forsell, Agricultural/Resource Management Agent, Essex County

Kitchen wastes, such as fruits, vegetables, coffee grounds, tea bags, and eggshells, are a part of the solid waste stream. Most of this material is disposed of as garbage at transfer stations, landfills, and incinerators at a high economic and environmental cost to citizens. A positive alternative is to compost kitchen scraps using red worms to make a valuable compost for use as a soil amendment or as a starter mix for house plants or seedlings. **Note**: Avoid meats, oils, and grease in the compost system.

Worm composting is enjoyable, and it demonstrates the natural process of decompostion and the life cycle of the organisms involved.

Materials

- A worm bin can be made from an old dresser drawer, a 5-gallon plastic bucket, or from wood. A wooden box should be approximately 2 ft. X 2 ft. X 8 in. high. Do not use cedar, as it is toxic to the worms.
- Bedding material: shredded, moist newspaper, cardboard, and/or leaf compost.
- Watering can or container to provide water for the system.
- Red worms (Eisenia foetida) 1 pound. They can be ordered from:

  Flowerfield Enterprises
  10332 Shaver Road
  Kalamazoo, MI 49002

  Lower East Side Ecological Center
  P. O. Box 20488
  New York, NY 10009

Procedure

1. Shred newspapers or cardboard or use leaf compost. Moisten this material and place it in the bin loosely to provide for air circulation.
2. Add 1 lb. of red worms to the bin. They will crawl to the bottom of the bedding material to avoid the light.
3. Place food scraps except animal products (meats, greases, etc.) under the bedding. The worms can consume 3 to 3 1/2 lbs. of kitchen waste per week while making vermicompost.
4. Keep the bin covered loosely with plastic or newspaper to retain moisture. The box should be checked every day or two

for moisture. When the surface or edges of the bedding begin to dry, add water.

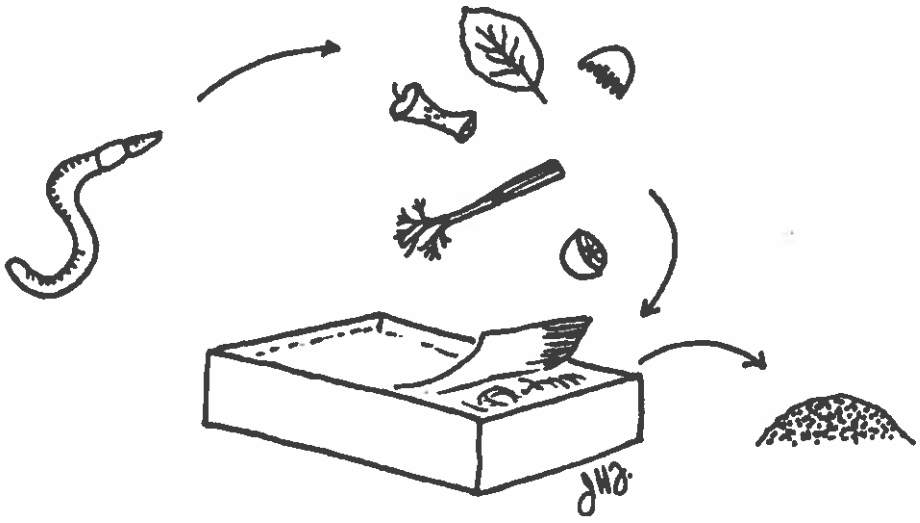
Summary

The process takes about 3 to 4 months to produce a finished vermicompost product, which looks like brown coffee grounds. The compost consists of worm castings, partially decomposed kitchen waste, and some undecomposed bedding. The worms eat not only the food, but also the newspaper or other bedding. Vermicompost can be mixed into garden soil to improve structure and to provide nutrients, can be used as mulch, or as a potting soil mix.

To separate the compost, place it on a table under lights. The worms will go to the bottom of the pile away from the light. Remove the finished compost and start the process over again. Because the worms have reproduced, you can separate out the surplus and start a new box. Always keep the bin at a temperature above freezing and below 95° F. The bin should be kept indoors in winter, but can be placed in the shade in summer. Stop feeding for several days or weeks before ready to use.

References

Appelhof, Mary. 1982. Worms Eat My Garbage. Flower Press, Kalamazoo, MI.



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