PREPARED FOR:

Borough of Fanwood
75 North Martine Avenue
Fanwood, New Jersey 07023

PREPARED BY:

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TIER A MUNICIPAL
STORMWATER GENERAL PERMIT
NJPDES General Permit #NJ0141852
Program Interest ID #50577

STORMWATER POLLUTION PREVENTION PLAN 2018 UPDATE

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

APRIL 2018

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Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJ0141852 PI ID #: 50577

Team Member/Title: Antonios Panagopoulos, P.E., Borough Engineer

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

"I certify that this SPPP includes all of the information and items identified in Attachment A of the Tier A Municipal Stormwater General Permit. All attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for purposely, knowingly, recklessly, or negligently submitting false information."

(Signature) (Date)

Antonios Panagopoulos (Print Name)

Borough Engineer (Title)

(NOTE: A new SPPP signature page should be attached each time the SPPP is updated or modified, excluding data entries. Previous SPPP signature pages shall be retained as part of the SPPP.)

Tier A Municipal Stormwater Regulation Program

Stormwater Pollution Prevention Team Members

Number of team members may vary.

Completed by: *Antonios Panagopoulos, P.E.*
Title: *Borough Engineer*
Date: *April 1, 2018*
Municipality: *Borough of Fanwood*
County: *Union*
NJPDES #: *NJG0141852*
PI ID #: *50577*

Stormwater Program Coordinator: *Antonios Panagopoulos, P.E.*
Title: *Borough Engineer*
Office Phone #: *(973) 614-0005 x-5318*
Emergency Phone #: *(732)241-3076 cell*

Public Notice Coordinator: *Eleanor McGovern*
Title: *Administrator / Borough Clerk*
Office Phone #: *(908) 322-8236 x-123*
Emergency Phone #: *Same as above*

Post-Construction Stormwater Management Coordinator: *Antonios Panagopoulos, P.E.*
Title: *Borough Engineer*
Office Phone #: *(973) 614-0005 x5318*
Emergency Phone #: *(732) 241-3076 cell*

Local Public Education Coordinator: *Gary Szeic*
Title: *Borough of Fanwood Environmental Commission Chairperson*
Office Phone #: *(908) 889-7791*
Emergency Phone #: *Same as above*

Ordinance Coordinator: *Eleanor McGovern*
Title: *Borough Administrator/Clerk*
Office Phone #: *(908) 322-8236 x-123*
Emergency Phone #: *Same as above*

Public Works Coordinator: *Clinton Dicksen*
Title: *Director of Public Works*
Office Phone #: *(908) 322-7404*
Emergency Phone #: *Same as Above*

Employee Training Coordinator: *Clinton Dicksen*
Title: *Director of Public Works*
Office Phone #: *(908) 322-7404*
Emergency Phone #: *Same as Above*

Other: _____
Title: _____
Office Phone #: _____
Emergency Phone #: _____

SPPP Form 2 - Public Notice

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Eleanor McGovern, Borough Administrator/Clerk

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Briefly outline the principal ways in which you comply with applicable State and local public notice requirements when providing for public participation in the development and implementation of your stormwater program.

The Borough of Fanwood provides public notice of meetings as required by the Open Public Meetings Act ("Sunshine Law," N.J.S.A. 10:4-6 et seq.) and as required by N.J.S.A. 40:49-1 et. seq. for the passage of ordinances. The Borough will also provide public notice for municipal actions where necessary, for example in the adoption of applicable stormwater related ordinances or in the re-adoption of the stormwater management plan in subsequent re-examinations. All public notices will be in accordance with Municipal Land Use Law (N.J.S.A. 40:55D-1 et. seq.).

Copies of the Stormwater Pollution Prevention Plan (SPPP), the adopted Municipal Stormwater Management Plan and Ordinance, and the community wide ordinances (pet waste, wildlife feeding, litter control, improper disposal of waste, yard waste program, illicit connections, and private storm drain inlet retrofitting) have also been posted on the Borough's website for review by the public.

Starting January 1, 2019, the Borough will also provide public notice to all public involvement projects pertaining to stormwater education and outreach activities either on the municipality's website, through a mass mailing, through an advertisement in the Borough newspaper of record or through other similar means.

SPPP Form 3 - New Development and Redevelopment Program

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Antonios Panagopoulos, P.E., Borough Engineer

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Describe in general terms your post-construction stormwater management in new development and redevelopment program (post-construction program), and how it complies with the Tier A Permit minimum standard. This description must address compliance with the Residential Site Improvement Standards for stormwater management; ensuring adequate long-term operation and maintenance of BMPs (including BMPs on property that you own or operate); design of storm drain inlets (including inlets that you install); and preparation, adoption, approval, and implementation of a municipal stormwater management plan and municipal stormwater control ordinance(s). Attach additional pages as necessary. Some additional specific information (mainly about that plan and ordinance(s)) will be provided in your annual reports.

The Borough's post-construction stormwater management program for new development and redevelopment projects is as follows:

1. The Borough's Unified Planning Board will ensure that plans for all new residential development and redevelopment projects, subject to the Residential Site Improvements Standards (RSIS), are in compliance with the Stormwater Management Regulations prior to issuance of final subdivision or site plan approvals under the Municipal Land Use Law.

2. Borough representatives will ensure continued compliance of all private developments with the approved subdivision plans, and applicable ordinances, as well as, long term operation and maintenance plans of approved BMPs on private property. The Director of Public Works will be responsible for appropriate long-term operation and maintenance of BMP's on Borough property and will monitor private BMP's as needed to ensure proper operation and maintenance is being conducted in accordance with approved operation and maintenance plans.

3. The Borough's Unified Planning Board will ensure all plans for new development and redevelopment projects incorporate the new design of storm drain inlets. The Borough Engineer will ensure proper installation of said inlets and the Director of Public Works will be responsible for proper maintenance/retrofit of existing and new inlets.

SPPP Form 3 - New Development and Redevelopment Program (Continued)

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Antonios Panagopoulos, P.E., Borough Engineer

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Describe in general terms your post-construction stormwater management in new development and redevelopment program (post-construction program), and how it complies with the Tier A Permit minimum standard. This description must address compliance with the Residential Site Improvement Standards for stormwater management; ensuring adequate long-term operation and maintenance of BMPs (including BMPs on property that you own or operate); design of storm drain inlets (including inlets that you install); and preparation, adoption, approval, and implementation of a municipal stormwater management plan and municipal stormwater control ordinance(s). Attach additional pages as necessary. Some additional specific information (mainly about that plan and ordinance(s)) will be provided in your annual reports.

4. The Borough's Municipal Stormwater Management Plan and Stormwater Control Ordinance have been completed and adopted in accordance with NJDEP's requirements and final copies have been reviewed and approved by the Union County Planning Board. Copies of both the plan and ordinance are included in Appendix 1 of this report and are also available for review and download on the Borough's website. The Municipal Stormwater Management Plan will be updated as needed as part of the re-examination of the Borough's master plan.

5. All new plans for new development and redevelopment projects are reviewed by the appropriate personnel for compliance with the design and maintenance measures adopted. Additionally, starting January 1, 2019, the Borough and/or their representatives will complete, update, finalize and maintain a "Major Development Stormwater Summary" for applicable structural and non-structural stormwater measures proposed. A copy of the summary report is included in Appendix 2 of this report.

SPPP Form 4 - Local Public Education Program

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Gary Szeic, Borough Environmental Commission Chairman

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Local Public Education Program

Describe your Local Public Education Program. Be specific on how you will distribute your educational information, and how you will conduct your annual event. Attach additional pages with the date(s) of your annual mailing and the date and location of your annual event.

In accordance with the MS4 Permit requirements, the Borough must conduct various public education activities and accumulate a minimum of 12 points worth of activities within a permit year (January 1st through December 31st). A complete list of activities and their corresponding points is provided in Appendix 3 of this report. The Borough is required to select activities from at least three of the five categories provided.

Based on a review of activities provided, the Borough will conduct the following:

- **WEBSITE** – The Borough will maintain a stormwater related page on their municipal website that includes stormwater related information and links to the Clean Water website and the NJDEP stormwater website. **(1 POINT)**
- **MAILING CAMPAIGN** – The Borough will distribute the NJDEP provided brochure to all residents and businesses along with one of its municipal mailings. Additional copies will be made available to the public at Borough Hall and posted on the Borough municipal website. **(2 POINTS)**
- **ORDINANCE EDUCATION** – The Borough will distribute a letter from the Mayor to all residents and business along with one of its municipal mailings highlighting the requirements and benefits of the stormwater related ordinances adopted. **(3 POINTS)**
- **STORMWATER DISPLAY** – The Borough will coordinate a display at the Borough's Fanwood Community Events which are held thorugh the year, including a yearly Earthday event and the Borough sponsored Fannywood Day. Borough personnel will setup a table and distribute the DEP provided brochure and other educational materials provided by the DEP. **(1 POINT)**
- **SIGN** – The Borough will post and maintain a stormwater related sign at Borough Hall located on North Martine Avenue. **(2 POINTS)**

Additional activities will be evaluated and coordinated as needed throughout the year. For additional details on the Borough's Local Public Education Program, sample brochures and letters to be distributed see Appendix 3 of this report.

SPPP Form 5 - Storm Drain Inlet Labeling

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Storm Drain Inlet Labeling

Describe your storm drain inlet labeling program, including your labeling schedule, the details of your long-term maintenance plan, and plans on coordinating with watershed groups or other volunteer organizations.

Labeling of all existing Borough owned storm drain inlets and catch basins has been completed. This includes all inlets along sidewalks that are adjacent to Borough streets and inlets within plazas, parking areas or maintenance yards operated by the Borough. Labels used include the metal round markers with the engraving titled “NO DUMPING – DRAINS TO RIVER”. New inlets and catch basins are replaced with castings alredy marked in accordance with NJDEP requirements.

Yearly inspection and maintenance is conducted by Borough public work employees throughout the year during their maintenance and annual storm drain inlet cleaning program. Markers are checked to ensure they are visible and firmly attached to the inlet/catch basin head or casting. If necessary, Borough replaces markers as needed during the onsite inspection.

Records of the date and location of repairs made is maintained separately by the Borough’s Public Work Department.

SPPP Form 6 - MS4 Outfall Pipe Mapping

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Explain how you will prepare your map (include its type and scale, and the schedule for the mapping process). Who will prepare your map (e.g., municipal employees, a consultant, etc.)?

The Borough of Fanwood has current mapping of the storm sewer system at a scale of 1"=100', prepared by JEI Engineering, which shows the location of the end of all outfall pipes operated by the Borough of Fanwood. The Public Works Department will identify, locate and investigate (see Illicit Connection Elimination Program and Outfall Pipe Stream Scouring Remediation Program) each outfall pipe that is shown on the mapping and operated by the Borough of Fanwood.

There are four (4) outfalls currently shown on the Storm Sewer Mapping that fall within the jurisdiction of NJ Transit. One outfall is also shown in the juisdiction of Public Sevice Electric and Gas Company. Only one outfalls (south of the PSE&G right-of-way and east of Brohm Place) are in the jurisdictional boundaries of the Borough of Fanwood as shown in the existing Storm Sewer Mapping.

SPPP Form 7 - Illicit Connection Elimination Program

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Describe your Illicit Connection Elimination Program and explain how you plan on responding to complaints and/or reports of illicit connections (e.g., hotlines, etc.). Attach additional pages as necessary.

The Borough completed its initial illicit connection inspection of outfalls; however, no sources of dry weather flow were detected.

Borough personnel will continue to inspect their outfalls using the attached NJDEP's Illicit Connection Inspection Report Form. All outfalls will be inspected a minimum of once every 5 years.

In the event of dry weather flows, Borough personnel will conduct investigations as needed to identify and eliminate the source. If, after three investigation attempts, the illicit connection is not found, a Closeout Investigation Form (attached) will be prepared and submitted along with the Borough's Annual Inspection and Recertification Report. Illicit connections found to originate from another public entity will be reported by the Borough to the affected entity and the NJDEP.

Copies of forms completed during inspections and follow up investigations, if any, will be maintained by the Borough's Public Works Department.

Illicit Connection Inspection Report Form

Municipality Information

Municipality:____County

NJPDES # :_____PI ID #: ____

Team Member: _____

Date____Effective Date of Permit Authorization (EDPA):____

Outfall #:_____Location:_____

Receiving Waterbody: _____

1. Is there a dry weather flow? Y ( ) N ( )
2. If "YES", what is the outfall flow estimate?_____gpm
   (flow sample should be kept for further testing, and this form will need to be submitted with the Annual Report and Certification)
3. Are there any indications of an intermittent flow? Y ( ) N ( )
4. If you answered "**NO**" to BOTH questions #1 and #3, there is probably not an illicit connection and you can skip to question #7.
   (NOTE: This form **does not** need to be submitted to the Department but should be kept with your SPPP.)

   If you answered "**YES**" to either question, please continue on to question #5.
   (NOTE: This form will need to be submitted to the Department with the Annual Report and Certification.)

5. **PHYSICAL OBSERVATIONS**:

(a) ODOR:

(b) **COLOR**:

(c) **TURBIDITY**:

FLOATABLES:

(e) **DEPOSITS/STAINS**:

VEGETATION CONDITIONS:

(g) **DAMAGE TO OUTFALL STRUCTURES**:

IDENTIFY STRUCTURE:

DAMAGE:

6. **ANALYSES OF OUTFALL FLOW SAMPLE:**

* field calibrate instruments in accordance with manufacturer's instructions prior to testing.

(a) **DETERGENTS**:_____mg/L

(if sample is greater than 0.06 mg/L, the sample is contaminated with detergents [which may be from sanitary wastewater or other sources]. Further testing is required, and this outfall should be given the highest priority.)

(if the sample is not greater than 0.06 mg/L and it does not show physical characteristics of sanitary wastewater [e.g., odor, floatables, and/or color] it is unlikely that it is from sanitary wastewater sources, yet there may still be an illicit connection of industrial wastewater, rinse water, backwash or cooling water. Skip to question #6c.)

(b) AMMONIA (as N) TO POTASSIUM RATIO:_____

(if the Ammonia to Potassium Ratio is greater than 0.6:1, then it is likely that the pollutant is sanitary sewage)

(if the Ammonia to Potassium Ratio is less than or equal to 0.6:1, then the pollutant is from another washwater source.)

(c) FLUORIDE:_____mg/L

(if the fluoride levels are between 1.0 and 2.5 mg/L, then the flow is most likely from fluoride treated potable water.)

(if the sample tests below a detection limit of 0.1 mg/L for fluoride, it is likely to be from groundwater infiltration, springs or streams. In some cases, however, it is possible that the discharge could originate from an onsite well used for industrial cooling water, which will test non-detect for both detergents and fluoride. To differentiate between these cooling water discharges and groundwater infiltration, you will have to rely on temperature.)

(d) TEMPERATURE:_____°F

(if the temperature of the sample is over 70°F, it is most likely cooling water)

(if the temperature of the sample is under 70°F, it is most likely from ground water infiltration)

7. Is there a suspected illicit connection? Y ( ) N ( ) If "**YES**", what is the suspected source? _____

   If "**NO**", skip to signature block on the bottom of this form.

8. Has the investigation of the suspected illicit connection been completed? Y ( ) N ( )

   If "**YES**", proceed to question #9.
   If "**NO**", skip to signature block on the bottom of this form.

9. Was the source of the illicit connection found? Y ( ) N ( ) If "**YES**", identify the source. _____

   What plan of action will follow to eliminate the illicit connection? Resolution:

   If "**NO**", complete the Closeout Investigation Form and attach it to this Illicit here is a dry weather flow or evidence of an intermittent flow, be sure to include this form with your Annual Report and Certification.

Inspector's Name: _____

Title: _____

Signature:_____ Date: _____

If there is a dry weather flow or evidence of an intermittent flow, be sure to include this form with your Annual Report and Certification.

If there is not a dry weather flow or evidence of an intermittent flow, this form should be retained with your SPPP.

Closeout Investigation Form

Municipality Information

Municipality:_____County _____

NJPDES # : **NJG** PI ID #: _____

Team Member / Title: _____

Outfall #:_____Location:_____

Receiving Waterbody: _____

Basis for Submittal:

( ) A non-stormwater discharge was found, but no source was located within six months.

( ) An intermittent non-stormwater discharge was observed, and three unsuccessful investigations were conducted to investigate the discharge while it was flowing.

Describe each phase of your investigation, including dates. Attach additional pages as necessary:

Inspector's Name: _____

Title: _____

Signature:_____ Date: _____

Complete and attach this form to the appropriate Illicit Connection Inspection Report Form and submit with the Annual Report and Certification.

SPPP Form 8 - Illicit Connection Records

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

January 1, 2018 – December 31, 2018

Note: *Attach a copy of each illicit connection report form for outfalls found to have a dry weather flow.*

Total number of inspections performed this year? _____

Number of outfalls found to have a dry weather flow? _____

Number of outfalls found to have an illicit connection? _____

How many illicit connections were eliminated? _____

Of the illicit connections found, how many remain? _____

January 1, 2019 – December 31, 2019

Note: *Attach a copy of each illicit connection report form for outfalls found to have a dry weather flow.*

Total number of inspections performed this year? _____

Number of outfalls found to have a dry weather flow? _____

Number of outfalls found to have an illicit connection? _____

How many illicit connections were eliminated? _____

Of the illicit connections found, how many remain? _____

January 1, 2020 – December 31, 2020

Note: *Attach a copy of each illicit connection report form for outfalls found to have a dry weather flow.*

Total number of inspections performed this year? _____

Number of outfalls found to have a dry weather flow? _____

Number of outfalls found to have an illicit connection? _____

How many illicit connections were eliminated? _____

Of the illicit connections found, how many remain? _____

January 1, 2021 – December 31, 2021

Note: *Attach a copy of each illicit connection report form for outfalls found to have a dry weather flow.*

Total number of inspections performed this year? _____

Number of outfalls found to have a dry weather flow? _____

Number of outfalls found to have an illicit connection? _____

How many illicit connections were eliminated? _____

Of the illicit connections found, how many remain? _____

SPPP Form 9 - Yard Waste Collection/Ordinance Program

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Please describe your yard waste collection program. Be sure to include the collection schedule and how you will notify the residents and businesses of this schedule. Attach additional pages as necessary.

Fanwood has a yard waste collection and disposal program.

We conduct monthly collections of leaves during the months of October, November and December, plus one collection in the spring. During the remainder of the year, the Borough of Fanwood may hold additional yard waste collections, but no schedule has been determined for these. Grass clipping pickup is a resident paid service for which arrangements must be made between the resident and the scavenger servicing the property. During the months when we are having collections, we will post our collection schedule and our ordinance requirements in our monthly newsletter, which will be mailed to all residents and businesses the first of each month.

To develop a collection schedule we have divided the Borough of Fanwood into four quadrants, giving ourselves a week to do the collections in two quadrants. The northwest and northeast are north of the Central Railroad of New Jersey and the southwest and south east quadrants are south of the Central Railroad of New Jersey (see attached map).

The Borough of Fanwood has also adopted (posted it on the Borough's Website) and is enforcing a yard waste Ordinance, (see SPPP Form 10) that prohibits all yard waste from being placed at the curb along the street for more than 7 days prior to our scheduled collections. The Ordinance prohibits the placing of yard waste closer than 10 feet from any storm sewer inlet along the street.

Residents who place leaves, brush and yard waste more than 7 days before or after the scheduled pickups are notified by the Department of Public Works.

SPPP Form 10 - Ordinances

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Eleanor McGovern, Borough Clerk & Administrator

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

For each ordinance, give the date of adoption. If not yet adopted, explain the development status:

Pet Waste Amended 10/11/2005 (Chapter #118-22)

Are information sheets regarding pet waste distributed with pet licenses? Y (X) N ( )

Records of the dates the pet waste brochure is distributed will be maintained and the information will be provided to the Borough DPW Director as needed to include in the Borough's Annual Inspection and Recertification Report.

Litter Adopted on 12/27/1990 (Chapter 190)

Improper Waste Disposal Adopted on 08/10/2004 (Chapter 160)

Wildlife Feeding Adopted on 10/11/2005 (Chapter 118-26)

Yard Waste Amended on 12/28/1998 (Chapter 235-13)

Illicit Connections Amended on 11/13/2006 (Chapter 242-7)

Private Storm Drain Retrofitting Adopted on 08/11/2009 (Chapter 258)

Refuse Containers and Dumpsters Adopted on 08/10/2004 (Chapter 160)

How will these ordinances be enforced?

The Police Department and/or Borough Code Enforcement Officer will enforce these ordinances. If someone violates one of these ordinances they will be given a warning before a summons is issued for the violation.

Records of violations issued are maintained by the Borough and reported as needed to the NJDEP in the Borough's Annual Inspection and Recertification Report.

SPPP Form 11 – Storm Drain Inlet Retrofitting

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

What type of storm drain inlet design will generally be used for retrofitting?

The Borough utilizes NJDOT bicycle safe grates with inlet heads from Campbell Foundry Type N Eco-head or equal.

Repaving, repairing, reconstruction or alteration project name	Projected start date	Start date	Date of completion	# of storm drain inlets	# of storm drains w/ hydraulic exemptions
Poplar Place Reconstruction	August 2017		October 2017	9	0
Paterson Road Reconstruction, Phase I	July 2018		December 2018	13	0
North Avenue Resurfacing, Phases 1 & 2	September 2018		October 2018	46	0
Madison Avenue Reconstruction	July 2018		December 2018	6	0

Are you claiming any alternative device exemptions or historic place exemptions for any of the above projects? Please explain:

The Borough's Engineer maintains a list of Capital Improvements Projects and the number of inlets and/or catch basins being replaced. Quantities are reported annually in the Borough's Annual Inspection and Recertification Report. No exemptions have been requested to date. In the event one is needed documentation will be provided in accordance with NJDEP requirements.

SPPP Form 12 – Street Sweeping and Road Erosion Control Maintenance

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Street Sweeping

Please describe the street sweeping schedule that you will maintain.
(NOTE: Attach a street sweeping log containing the following information: date and area swept, # of miles swept and the total amount of materials collected.)

The Borough of Fanwood has evaluated all of its streets to determine which areas will need to be swept monthly. These areas have been grouped together into four separate groups and each group will be assigned a diferent week each month.

The Boorugh of Fanwood intends on maintaining its existing street sweeping program for all other streets that ar not required by the permit, which includes sweeping all streets once a year.

The Borough's Street Sweeping Log and summary is attached.

Road Erosion Control Maintenance

Describe your Road Erosion Control Maintenance Program, including inspection schedules. A list of all sites of roadside erosion and the repair technique(s) you will be using for each site should be attached to this form.
(NOTE: Attach a road erosion control maintenance log containing the following information: location, repairs, date)

The Borough of Fanwood will use the Public Works Department to monitor all their roads and streets for erosion problems during normal patrols. All identified road erosion problems will be reported to the Department of Public Works Director. During quarterly SPPP team meetings, identified areas of erosion will be discussed and repairs prioritized. All mantinenace personnel will then be assigned to the areas of concern, and the areas identified to have road erosion problems will be repaired in accordance wit hthe Standards of Soil Erosion and Sediment Control in New Jersey. All mantenace personnel will maintain an inspection log and the Director wull maintain a list of all repairs and dates completed. The status of the Road Erosion Control Maintenace Program will be inclded in the Annual Report and Recertification.

During Sweeping operations within the Borough, the sweeper operator inspects along the streets for any erosion and records the information into the street sweeping log. Since most of the streets in the Borough are curbed with adequate drainage, thre has not been any erosion repairs in the last year.

SPPP Form 13 – Stormwater Facility Maintenance

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Please describe your annual catch basin cleaning program and schedule. Attach a map/diagram or additional pages as necessary.

The Borough of Fanwood has an ongoing catch basin cleaning program to maintain catch basin function and efficiency. All catch basins are inspected once a year. If at the time of inspection, no sediment, trash or debris is observed in the catch basin, then the catch basin will not be cleaned. All catch basins are inspected yearly, even if they are found to be "clean" the previous year. At the time of cleaning, the catch basins are also inspected for proper function. Maintenance will be schedule for those catch basins that are in disrepair.

Please describe your stormwater facility maintenance program for cleaning and maintenance of all stormwater facilities operated by the municipality. Attach additional pages as necessary.

(NOTE: Attach a maintenance log containing information on any repairs/maintenance performed on stormwater facilities to ensure their proper function and operation.)

The Borough will continue to maintain its existing stormwater system maintenance program to ensure systems are functioning properly. Presently, the Borough operates several hundred inlets, storm drains and only one outfall. These facilities are maintained on a regular basis throughout the year and on an as needed basis in high risk areas by the Borough Public Works Department and in conjunction with an outside contractor as needed to ensure they are functioning properly.

See Appendix 5 for a detailed description of the Borough's stormwater facility maintenance program. Records of inspection and routine maintenance and/or repairs are kept by the Borough's DPW Department.

SPPP Form 14 - Outfall Pipe Stream Scouring Remediation

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Describe your stormwater outfall pipe scouring detection, remediation and maintenance program to detect and control active localized stream and stream bank scouring. Attach additional pages as necessary.

(NOTE: Attach a prioritized list of sites observed to have outfall pipe stream and stream bank scouring, date of anticipated repair, method of repair and date of completion.)

The Borough's DPW Department conducts annual inspections of its outfall for visual observation of the condition of the outfall, the presence of dry weather flows, and signs of outfall pipe stream scouring. Should the outfall pipes show signs of scouring or disrepair, it will be reported to Clint Dicksen, Director of Public Works, and Antonios Panagopoulos, P.E., Borough Engineer.

The outfall will be evaluated to determine if additional rehabiliation, repair or replacement is necessary. Any rehabilitation and/or repair in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey.

All repairs will be followed with an annual inspection to ensure that the scouring has not resumed.

Records of all inspection, maintenance and/or rehabilitation/repairs conducted will be kept by the Borough's DPW Department.

SPPP Form 15 - De-icing Material Storage

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

De-icing Material Storage

Describe how you currently store your municipality's de-icing materials and describe your inspection schedule for the storage area. If your current storage practices do not meet the de-icing material storage SBR describe your construction schedule and your seasonal tarping interim measures. If you plan on sharing a storage structure, please include its location, as well as a complete list of all concerned public entities. If you store sand outdoors, describe how it meets the minimum standard.

The Borough of Fanwood has built a salt shed at the DPW yard, where salt and sand is stored.

The Borough of Fanwood stores sand for use in the Borough's baseball fields, playgrounds, etc. The sand is stored in the DPW Yard. At the competion of loading and unloading activities, the areas are inspected for spilled sand.

SPPP Form 16 – Standard Operating Procedures

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

BMP	Date SOP went into effect	Describe your inspection schedule
Fueling Operations (including the required practices listed in Attachment D of the permit)	March 31, 2005	Monthly Inspections are held to ensure that the SOP is being met See Appendix 6 for copy of SOP
Vehicle Maintenance (including the required practices listed in Attachment D of the permit)	March 31, 2005	Monthly Inspections are held to ensure that the SOP is being met See Appendix 6 for copy of SOP.
Vehicle Washing	March 31, 2005	Vehicles are washed in a contained area and Portable washing machine is used to vacuum wash water from the contained area, and runs it through a filter prior to disposing water into the sanitary sewer.
Good Housekeeping Practices (including the required practices listed in Attachment D of the permit) **Attach inventory list required by Attachment D of the permit**.	April 2005	Monthly Inspections are held to ensure that the SOP is being met See Appendix 6 for a copy of SOP. *SEE APPENDIX 6 FOR A COPY OF THE DPW FACILITIES INVENTORY LIST REQUIRED BY THE PERMIT RENEWAL.

SPPP Form 17 - Employee Training

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Describe your employee training program. For each required topic, list the employees that will receive training on that topic, and the date the training will be held. Attach additional pages as necessary.

The Borough's Employee Training Program will be broken down into four (4) phases. Phase 1 will include training to be undertaken by the Borough's Board Members and Governing Bodies. Phase 2 will include training requirements for Borough representatives responsible for overseeing the reviews of development and redevelopment applications. Phase 3 will include topics that will be covered on an annual basis with applicable employees. Phase 4 will include those topics that will be covered every two (2) years with applicable employees. Records of all training sessions scheduled for Phase 2 and Phase 3 will be maintained by the Borough's DPW Department. Training will be conducted either through webinars, video training and/or field training where necessary.

Attendance for Phase 3 and 4 of the employee training program will be recorded and maintained by the Borough's DPW Department for future reporting in the Borough's Annual Inspection and Recertification Report, where applicable.

Phase 1 – Municipal Board and Governing Body Members

Borough Board and Governing Body Members that review and approve applications for development and redevelopment projects complete one of the NJDEP's "Training Tools" under their Post Construction Stormwater Management website. Training must be completed by July 1, 2018 and can be found at https://www.nj.gov/dep/stormwater/training.html. Borough Board and Governing Body members will provide the Borough DPW Director with confirmation that the training has been conducted for input in the Borough's Annual Inspection and Recertification Report where applicable.

Phase 2 – Development/Redevelopment Application Reviewer Training

All Borough employees and/or representatives that review development and redevelopment projects for the Borough must complete an NJDEP approved training either offered by NJDEP or other training agency. The initial training must be completed by January 1, 2019 and then taken once every 5 years thereafter. Borough representatives will provide the Borough DPW Director with confirmation that the training has been conducted for input in the Borough's Annual Inspection and Recertification Report where applicable.

SPPP Form 17 - Employee Training (Continued)

Municipality Information

Municipality: Fanwood Borough County: Union

NJPDES #: NJG 0141852 PI ID #: 50577

Team Member/Title: Clint Dicksen, Director of Public Works

Effective Date of Permit Authorization (EDPA): 04/01/2004

Date of Completion: 03/31/2005 Date of most recent update: 04/01/2018

Describe your employee training program. For each required topic, list the employees that will receive training on that topic, and the date the training will be held. Attach additional pages as necessary.

Phase 3 – Annual Employee Training Program

Maintenance Yard Operations	Public Works employees & other users as appropriate
STW Facility Maintenance Program	Public Works employees
General SPPP	Public Works employees

Phase 4 – Bi-Annual Employee Training Program

Improper Waste Disposal Education	Code Enforcement Officer & Public Works Employees
Municipal Ordinances	Code Enforcement Officer, Public Works Employees, Police Dept.
Yard Waste Collection Program	Public Works employees
Street Sweeping Program	Public Works employees
Outfall Pipe Stream Scouring Remediation	Public Works employees
Illicit Connection Elimination and Outfall Pipe Mapping	Public Works employees
Construction Activity/Post Construction Stormwater Management in New Development & Redevelopment	Public Works employees & Code Enforcement Officer

The illicit connection elimination training may include field training on procedures to properly conduct outfall inspections for illicit connections, follow-up investigation and procedures for elimination of the illicit connection for new employees. The maintenance yard operations training may include field training on the standard operating procedures for fueling, vehicle maintenance and good housekeeping practices.

As necessary, the Borough will evaluate alternative training tools to optimize the training program. Alternative training tools may include the use of informational CD's provided by EJIF or through formal training seminars offered by Rutger's Cooperative Extension. Links to training sources can be found at https://www.njstormwater.org/training.htm.

APPENDIX 1

MUNICIPAL STORMWATER MANAGEMENT PLAN AND

STORMWATER CONTROL ORDINANCE

MUNICIPAL STORMWATER MANAGEMENT PLAN

BOROUGH OF FANWOOD

UNION COUNTY, NEW JERSEY

JUNE 2005

KUPPER ASSOCIATES

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1.0 INTRODUCTION

1.1 New Stormwater Rules

The New Jersey Department of Environmental Protection ("NJDEP") has issued two sets of new stormwater rules that became effective on February 2, 2004. This is the first major update of NJDEP's stormwater rules since their initial adoption in1983.

The first set of new rules comprises the Phase II New Jersey Pollutant Discharge Elimination ("NJPDES") Stormwater Regulation Program Rules (N.J.A.C. 7:14A), which establish a regulatory program for existing stormwater discharges. The second set of new rules is the Stormwater Management Rules (N.J.A.C. 7:8), which set forth the required components of stormwater management plans and establish design and performance standards for "major" development. (A major development is one that disturbs one or more acres of land; or, increases impervious surface by one-quarter acre or more. A single family dwelling on a single lot would typically not be subject to the Rules.) Together, the two sets of rules establish a comprehensive framework for addressing water quality impacts associated with existing and future stormwater discharges.

For residential development, the design and performance standards established in the Rules became immediately effective for local approvals through the Residential Site Improvement Standards ("RSIS"). For non-residential development, the rules will not be applied at the local level until a municipal ordinance is passed adopting these standards. The rules will be immediately applied to a non-residential development if it requires any of four permits (stream encroachment, wetlands, CAFRA or waterfront development) under NJDEP's Land Use Regulation Program ("LURP").

1.2 Stormwater Permit

The Borough of Fanwood ("Borough" or "Fanwood") has been issued a NJPDES Tier A Municipal Stormwater Permit (Tier A Permit) under the new rules. The permit has an Effective Date of Permit Authorization (EDPA) of April 1, 2004. The Tier A permit sets forth Statewide Basic Requirements that must be implemented by the Borough to reduce nonpoint

source pollutant loads. The requirements are to be implemented in accordance with a timetable that extends out to 60 months from the EDPA. The Borough is required to develop a Municipal Stormwater Management Plan (MSWMP) within 12 months of the EDPA.

1.3 Stormwater Management Plan

This MSWMP documents Fanwood's strategy for addressing the impacts of stormwater runoff from new developments. The plan contains all of the required elements described in NJDEP's Stormwater Management Rules (N.J.A.C. 7:8). The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development (defined as projects that disturb one or more acre of land; or, increases impervious surface by one-quarter acre or more). These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

The plan also addresses the review and update of existing ordinances, the Borough Master Plan, and other planning documents to allow for project designs that include low impact development techniques. Under the Municipal Land Use Law ("MLUL"), a municipal stormwater management plan is an integral part of any master plan prepared by the municipality pursuant to the MLUL. (Specifically, it is part of the utility service plan element of the master plan.)

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

2.0 GOALS

The goals of this MSWMP are to:

- reduce flood damage, including damage to life and property;
- minimize, to the extent practical, any increase in stormwater runoff from any new development;
- reduce soil erosion from any development or construction project;

- assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
- maintain groundwater recharge;
- prevent, to the greatest extent feasible, an increase in nonpoint pollution;
- maintain the integrity of stream channels for their biological functions, as well as for drainage;
- minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and
- protect public safety through the proper design and operation of stormwater basins.

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

3.0 STORMWATER DISCUSSION

3.1 The Hydrologic Cycle

Land development can dramatically alter the hydrologic cycle of a site and, ultimately, an entire watershed. (See Figure C-1.) Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through evapotranspiration.

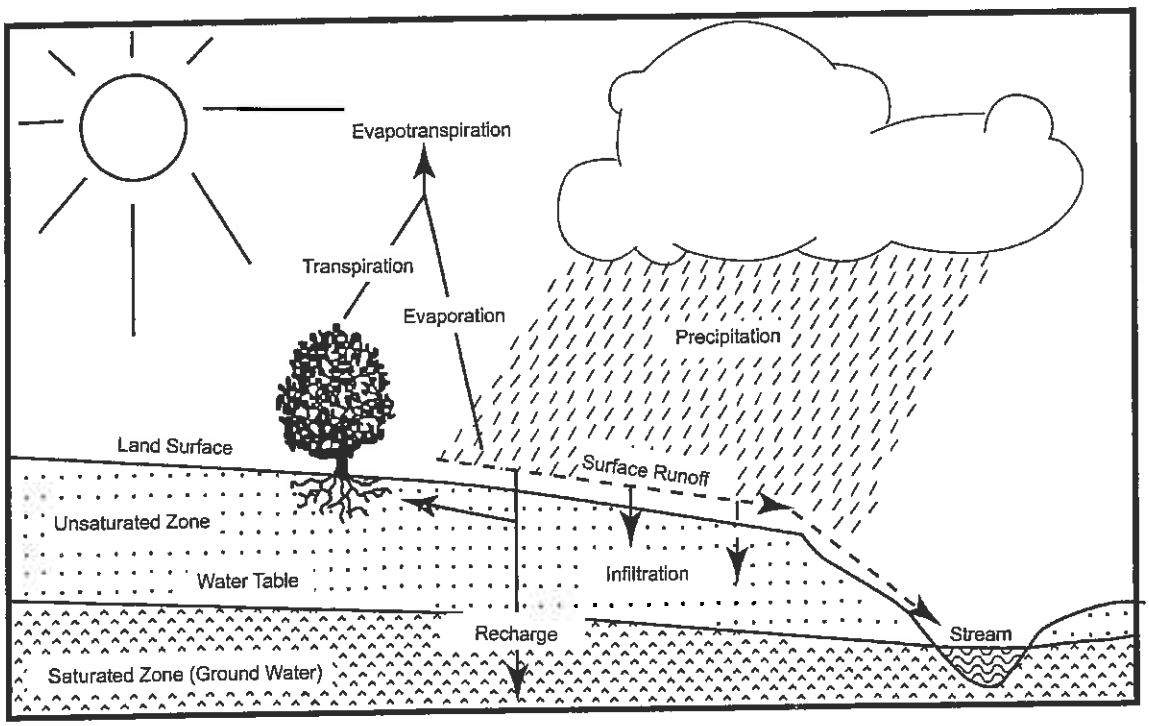
Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability, resulting in increased volumes and rates of stormwater runoff from the site.

Impervious areas that are connected to each other through gutters, channels, and storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing

flow in downstream waterways to peak faster and higher than natural conditions. These increases can cause or aggravate downstream flooding and erosion problems and increase the quantity of sediment in the channel. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream.

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

Figure C-1: Groundwater Recharge in the Hydrologic Cycle



Source: New Jersey Geological Survey Report GSR-32.

3.2 Water Quality

In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients.

In addition to increased pollutant loading, land development can adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks that normally provide shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

4.0 BACKGROUND

4.1 Borough Characteristics and Demographics

The Borough encompasses a 1.29 square mile area in Union County, New Jersey. The Borough is a stable, established, suburban community with an older housing stock. In recent years, the Borough has been under minimal development pressure due to the relatively stable population over the past decade and the lack of available land for new development.

The population of the Borough decreased from 7,767 in 1980 to 7,115 in 1990, and then increased slightly to 7,174 in 2000. Twenty-four new privately owned housing units were authorized by building permit for the four-year period from 2000 to 2004. Accordingly, recent changes in the landscape have not had a significant increase on stormwater runoff volumes and pollutant loads to the waterways of the adjoining downstream municipalities.

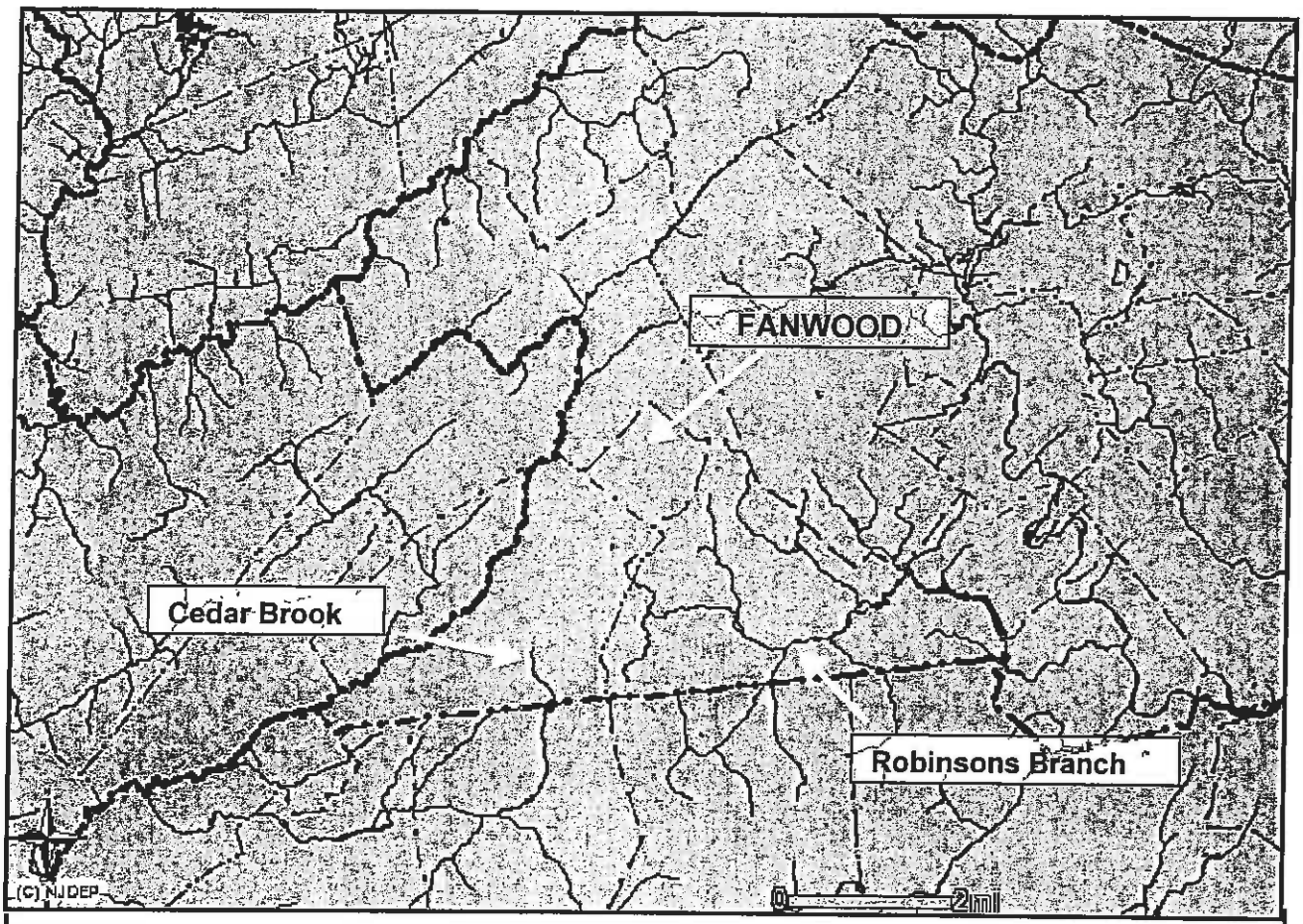
Future building activity will be limited to infill development, redevelopment and the demolition/replacement or expansion of existing homes. Figure C-2 illustrates the downstream waterways in the adjoining municipalities. Figure C-3 depicts the Borough boundary on the USGS quadrangle maps.

4.2 Existing Drainage Patterns

The Borough is situated on a low ridgeline that separates the Raritan River Basin to the northwest from the Rahway River Basin to the southeast. Flows from the northwestern portion of Fanwood are transported to Cedar Brook in Plainfield, which then flow into the Bound Brook. Bound Brook combines with Green Brook and enters the Raritan River along the boundary of the Boroughs of Bound Brook and Middlesex. Flows from the southern part of Fanwood are tributary to the Robinson's Branch of the Rahway River. The Rahway River then flows into the Arthur Kill near Linden. Fanwood receives no flows from adjacent communities, with the exception of the New Jersey Transit railroad bed where some flow enters from Scotch Plains.

The Borough is divided into nine sub-watershed (or sub-drainage basin) areas. Most of the runoff flows through the Borough's storm water piping systems, which discharge to storm drains in Scotch Plains or Plainfield. There are few remaining streams or open waters in the Borough.

Figure C-2: Borough of Fanwood and Its Downstream Waterways



Legend:

- Municipalities
- Counties
- Streams
- Water Bodies
- New Jersey

BOROUGH OF FANWOOD

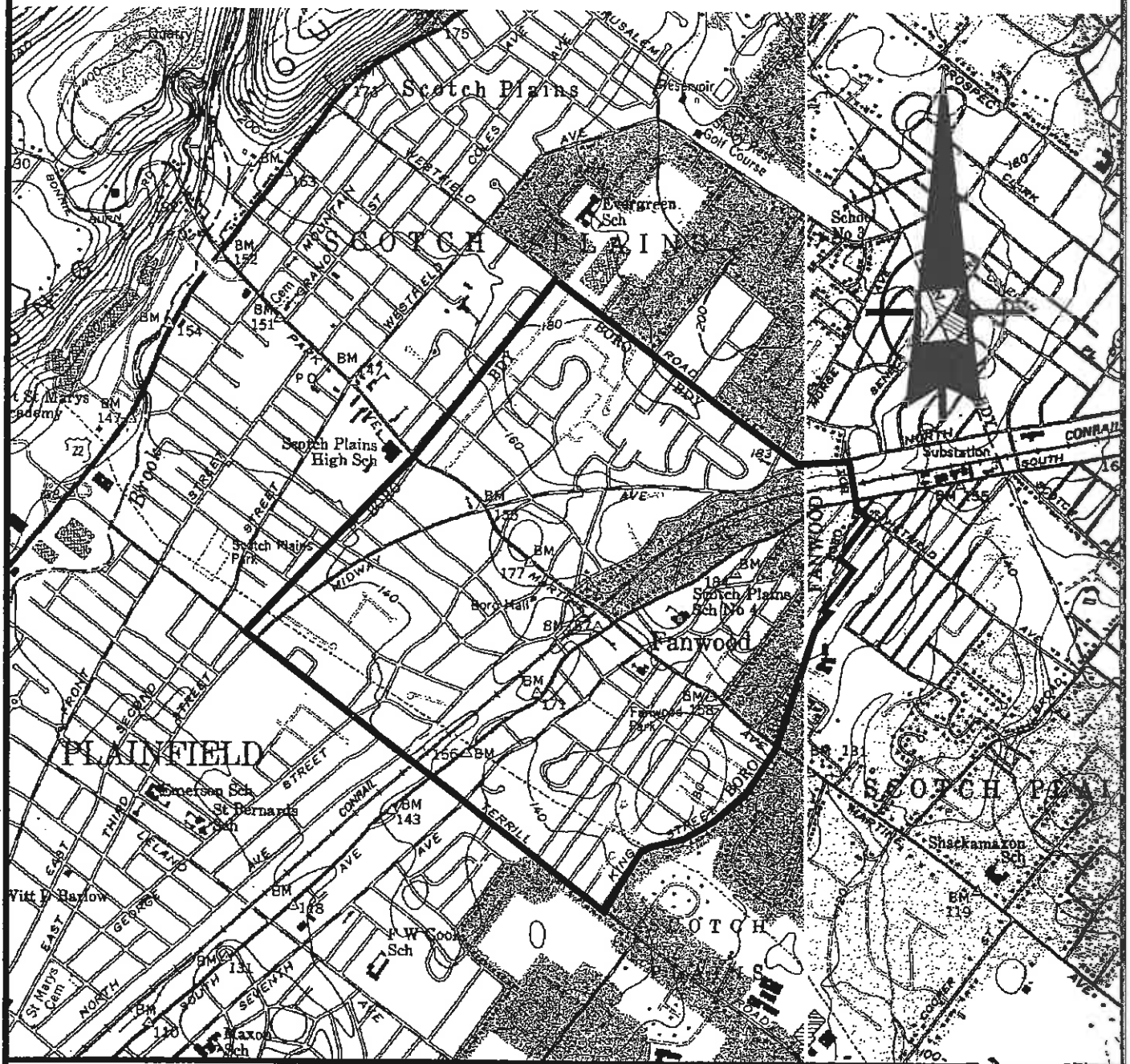
AND ITS DOWNSTREAM WATERWAYS

SOURCE: NJDEP iMAP

KUPPER ASSOCIATES

DATE: 03/05

FIGURE C-2



BOROUGH OF FANWOOD
BOUNDARY ON
USGS QUADRANGLE

SOURCE: CHATHAM AND ROSELLE QUADS

KUPPER ASSOCIATES

DATE: 3/05

FIGURE C-3

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4.3 Biomonitoring

NJDEP has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. There are over 800 AMNET sites throughout the state of New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a five-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics.

The two major rivers to the northwest and south of the Borough are the Raritan River, and the Rahway River. Both are moderately impaired. The Bound Brook and Green Brook, which flow to these major rivers, are also moderately impaired based on AMNET data. No data was available at the time of the search for the Cedar Brook and the Robinson's Branch.

4.4 Total Maximum Daily Loads

In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the state. These data show that the instream total phosphorus concentrations and fecal coliform concentrations of the Raritan River and Rahway River frequently exceed the state's criteria. This means that these rivers are impaired waterways and the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for these pollutants for each waterway.

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

The New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303(d)) (Integrated List) is required by the federal Clean Water Act to be prepared

biennially and is a valuable source of water quality information. This combined report presents the extent to which New Jersey waters are attaining water quality standards, and identifies waters that are impaired. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDLs are needed.

4.5 Localized Flooding

In addition to water quality problems, the Borough has exhibited localized flooding. Areas subject to flooding are shown on the Borough's Flood Area Map," which is attached as Figure C-4. The Borough is currently not covered by a FEMA map.

The areas delineated on the Flood Area Map are not "floodplains" in the classic sense, i.e., areas inundated by a watercourse that overflows its banks. Rather, they primarily represent neighborhoods where poor grading and/or inadequate storm sewers cause localized flooding. The map has been compiled through years of observation.

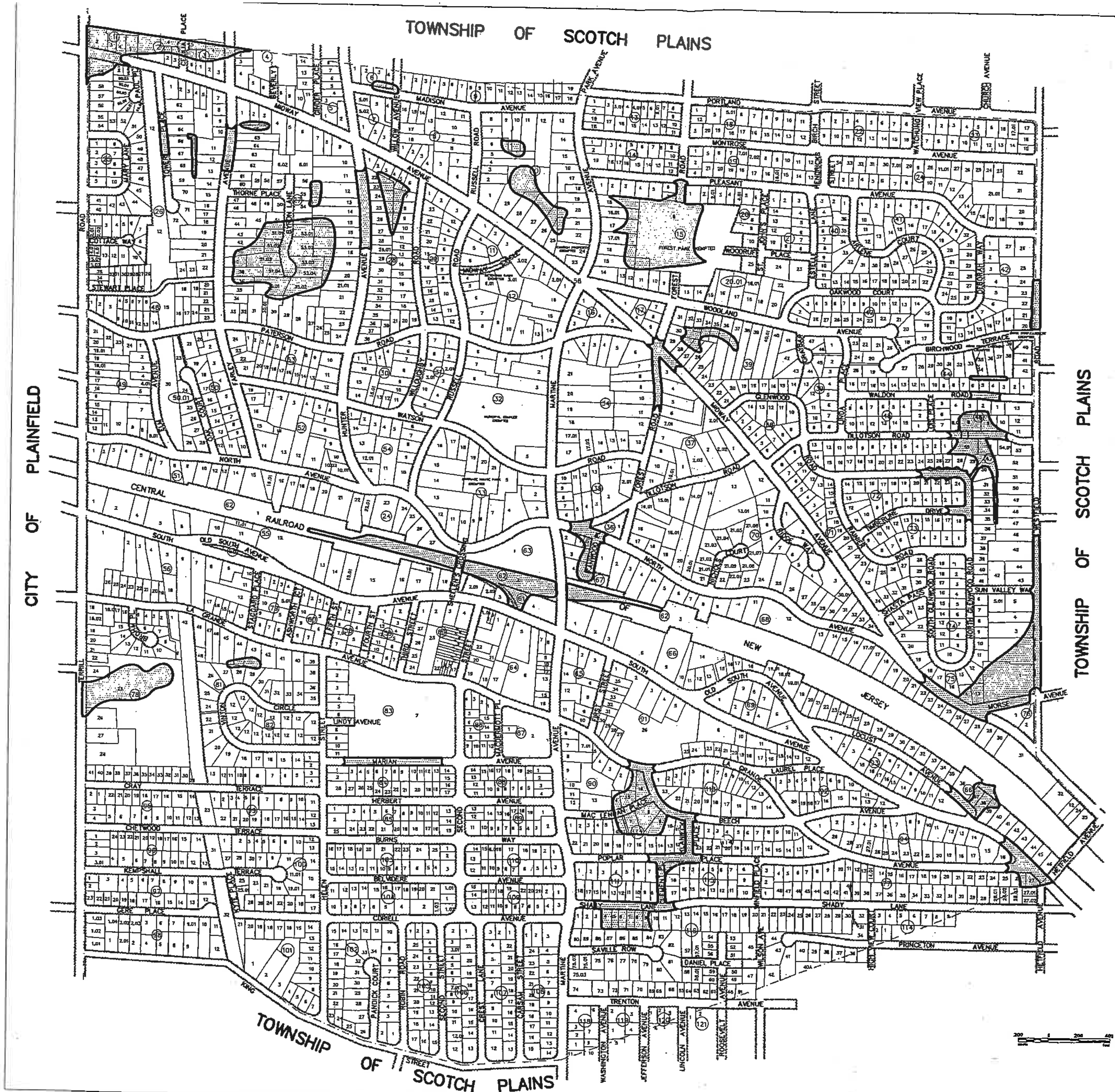
There are several areas of backyard flooding. These areas flood because they are low lying pockets that have no overland relief and/or there are insufficient stormwater collection points (inlets) for the runoff to drain to. Other areas within the Borough flood frequently because the existing stormwater piping system has insufficient capacity to transport all the water from a major storm event that is greater than a five-year storm, thereby causing a backwater effect and flooding upstream. In some cases, the insufficient capacity relates to receiving systems in the adjacent communities of Plainfield and Scotch Plains.

Much of the stormwater collection system was designed many years ago for much different hydrologic conditions (i.e., less impervious area) than presently exist in the Borough. As the imperviousness increased in the Borough, the peak and volumes of stormwater flows also increased. The increased amount of water resulted in pockets of flooded areas.

4.6 Recharge

The high imperviousness of the Borough has likely decreased groundwater recharge to some extent, although the Soil Survey of Union County, New Jersey ("Soil Survey") indicates that recharge in most of the Borough is poor.

The Soil Survey divides Union County into groups of associated soils called general soil map units. Each map unit defines with a soil profile extending from the surface to a



LEGEND

FLOOD HAZARD AREA

(74) BLOCK NUMBER

7 TAX MAP LOT NUMBER

FIGURE C-4

FLOOD AREA MAP

BASED ON "FLOOD AREA MAP" PREPARED BY RICHARD O. LUSTER ON OCT. 5, 1076 FOR THE AUGUST 2, 1973, "DORIA" AND DATA OF NEW PIPING SYSTEMS THAT REDUCED FLOOD AREAS

BOROUGH OF FANWOOD
UNION COUNTY, NEW JERSEY
APRIL 2004

BOROUGH ENGINEER

JEM PROFESSIONAL ENGINEERING, INC.
LAND DEVELOPMENT AND MUNICIPAL

CIVIL, ENGINEERING, LAND PLANNING AND LAND SURVEYING SERVICES
P.O. Box No. 1691, Cranford, N.J. 07016-5691
Phone No. (908) 241-2230 Fax. No. (908) 241-5660

depth of approximately five feet. There are seven map units found in Fanwood (excluding a strip of highly disturbed "Urban Land" along Route 28 between Terrill and Martine that cannot be classified further without detailed field investigation). The units are shown on Figure C-5. Some of the properties associated with each unit are shown on Table C-1.

Moderately well drained Birdsboro soils (BhpB) are found in a small, narrow strip in the northwest corner of the Borough. The remaining six map units all exhibit a seasonable high groundwater table and either a slow or very slow infiltration rate when thoroughly wet. The predominant map unit, BovB, has a typical permeability of between 0.06 and 0.2 inches per hour at a depth of three to five feet.

Based on the foregoing, it is not clear how development in Fanwood has impacted base flows in neighboring streams during dry weather periods. Lower base flows can have a negative impact on in-stream habitat during the summer months. Groundwater recharge values for each soil type are shown in Figure C-6. Wellhead protection areas, also required as part of the MSWMP, are shown in Figure C-7.

SOILS LEGEND

BhpB	BIRDSBORO – URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES
BohC	BOONTON GRAVELY LOAM, 8 TO 15 PERCENT SLOPES
BovB	BOONTON – URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES
HokA	HALEDON LOAM, 0 TO 3 PERCENT SLOPES
HotB	HALEDON – URBAN LAND COMPLEX – HASBROUCK COMPLEX, 0 TO 8 PERCENT SLOPES
HctA	HASBROUCK SILT LOAM, 0 TO 3 PERCENT SLOPES
RasA	RARITAN – URBAN LAND COMPLEX – PASSAIC COMPLEX 0 TO 3 PERCENT SLOPES
UR	URBAN LAND

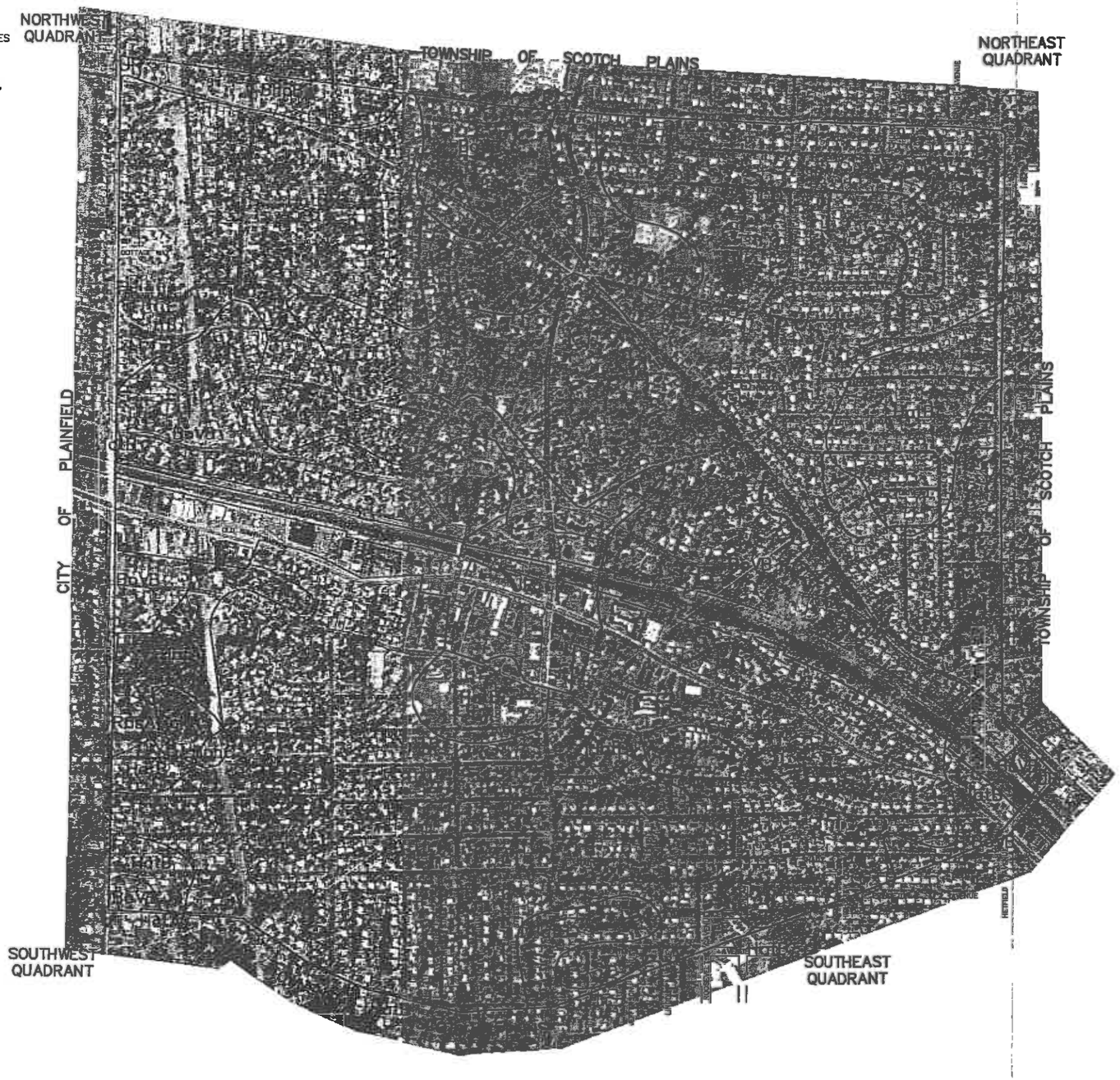


FIGURE C-5

DRAWN / SURVEY FILE NO.:
CREATED: 3/25/05 LAST OPENED: 04/04/05 07:35
TAB:
FILE: AFH-SOIL

NO.	DATE	DESCRIPTION	CHKD.	APPRD.
		REVISIONS		

DESIGNED:
DRAWN: P.J.M.
OFFICE CHECKED: V.M.N.

0 400 800
SCALE IN FEET
1" = 400'

KUPPER ASSOCIATES
N.J. CERTIFICATE OF AUTHORIZATION #24GA2795660
15 STELTON ROAD, PISCATAWAY, N.J. 08855-0036
732-752-5600

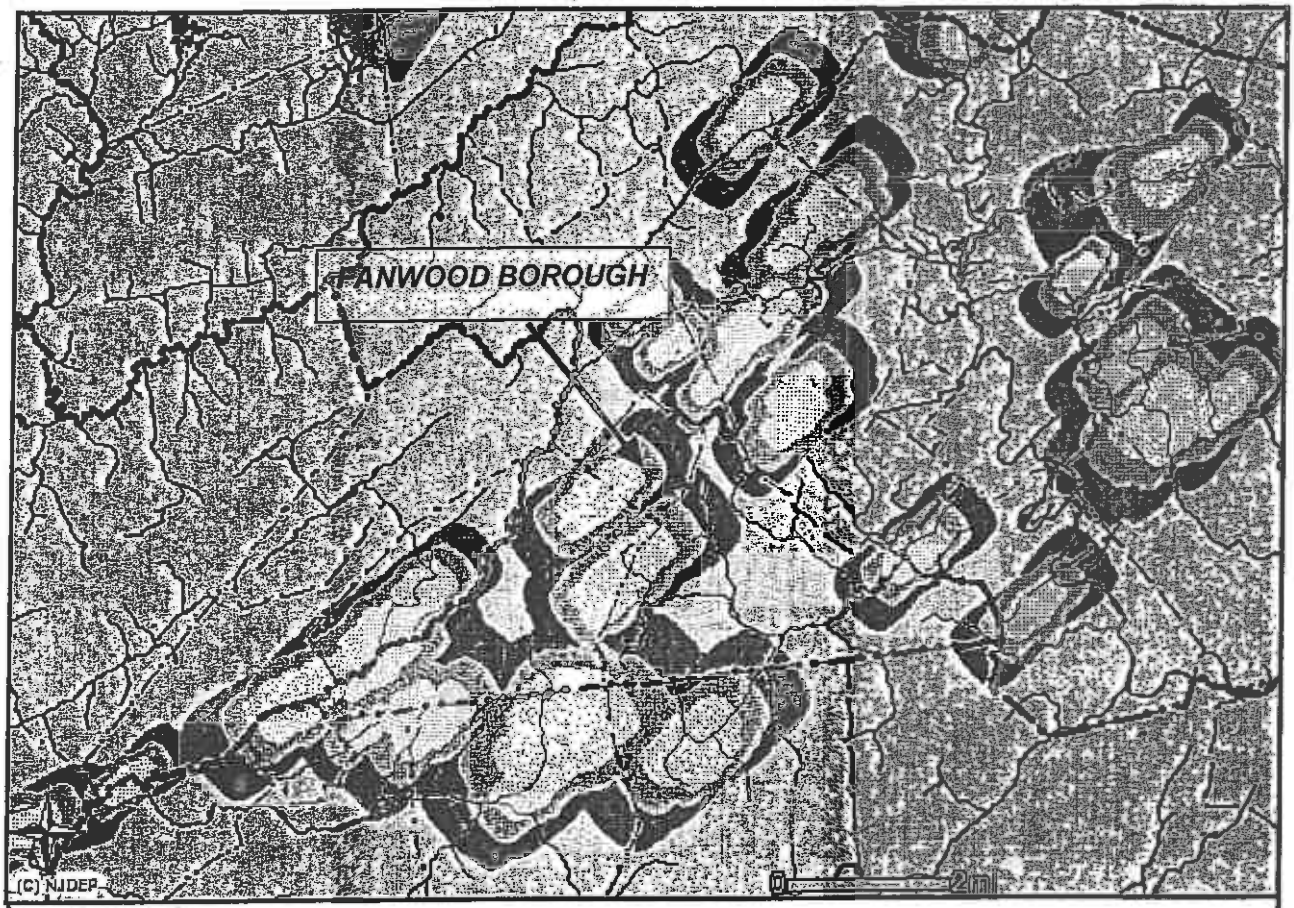
BOROUGH OF FANWOOD
SOILS MAP

BOROUGH OF FANWOOD UNION COUNTY
SCALE: 1" = 400 N.J. DATE: 3/2005

1 OF 1

275082 CONTRACT NO.

Figure C-7: Borough of Fanwood Boundary on USGS Quadrangles



Legend:

- Municipalities
- Counties
- Streams
- Water Bodies
- Well Head Protection Areas
- Tier 1: 2-Year
- Tier 2: 5-Year
- Tier 3: 12-Year
- New Jersey

BOROUGH OF FANWOOD

WELLHEAD PROTECTION AREAS

SOURCE: NJDEP iMAP

KUPPER ASSOCIATES

DATE: 03/05

FIGURE C-7

5.0 DESIGN AND PERFORMANCE STANDARDS

Chapter 255 of the Fanwood Code covers Stormwater Control and Floodplain Regulations. The regulations are quite complex, but can briefly be summarized as follows:

The primary requirement of Article II of Chapter 255 is that no land area shall be developed by any person in a manner that increases the volume and/or rate of stormwater runoff occurring at the area over what occurs there under existing conditions. Article II makes no mention of thresholds, waivers or exemptions. *Any* land area to be developed shall be through on-site water detention and/or ground absorption systems.

Article III of Chapter 255 deals with uses in the floodplain, which is delineated on the Borough's "Flood Area Map". No building or structure within the floodplain may be altered or expanded until a conditional use permit has been granted by the Planning Board. The permit may include requirements for construction of stormwater detention facilities as well as other flood control/flood proofing measures.

The Borough will amend its existing stormwater control and floodplain regulations to reflect the design and performance standards for stormwater management measures as presented in N.J.A.C. 7:8-5 to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies. The design and performance standards will include the language for maintenance of stormwater management measures consistent with the stormwater management rules at N.J.A.C. 7:8-5.8 Maintenance Requirements, and language for safety standards consistent with N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins.

The Borough will evaluate the model stormwater ordinance that has been published by NJDEP and adjust it as necessary to reflect local conditions. The ordinance will be submitted to the county for review and approval within 24 months of the EDPA.

During construction, the Borough Engineer and/or Building inspector will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed.

6.0 PLAN CONSISTENCY

A portion (0.38 square miles) of the Borough is within the Robinson's Branch Watershed. A committee has been formed to prepare a Regional Stormwater Management Plan (RSMP) for the Robinson's Branch Watershed. The committee is presently preparing a characterization and assessment of the watershed; developing models to simulate flooding and water quality; conducting a public education and outreach program; and beginning a rain garden program. Based on this initial work, the committee will develop specific water quality, quantity and recharge objectives; identify measures and performance standards to achieve these objectives; and develop an implementation plan. When the RSMP is formally adopted into the Areawide Water Quality Management Plan, the Borough will incorporate applicable requirements of the RSMP into its Municipal Stormwater Management Plan.

The Borough's Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. Under N.J.A.C. 5:21-1.5, the RSIS rules are the maximum that may be required in connection with residential development. The municipality will utilize the most current update of the RSIS in the stormwater management review of residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updates to the RSIS.

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

7.0 NONSTRUCTURAL STORMWATER MANAGEMENT STRATEGIES

The Borough has reviewed its Master Plan and Ordinances, and has developed a list of the sections in the Borough land use and zoning ordinances that are to be modified to incorporate the nonstructural stormwater management strategies required by the new Stormwater Rules.

The following are the ordinances identified for revision. Once the ordinance texts are completed, they will be submitted to the county review agency for review and approval within

24 months of the EDPA. A copy will be sent to the Department of Environmental Protection at the time of submission.

Chapter 184 of the Borough Code, entitled Land Use, was reviewed with regard to incorporating nonstructural stormwater management strategies. Several changes will be made to Article XI of this Chapter, entitled "Design Guidelines, Standards and Construction Specifications" to incorporate these strategies.

Section 184-96: *Curbs* requires that streets, parking areas, loading areas, driveways for non-residential and multi-family residential developments, and other paved areas shall be bounded by standard granite block curb. This section was amended to allow for curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious areas.

Section 184-98: *Driveway aprons* will be amended to address driveways. The language of this section will be amended to encourage the use of pervious paving materials to minimize stormwater runoff and promote groundwater recharge.

Section 184-99F: *Stormwater management and flood protection* requires all roof drains to be piped to either drywells, if the soil percolation rate meets design requirements, or existing storm drains, if they are located adjacent to the property, as required by the Borough Engineer. The language of this section will be amended to encourage the use of natural vegetation swales.

Section 184-100A: *Street trees* require that street trees shall be placed on both sides of the street within the right-of-way and spaced not more than 50 feet apart. In addition to Section 184,100A, the Borough has a Preservation and Removal of Trees Ordinance (Section 184-106) that restricts and otherwise controls the removal of mature trees throughout the Borough. This ordinance recognizes that the preservation of mature trees and forested areas is a key strategy in the management of environmental resources, particularly watershed management, air quality, and ambient heating and

cooling. These sections will be amended to require the identification of forested areas, and provide additional protection of forested areas from disturbance.

Section 184-104.D: Buffers. A buffer in the form of landscaping, fences, berms and/or walls shall be provided by the developer of any non-residential use which abuts a residentially zoned property, and by the developer of any multi-family residential use, community residence or shelter which is regulated as a conditional use which abuts a property located in a single-family or two-family residential zone. The landscape requirements for these buffer areas in the existing section do not recommend the use of native vegetation. The language of this section will be amended to encourage the use of native vegetation, which requires less fertilization and watering than non-native species. Additionally, language will be included to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces. This section currently requires the preservation of natural wood tracts and limits land disturbance for new construction.

Article XII of the Borough Code is entitled "Zone District Regulations." The Borough has 2 types of residential districts. Each district has a 35 percent maximum percent impervious surface allocation. District R-150 has a minimum lot size of 15,000 square feet for detached single-family homes and District R-75 has a minimum lot size of 7,500 square feet for single-family homes. The Borough has 8 types of non-residential districts. Each of these districts has a maximum percent impervious surface allocation, ranging from 52 percent for the TAH District to 90 percent for the GC District. Although each zone has a maximum allowable percent impervious surface, the Borough Code will be amended to remind developers that satisfying the percent impervious requirements does not relieve them of responsibility for complying with the Design and Performance Standards for Stormwater Management Measures contained in Chapter 255 – Stormwater Control and Floodplain Regulations. The Borough is evaluating the maximum allowable impervious cover for each

zone to determine whether a reduction in impervious cover is appropriate. The Borough will also be re-evaluating its definition of "impervious". Also, if a developer is given a variance to exceed the maximum allowable percent imperviousness, the developer must mitigate the impact of the additional impervious surfaces. This mitigation effort must address water quality, flooding, and groundwater recharge as described in Chapter 255. A detailed description of how to develop a mitigation plan is included in this Municipal Stormwater Management Plan.

8.0 LAND USE/BUILD-OUT ANALYSIS

A land use analysis was performed for the Borough as part of the Master Plan.

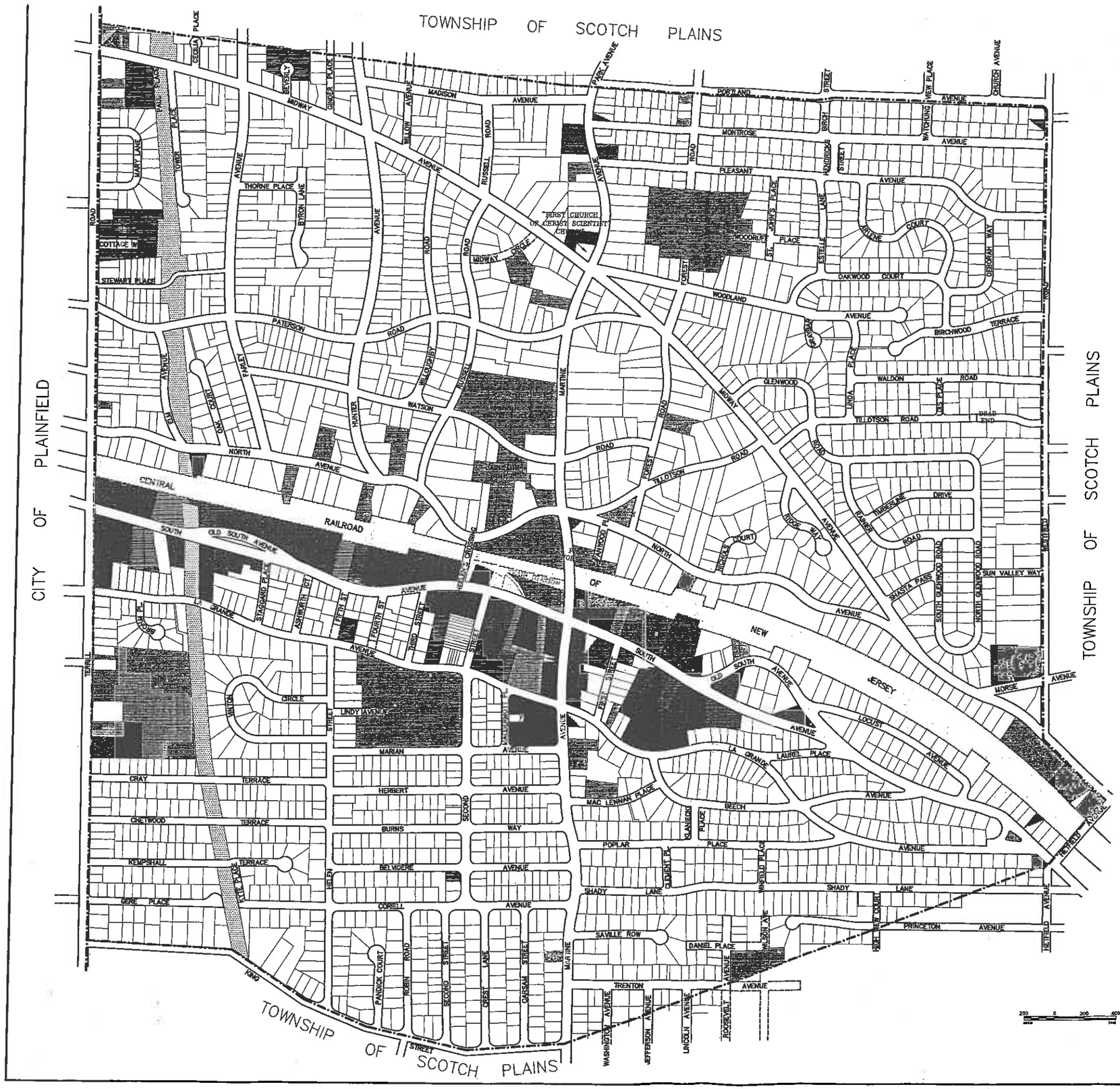
Figure C-8 shows the land uses within the Borough of Fanwood based on that analysis. This map is based upon a field survey undertaken in March 1985, which was updated in November 1987, modified during February 1988 and updated in August 1996 in accordance with directives received from the Borough. Table C-2 indicates the acreage in each eleven (11) categories of land use and the percentage of the Borough's total land area occupied by each use based on the mapping effort.

The mapping shows that there are approximately 3.88 acres of vacant land constituting one-half of one percent (0.5%) of the Borough's land area, distributed in small parcels throughout the Borough. A more recent mapping was developed in December 2004 during a re-examination of the Master Plan (See Figure C-8a). It demonstrates that the land uses are essentially the same. Calculations based on Figure C-8a show a vacant land area of 2.86 acres. Therefore, there has been a decrease in vacant land within the Borough.

Municipalities, which contain one square mile or more of vacant or agricultural lands, must conduct a build-out analysis. The Borough is composed of 0.004 square miles of vacant land. Therefore, a build-out analysis is not required by the regulations for this Municipal Stormwater Management Plan.

9.0 MITIGATION PLANS

This mitigation plan is provided for a proposed development that clearly demonstrates that on-site compliance is not practical and has been granted a variance or exemption from the stormwater management design and performance standards. Presented is a hierarchy of options.



SINGLE FAMILY RESIDENTIAL

TWO OR MORE FAMILY RESIDENTIAL

BUSINESS (RETAIL, SERVICE, COMMERCIAL)

OFFICE

MANUFACTURING/ INDUSTRIAL

PUBLIC/RECREATIONAL

QUASI-PUBLIC

VACANT

UTILITIES

ASSISTED LIVING

RAILROAD

EXISTING LAND USE MAP
BOROUGH OF FANWOOD
UNION COUNTY, NEW JERSEY
SEPTEMBER 1998

Richard A. Marsden Jr. NJPE & PLS Lic. No. 29841
BOROUGH ENGINEER

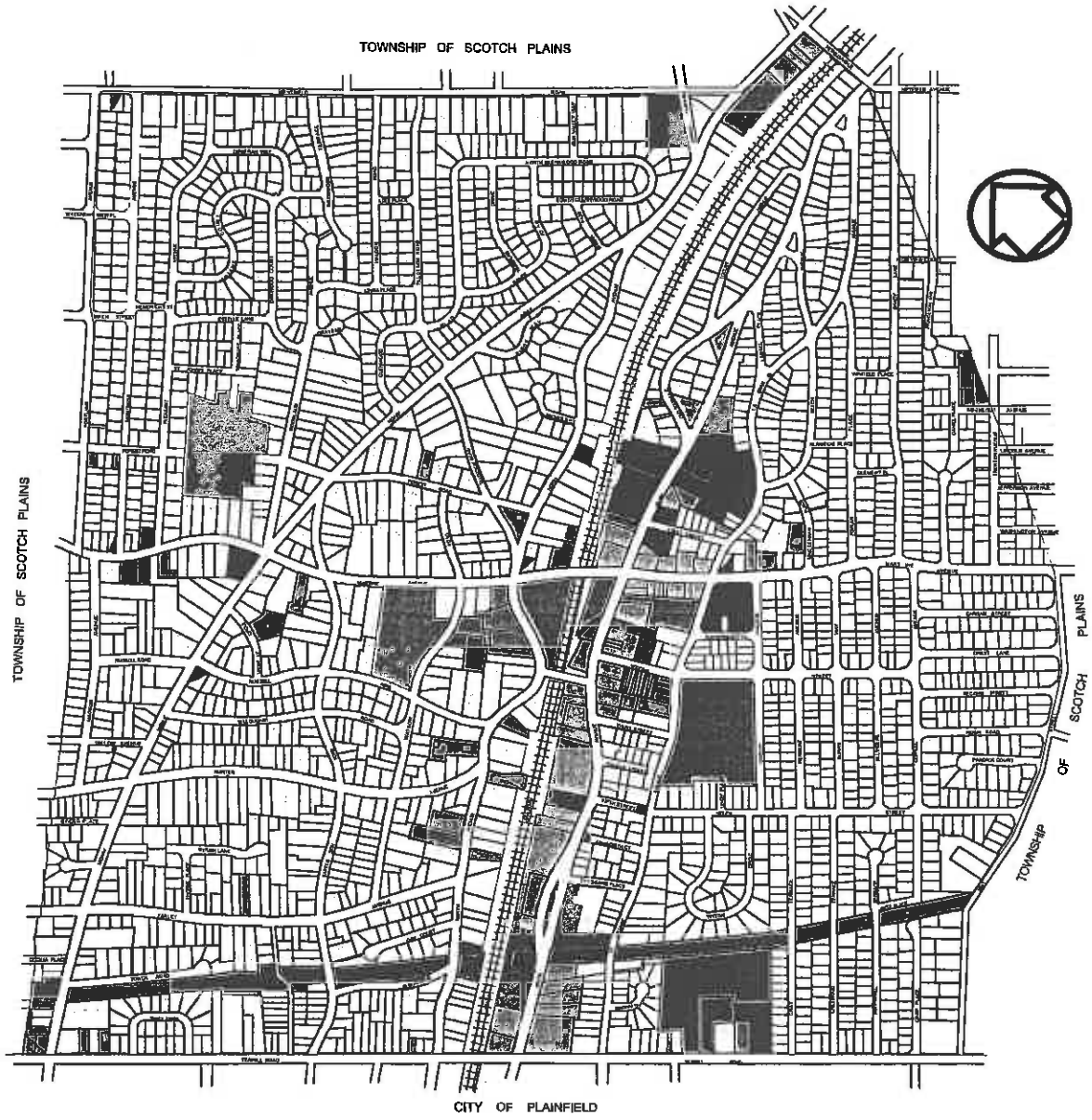
PROFESSIONAL ENGINEERING, INC. LAND DEVELOPMENT AND MUNICIPAL

CIVIL ENGINEERING, LAND PLANNING AND LAND SURVEYING SERVICES
P.O. Box No. 1691, Cranford, N.J. 07016-5691
Phone No. (908) 241-2230 Fax. No. (908) 241-5660

FIGURE C-8

F:\DRAFT\DWG\FANA\OLD_ENG-FILES\MISC\MAPS\LANDUSE\LANDUSE

FIGURE C-8A



Land Use Map

Borough of Fanwood

LEGEND

Color	Use
	Single Family
	2 to 4 Family
	5 or more Family
	Business/Office
	Commerical
	Industrial
	Utilities
	Open Space/Parks
	Quasi Public
	Public
	Vacant

Prepared By: Borough of Fanwood Planning Board July, 2004

Mitigation Project Criteria

9.1 Option 1 – Mitigation Project

Wherever practical, the mitigation project must be implemented in the same drainage area as the proposed development. The project must provide additional groundwater recharge benefits, or protection from stormwater runoff quality and quantity from previously developed property that does not currently meet the design and performance standards outlined in the Municipal Stormwater Management Plan. The developer must ensure the long-term maintenance of the project, including the maintenance requirements under Chapters 8 and 9 of the NJDEP Stormwater BMP Manual.

The applicant can select one of the following projects listed to compensate for the deficit from the performance standards resulting from the proposed project. More detailed information on the projects can be obtained from the Borough Engineer. Listed below are specific projects that can be used to address the mitigation requirement.

- *Groundwater Recharge*
  - Replace the existing impervious paths and/or asphalt areas at LaGrande Park with pavers.
  - Replace the existing impervious paths and/or asphalt areas at Forest Park with pavers.
- *Water Quality*
  - Retrofit the Municipal Complex to provide the removal of 80 percent of total suspended solids from the parking lot runoff.
  - Retrofit the existing parking area at the North Side Train Station to provide the removal of 80 percent of total suspended solids. Due to site constraints, the retrofit BMP must be installed underground and cannot reduce the existing number of parking spaces.
  - Replace existing storm inlets on Borough Streets with new inlets meeting the design standard of the Tier A permit.

- *Water Quantity*

  - Install stormwater management measures at the Department of Public Works Complex to reduce the peak flow discharged to the NJ Transit property.

9.2 Option 2 – Contribution

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

Table C-1: Borough of Fanwood
Soil Types

SOIL TYPE	AREA (S.F.)		(S.F.)	(ACRES)
BhpB	455977			
		TOTAL BhpB	455977	10
BohC	40627			
		TOTAL BohC	40627	1
BovB	60114			
BovB	254584			
BovB	1886552			
BovB	7			
BovB	788767			
BovB	70223			
BovB	21558827			
		TOTAL BovB	24619074	565
HakA	171783			
		TOTAL HakA	171783	4
HatB	215703			
HatB	147973			
HatB	1249			
HatB	472956			
HatB	2821			
HatB	254302			
HatB	4684			
HatB	5899004			
HatB	403771			
HatB	1155452			
HatB	525302			
		TOTAL HatB	9083217	209
HctA	4678			
HctA	576095			
		TOTAL HctA	580773	13
RasA	114852			
		TOTAL RasA	114852	3
UR	20495			
UR	2091021			
UR	47938			
		TOTAL UR	2159454	50
TOTAL	37225757		37225757	855

BhpB - Birdsboro - Urban Land Complex, 0 to 8 Percent Slopes
BohC - Boonton Gravelly Loam, 8 to 15 Percent Slopes
BovB - Boonton Urban Land Complex, 0 to 8 Percent Slopes
HakA - Haledon Loam, 0 to 3 Percent Slopes
HatB - Haledon - Urban Land - Hasbrouck Complex, 0 to 8 Percent Slopes
HctA - Hasbrouck Silt Loam, 0 to 3 Percent Slopes
RasA - Raritan - Urban Land - Passaic Complex, 0 to 3 Percent Slopes
UR - Urban Land

Notes:
Soil types are from NJDEP GIS soils coverage of Union County. The county coverage was clipped at the municipal boundary.
The source of the municipal boundary is based on road mapping of the borough, as such this boundary is approximate.

TABLE C-2

EXISTING LAND USE DISTRIBUTION IN THE BOROUGH OF FANWOOD

LAND USE CATEGORY	*AREA OF LAND (Acres)*	*PERCENTAGE OF BOROUGH*
Single-family residential	547.70	66.3
Multi-family	9.89	1.2
Commercial	22.19	2.7
Industrial	6.74	0.8
Office	5.30	0.6
Public	40.85	5.0
Quasi-public	8.95	1.1
Vacant	3.88	0.5
Utility easement	14.00	1.7
Railroad right-of-way	26.80	3.2
Streets	139.30	16.9
TOTAL	*825.60 acres*	*100.0%*

SOURCE: *Field Survey, March 1985;*
Revised November 1987;
Modified February 1988;
Modified March 1996.

Figure C-6: Groundwater Recharge Areas in the Borough of Fanwood

SOIL TYPE	Description	Annual Recharge (in)
BhpB	Birdsboro - Urban Land Complex, 0 to 8 Percent Slopes	10.4
BohC	Boonton Gravelly Loam, 8 to 15 Percent Slopes	8.9
BovB	Boonton Urban Land Complex, 0 to 8 Percent Slopes	8.9
HakA	Haledon Loam, 0 to 3 Percent Slopes	8.7
HatB	Haledon - Urban Land - Hasbrouck Complex, 0 to 8 Percent Slopes	8.7
HctA	Hasbrouck Silt Loam, 0 to 3 Percent Slopes	0.0
RasA	Raritan - Urban Land - Passaic Complex, 0 to 3 Percent Slopes	8.9
UR	Urban Land	0.0

Note:

Annual Recharge Values are from New Jersey Groundwater Recharge Spreadsheet (NJGRS).

Chapter 255

STORMWATER CONTROL FOR MAJOR DEVELOPMENTS

GENERAL REFERENCES

Environmental Commission — See Ch. 25.

Land use — See Ch. 184.

Soil removal — See Ch. 250.

Stormwater control for non-major developments — See Ch. 256.

Flood damage prevention — See Ch. 257.

ARTICLE I
General Provisions

§ 255-1. Short title.

This chapter may be cited as the "Fanwood Stormwater Control Ordinance."

§ 255-2. Policy statement.

Flood control, groundwater recharge, and pollutant reduction through nonstructural or low-impact techniques shall be explored before relying on structural best management practices (BMPs). Structural BMPs should be integrated with nonstructural stormwater management strategies and proper maintenance plans. Nonstructural strategies include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge. Examples of nonstructural techniques include protection of natural drainage features and vegetation; low-maintenance landscaping; and disconnecting the flow of runoff over impervious surfaces. Examples of structural techniques include dry wells, infiltration basins and pervious paving systems.

§ 255-3. Purpose.

It is the purpose of this chapter to establish minimum stormwater management requirements and controls for major development.

§ 255-4. Applicability.

A. This chapter shall be applicable to all site plans and subdivisions for the following major developments that require preliminary and/or final site plan or subdivision review:

   (1) Nonresidential major developments; and

   (2) Aspects of residential major developments that are not preempted by the Residential Site Improvement Standards at N.J.A.C. 5:21.

B. This chapter shall also be applicable to all major developments undertaken by the Borough.

§ 255-5. Compatibility with other permit and code requirements.

Development approvals issued for subdivisions and site plans pursuant to this chapter are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance.

In their interpretation and application, the provisions of this chapter shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This chapter is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of this chapter imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

§ 255-6. Definitions.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1.2.

COMPACTION — Increase in soil bulk density.

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

COUNTY REVIEW AGENCY — An agency designated by the Union County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s).

DEPARTMENT — New Jersey Department of Environmental Protection.

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

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

DEVELOPMENT — The division of a parcel of land into two or more parcels; the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure; any mining excavation or landfill; and any use or change in the use of any building or other structure, or land or extension of use of land, by any person, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.

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

ENVIRONMENTALLY CRITICAL AREAS — An area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or

threatened species; large areas of contiguous open space or upland forest; steep slopes; and wellhead protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

URBAN REDEVELOPMENT AREA — Previously developed portions of areas delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes.

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

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

ARTICLE II
Requirements

§ 255-7. General standards.

Design and performance standards for stormwater management measures.

A. Stormwater management measures for major development shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in § 255-8. To the maximum extent practicable, these standards shall be met by incorporating nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design.

B. The standards in this chapter apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards are applicable under a regional stormwater management plan or water quality management plan adopted in accordance with Department rules.

§ 255-8. Stormwater management requirements for major development.

A. The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with § 255-14.

B. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department's Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly Helonias bullata (swamp pink) and/or Clemmys muhlnebergi (bog turtle).

C. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of § 255-8F and G:

   (1) The construction of an underground utility line, provided that the disturbed areas are revegetated upon completion;

   (2) The construction of an aboveground utility line, provided that the existing conditions are maintained to the maximum extent practicable; and

(3) The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.

D. A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of § 255-8F and G may be obtained for the enlargement of an existing public roadway or railroad or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:

(1) The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;

(2) The applicant demonstrates through an alternatives analysis that, through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of § 255-8F and G to the maximum extent practicable;

(3) The applicant demonstrates that, in order to meet the requirements of § 255-8F and G, existing structures currently in use, such as homes and buildings, would need to be condemned; and

(4) The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under § 255-8D(3) above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of § 255-8F and G that were not achievable on site.

E. Nonstructural stormwater management strategies.

(1) To the maximum extent practicable, the standards in § 255-8F and G shall be met by incorporating nonstructural stormwater management strategies set forth at § 255-8F into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in § 255-8E(2) below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for the contention.

(2) Nonstructural stormwater management strategies shall be incorporated into the project's site design to:

(a) Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;

(b) Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;

(c) Maximize the protection of natural drainage features and vegetation;

(d) Minimize the decrease in the time of concentration from preconstruction to postconstruction. "Time of concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed;

(e) Minimize land disturbance including clearing and grading;

(f) Minimize soil compaction;

(g) Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;

(h) Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas;

(i) Provide other source controls to prevent or minimize the use or exposure of pollutants at the site, in order to prevent or minimize the release of those pollutants into stormwater runoff. Such source controls include, but are not limited to:

[1] Site design features that help to prevent accumulation of trash and debris in drainage systems, including features that satisfy § 255-8E(3) below;

[2] Site design features that help to prevent discharge of trash and debris from drainage systems;

[3] Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and

[4] When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

(3) Site design features identified under § 255-8E(2)(i)[2] above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see § 255-8E(3)(c) below.

(a) Design engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:

[1] The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or

[2] A different grate, if each individual clear space in that grate has an area of no more than seven square inches, or is no greater than 0.5 inches across the smallest dimension. Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater basin floors.

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

(c) This standard shall not apply:

[1] Where the review agency determines that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;

[2] Where flows from the water quality design storm as specified in § 255-8G(1) are conveyed through any device (e.g., end-of-pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:

[a] A rectangular space 4 5/8 inches long and 1 1/2 inches wide (this option does not apply for outfall netting facilities); or

[b] A bar screen having a bar spacing of 0.5 inches.

[3] Where flows are conveyed through a trash rack that has parallel bars with one-inch spacing between the bars, to the elevation of the water quality design storm as specified in § 255-8G(1), or

[4] Where the Department determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will

damage or destroy the New Jersey Register listed historic property.

(4) Any land area used as a nonstructural stormwater management measure to meet the performance standards in § 255-8F and G shall be dedicated to a government agency, subjected to a conservation restriction filed with the Union County Clerk's office, or subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

(5) Guidance for nonstructural stormwater management strategies is available in the New Jersey Stormwater Best Management Practices Manual.

F. Erosion control, groundwater recharge and runoff quantity standards.

(1) This subsection contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.

(a) The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

(b) The minimum design and performance standards for groundwater recharge are as follows:

[1] The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at § 255-12, either:

[a] Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100% of the average annual preconstruction groundwater recharge volume for the site; or

[b] Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from preconstruction to postconstruction for the two-year storm is infiltrated.

[2] This groundwater recharge requirement does not apply to projects within the urban redevelopment area, or to projects subject to Subsection F(1)(b)[3] below.

[3] The following types of stormwater shall not be recharged:

[a] Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and

commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied; areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department-C approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

[b] Industrial stormwater exposed to source material. "Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

[4] The design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or downgradient of the groundwater recharge area.

(c) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at § 255-9, complete one of the following:

[1] Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, postconstruction runoff hydrographs for the two-, ten- and one-hundred-year storm events do not exceed, at any point in time, the preconstruction runoff hydrographs for the same storm events;

[2] Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the

preconstruction condition, in the peak runoff rates of stormwater leaving the site for the two-, ten- and one-hundred-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;

[3] Design stormwater management measures so that the postconstruction peak runoff rates for the two-, ten- and one-hundred-year storm events are 50%, 75% and 80%, respectively, of the preconstruction peak runoff rates. The percentages apply only to the postconstruction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed.

G. Stormwater runoff quality standards. This criteria applies to the rate of runoff, while volume is allowed to increase as long as it does not increase flood damage downstream.

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

Table 1

Water Quality Design Storm Distribution

Time (minutes)	Cumulative Rainfall (inches)	Time (minutes)	Cumulative Rainfall (inches)
0	0.0000	65	0.8917

5	0.0083	70	0.9917
10	0.0166	75	1.0500
15	0.0250	80	1.0840
20	0.0500	85	1.1170
25	0.0750	90	1.1500
30	0.1000	95	1.1750
35	0.1330	100	1.2000
40	0.1660	105	1.2250
45	0.2000	110	1.2334
50	0.2583	115	1.2417
55	0.3583	120	1.2500
60	0.6250		

(2) For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the NJDEP's Stormwater Best Management Practices Manual. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey, 08625-0418.

(3) If more than one BMP in series is necessary to achieve the required eighty-percent TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

R = A + B - (AXB)/100

Where

R = total TSS percent load removal from application of both BMPs

A = the TSS percent removal rate applicable to the first BMP

B = the TSS percent removal rate applicable to the second BMP

Table 2

TSS Removal Rates for BMPs

Best Management Practice	TSS Percent Removal Rate
Bioretention systems	90

Constructed stormwater wetland	90
Extended detention basin	40 to 60
Infiltration structure	80
Manufactured treatment device	See § 255-10C
Sand filter	80
Vegetative filter strip	60 to 80
Wet pond	50 to 90

(4) If there is more than one on-site drainage area, the eighty-percent TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site, in which case the removal rate can be demonstrated through a calculation using a weighted average.

(5) Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the postconstruction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in § 255-8F and G.

(6) Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual.

(7) In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.

(8) Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the county soil surveys, within the associated HUC14 drainage area. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

(a) The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:

[1] A three-hundred-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of the bank outwards or from the center line of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession.

[2] Encroachment within the designated special water resource protection area under Subsection G(8)(a)[1] above shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top-of-bank of the waterway or center line of the waterway where the bank is undefined. All encroachments proposed under this subparagraph shall be subject to review and approval by the Department.

(b) All stormwater shall be discharged outside of and flow through the special water resource protection area and shall comply with the standard for off-site stability in the Standards for Soil Erosion and Sediment Control in New Jersey, established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq.

(c) If stormwater discharged outside of and flowing through the special water resource protection area cannot comply with the standard for off-site stability in the Standards for Soil Erosion and Sediment Control in New Jersey, established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:

[1] Stabilization measures shall not be placed within 150 feet of the Category One waterway;

[2] Stormwater associated with discharges allowed by this section shall achieve a ninety-five-percent TSS postconstruction removal rate;

[3] Temperature shall be addressed to ensure no impact on the receiving waterway;

[4] The encroachment shall only be allowed where the applicant demonstrates that the functional value and

overall condition of the special water resource protection area will be maintained to the maximum extent practicable;

[5] A conceptual project design meeting shall be held with the appropriate Department staff and soil conservation district staff to identify necessary stabilization measures; and

[6] All encroachments proposed under this section shall be subject to review and approval by the Department.

(d) A stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan, or by a municipality through an adopted municipal stormwater management plan. If a stream corridor protection plan for a waterway subject to § 255-G(9) has been approved by the Department, then the provisions of the plan shall be the applicable special water resource protection area requirements for that waterway. A stream corridor protection plan for a waterway subject to G.8 shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in § 255-8G(8)(a)[1] above. In no case shall a stream corridor protection plan allow the reduction of the Special Water Resource Protection Area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.

(e) Section 255-8G(8) does not apply to the construction of one individual single-family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision approval on or before February 2, 2004, provided that the construction begins on or before February 2, 2009.

§ 255-9. Calculation of stormwater runoff and groundwater recharge.

A. Stormwater runoff shall be calculated in accordance with the following:

(1) The design engineer shall calculate runoff using one of the following methods:

(a) The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Section 4, Hydrology and Technical Release 55, Urban Hydrology for Small Watersheds; or

(b) The Rational Method for peak flow and the Modified Rational Method for hydrograph computations.

(2) For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the preconstruction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology at § 255-9A(1)(a) and the Rational and Modified Rational Methods at § 255-9A(1)(b). A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover have existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).

(3) In computing preconstruction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce preconstruction stormwater runoff rates and volumes.

(4) In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release 55, Urban Hydrology for Small Watersheds, and other methods may be employed.

(5) If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures.

B. Groundwater recharge may be calculated in accordance with the following: the New Jersey Geological Survey Report GSR-32, A Method for Evaluating Ground-Water Recharge Areas in New Jersey, incorporated herein by reference, as amended and supplemented.

§ 255-10. Standards for structural stormwater management measures.

A. Standards for structural stormwater management measures are as follows:

(1) Structural stormwater management measures shall be designed to take into account the existing site conditions, including, for example, environmentally critical areas, wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone).

(2) Structural stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate and shall have parallel bars with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than 1/3 the width of the diameter of the orifice or 1/3 the width of the weir, with a minimum spacing between bars of one inch and a maximum spacing between bars of six inches. In addition, the design of trash racks must comply with the requirements of § 255-12D.

(3) Structural stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement.

(4) At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of 2 1/2 inches in diameter.

(5) Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins at 255-12.

B. Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized, provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by § 255-8.

C. Manufactured treatment devices may be used to meet the requirements of § 255-8, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

§ 255-11. Sources for technical guidance.

A. Technical guidance for stormwater management measures can be found in the documents listed at Subsections A(1) and A(2) below, which are available from Maps and Publications, New Jersey Department of

Environmental Protection, 428 East State Street, P.O. Box 420, Trenton, New Jersey, 08625; telephone (609) 777-1038.

(1) Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended. Information is provided on stormwater management measures such as: bioretention systems, constructed stormwater wetlands, dry wells, extended detention basins, infiltration structures, manufactured treatment devices, pervious paving, sand filters, vegetative filter strips, and wet ponds.

(2) The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, as amended.

B. Additional technical guidance for stormwater management measures can be obtained from the following:

(1) The Standards for Soil Erosion and Sediment Control in New Jersey promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90.

(2) The Rutgers Cooperative Extension Service;

(3) The soil conservation districts listed in N.J.A.C. 2:90-1.3(a)4; and

(4) The New Jersey Geological Survey Report GSR-32, A Method for Evaluating Ground-Water Recharge Areas in New Jersey.

§ 255-12. Safety standards for stormwater management basins.

A. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins and applies to any new stormwater management basin. The provisions of this section are not intended to preempt more stringent Borough or Union County safety requirements for new or existing stormwater management basins, including, but not limited to, requirements for existing stormwater management basins to be retrofitted to meet one or more of the safety standards in § 255-12B(1), B(2), and B(3) for trash racks, overflow grates, and escape provisions at outlet structures.

B. Requirements for trash racks, overflow grates and escape provisions.

(1) A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management basin to ensure proper functioning of the basin outlets in accordance with the following:

(a) The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars.

(b) The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.

(c) The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.

(d) The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

(2) An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:

(a) The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.

(b) The overflow grate spacing shall be no less than two inches across the smallest dimension.

(c) The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

(3) For purposes of this paragraph, escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management basins. Stormwater management basins shall include escape provisions as follows:

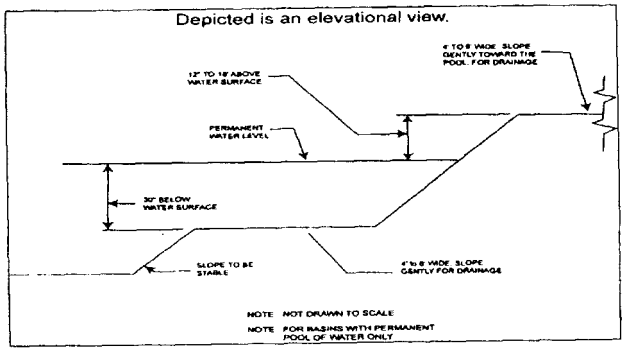
(a) If a stormwater management basin has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency identified in § 255-12C, a freestanding outlet structure may be exempted from this requirement.

(b) Safety ledges shall be constructed on the slopes of all new stormwater management basins having a permanent pool of water deeper than 2 1/2 feet. Such safety ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately 2 1/2 feet below the permanent water surface, and the second step shall be located one to 1 1/2 feet above the permanent water surface. See § 255-12D for an illustration of safety ledges in a stormwater management basin.

(c) In new stormwater management basins, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one vertical.

C. Variance or exemption from safety standards. A variance or exemption from the safety standards for stormwater management basins may be granted only upon a written finding by the appropriate reviewing agency (municipality, county or Department) that the variance or exemption will not constitute a threat to public safety.

D. Illustration of safety ledges in a new stormwater management basin.



§ 255-13. Requirements for a site development stormwater plan.

A. Submission of site development stormwater plan.

(1) Whenever an applicant seeks municipal approval of a development subject to this chapter, the applicant shall submit all of the required components of the checklist for the site development stormwater plan at § 255-13C below as part of the submission of the applicant's application for subdivision or site plan approval.

(2) The applicant shall demonstrate that the project meets the standards set forth in this chapter.

(3) The applicant shall submit 15 copies of the materials listed in the checklist for site development stormwater plans in accordance with § 255-13C.

B. Site development stormwater plan approval. The applicant's site development project shall be reviewed as a part of the subdivision or site plan review process by the Borough board or official from which Borough approval is sought. That Borough board or official shall consult the engineer retained by the Joint Planning and Zoning Board to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this chapter.

C. Checklist requirements. The following information shall be required:

(1) Topographic base map. The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of one inch equals 200 feet or greater, showing two-foot contour intervals. The map, as appropriate, may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of the Category One waters, wetlands and floodplains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and man-made features not otherwise shown.

(2) Environmental site analysis. A written and graphic description of the natural and man-made features of the site and its environs. This description should include a discussion of soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual, or environmentally sensitive features and to those that provide particular opportunities or constraints for development.

(3) Project description and site plan(s). A map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the site plan and justification of proposed changes in natural conditions may also be provided.

(4) Land use planning and source control plan. This plan shall provide a demonstration of how the goals and standards of this chapter are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.

(5) Stormwater management facilities map. The following information, illustrated on a map of the same scale as the topographic base map, shall be included:

(a) Total area to be paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.

(b) Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.

(6) Calculations.

(a) Comprehensive hydrologic and hydraulic design calculations for the predevelopment and postdevelopment conditions for the design storms specified in § 255-8.

(b) When the proposed stormwater management control measures (e.g., infiltration basins) depends on the hydrologic properties of soils, then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure.

(7) Maintenance and repair plan. The design and planning of the stormwater management facility shall meet the maintenance requirements of § 255-14.

(8) Waiver from submission requirements. The Joint Planning and Zoning Board, in consultation with the Borough Engineer, may waive submission of any of the requirements in § 255-13C(1) through C(6) if it determines that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process. A written request explaining the basis for the waiver(s) must be submitted by the applicant in order for a waiver to be considered.

§ 255-14. Maintenance and repair.

A. Applicability. Projects subject to review as in § 255-4 shall comply with the requirements of § 255-14B and C.

B. General maintenance.

(1) The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.

(2) The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). Maintenance guidelines for stormwater

management measures are available in the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

(3) Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project.

(4) If the person responsible for maintenance identified under § 255-14B(2) above is not a public agency, the maintenance plan and any future revisions based on § 255-14B(7) below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

(5) Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of nonvegetated linings.

(6) The person responsible for maintenance identified under § 255-14B(2) above shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

(7) The person responsible for maintenance identified under § 255-14B(2) above shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

(8) The person responsible for maintenance identified under § 255-14B(2) above shall retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and the documentation required by § 255-14B(6) and 14B(7) above.

(9) The requirements of § 255-14B(3) and B(4) do not apply to stormwater management facilities that are dedicated to and accepted by the Borough or another governmental agency.

(10) In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of

maintenance or repair, the Borough shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have 14 days to effect maintenance and repair of the facility in a manner that is approved by the Borough Engineer or his/her designee. The Borough, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the Borough or Union County may immediately proceed to do so and shall bill the cost thereof to the responsible person.

C. Nothing in this section shall preclude the Borough from requiring the posting of a performance or maintenance guarantee in accordance with N.J.S.A. 40:55D-53.

§ 255-15. Violations and penalties.

Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this chapter shall be subject to penalties prescribed under §§ 184-193 and 184-194 of the Borough Code.

ARTICLE III
Uses in the Floodplain

§ 255-16. Permitted uses.

There are no permitted land uses within the floodplain.

§ 255-17. Conditional uses.

A. Conditional land uses for the purpose of this chapter have an inherent low flood damage potential and do not:

(1) Require fill;

(2) Obstruct flood flows;

(3) Increase local runoff and/or erosion;

(4) Reduce ground absorption of stormwater;

(5) Adversely affect the watercarrying or storage capacity of any channel, floodway or floodplain; and

(6) Cause degradation of water quality and/or the natural environment.

B. Conditional land uses for the purposes of this chapter include but are not limited to the following:

(1) Agricultural uses such as outdoor plant nurseries, horticulture, viticulture and forestry.

(2) Recreational uses, both public and private, such as tennis courts, basketball courts, baseball fields, playgrounds, picnic grounds, parks, wildlife and nature preserves and hiking trails.

(3) Residential uses such as lawns, gardens, parking areas and playgrounds.

(4) Storage of materials or equipment.

(5) Channel modification and/or relocation.

(6) Storage yards.

§ 255-18. Nonconforming uses.

A. The lawful use of land, buildings or structures in existence on the effective date of this chapter and buildings or structures under construction on the effective date of this chapter ("under construction" as used herein means that construction materials have been placed in their permanent position and fastened in a permanent manner) may be continued although such use of land, buildings or structures does not conform to the regulations specified in this chapter, provided that:

(1) If any nonconforming building or structure shall be destroyed by reason of windstorm, fire, explosion, flood or other act of God or the public enemy, the nonconforming building or structure may be rebuilt, restored or repaired for its original use after a conditional use permit therefor shall have been granted by the Planning Board;

(2) No nonconforming building or structure shall be moved, altered, expanded, changed or enlarged until a conditional use permit therefor shall have been granted by the Planning Board (this provision does not apply to routine maintenance and repair, provided that such maintenance and repair does not increase the flood damage potential of the building or structure); and

(3) No nonconforming use of land, buildings or structures shall be modified so as to increase its flood damage potential until a conditional use permit therefor shall have been granted by the Planning Board.

B. The use of land, buildings or structures in the floodway abandoned for six consecutive months or longer and, in the flood fringe area, abandoned for 12 consecutive months or longer after the effective date of this chapter shall not receive the protection granted such use by § 255-8A.

§ 255-19. Prohibited uses.

A. No person shall hereafter engage in, cause or permit other persons to engage in the following prohibited uses within a delineated floodway:

(1) Placing, depositing or dumping any solid waste, garbage, refuse, trash, rubbish, debris or any other fill.

(2) Dumping or discharging untreated domestic sewage or industrial wastes, either solid or liquid.

(3) Storing or disposing of pesticides.

(4) Storing or processing of materials that are in time of flooding buoyant, flammable or explosive.

(5) Storing or processing of hazardous materials that could be injurious in time of flooding to human, other animal, or plant life.

(6) Erecting buildings or structures except as specifically permitted as a conditional use.

B. No person shall hereafter engage in, cause or permit other persons to engage in the following prohibited uses within a delineated flood fringe area:

(1) Placing, depositing or dumping any solid waste, garbage, refuse, trash, rubbish, debris or any other fill.

(2) Dumping or discharging untreated domestic sewage or industrial wastes, either solid or liquid.

(3) Disposing of pesticides.

(4) Erecting buildings or structures except as specifically permitted as a conditional use.

ARTICLE IV
Procedure

§ 255-20. Permits required for uses in floodplain.

No person shall engage in any use within a delineated floodplain until he/she has received a stream encroachment permit issued by the Department and either a waiver from the Construction Official and the Borough Engineer or a conditional use permit from the Planning Board.

§ 255-21. Building permit required; conditional use permit waiver. [Amended 5-9-2006 by Ord. No. 06-09R]

A. Any person desiring to engage in any use within a delineated floodplain shall file for a building permit with the Construction Official.

B. In the event the use to be engaged involves construction or installation of an impermeable surface of less than 400 feet, the applicant shall file an application with the Borough Engineer seeking a conditional use permit waiver.

C. Any person desiring to engage in any use within a delineated floodplain who is denied a conditional use permit waiver by the Borough Engineer may appeal that determination by filing 20 copies of an application for floodplain conditional use waiver appeal with the Planning Board Secretary, using the official form furnished by the Planning Board, accompanied by a fee of $100 payable to the Borough and file an application for preliminary site plan approval conforming to the requirements of Chapter 184 of the Borough Code.

§ 255-22. Review by Planning Board.

A. Upon receipt of the application and other data cited in § 255-21, the Planning Board shall review same.

   (1) If the Chairman of the Planning Board or his/her designee shall determine that the information furnished is insufficient, he/she shall cause the applicant to be informed of the deficiencies within 45 days after receipt of the application by the Secretary of the Planning Board.

   (2) If the Chairman of the Planning Board or his/her designee shall determine that the information furnished is sufficient, the Planning Board shall notify:

      (a) The general public.

      (b) The governing bodies of other municipalities which may be affected by the proposed use.

      (c) The Environmental Commissions of other municipalities which may be affected by the proposed use.

(d) Those persons and bodies designated in § 74-7C of this Code.[1]

(3) The notification required by § 255-22A(2) shall be made by means of a legal notice inserted in an official newspaper of the Borough for the purpose of notifying the general public and by means of a letter accompanied by a copy of the site plan mailed to the other persons to be notified, said legal notice and letter to include the following:

(a) The name and address of the applicant.

(b) The location of the proposed use.

(c) An abbreviated description of the proposed use.

(d) An announcement as to where and at what times the complete application may be reviewed.

(e) To whom and by what date interested parties may communicate their positions concerning the application and any data that they may have developed in reference to the effects of the proposed use.

B. On or after the date stated in § 255-22A(3)(e), the Planning Board shall review the application and all information received from interested parties, consult with the Borough Engineer and consider the following criteria:

(1) The danger to life and property due to increased flood heights or velocities caused by encroachments.

(2) The danger that materials may be swept onto other lands or downstream to the injury of others.

(3) The proposed water supply and sanitation systems and the insulation of these systems from disease, contamination and unsanitary conditions resulting from flooding.

(4) The susceptibility of the proposed use to flood damage and the effects of such damage.

(5) The availability of alternate locations not subject to flooding.

(6) The duration, rate of rise and sediment transport of floodwaters expected at the site.

(7) The safety of access to the property in times of flood for ordinary and emergency vehicles.

(8) The extent to which the hydraulic capacity of the floodway will be disrupted.

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1. Editor's Note: Former Ch. 74, Site Plan Review, was repealed 12-28-2000 by Ord. No. 00-16R. See now Ch. 184, Land Use.

(9) The degree to which the proposed use serves the health, safety and welfare of the general public.

(10) The degree to which any aspect of the food chain process or plant, animal, fish or human life processes are affected adversely within or beyond the proposed use area.

(11) The degree to which the proposed activity alters natural water flow or water temperature.

(12) The degree to which the proposed use provides facilities for the proper handling of litter, trash, refuse and sanitary and industrial waste.

(13) The degree to which irreplaceable land types will be destroyed.

(14) The degree to which the natural, scenic and aesthetic values at the proposed activity site can be retained.

(15) The degree to which materials not subject to major damage by floods are firmly anchored to prevent flotation and/or are readily removable from the area within the time available after flood warning.

C. Within 95 days after the receipt by the Secretary of the Planning Board of the application and other information determined by the Chair of the Planning Board or his/her designee to be sufficient, the Planning Board shall either issue or deny a conditional use permit unless the applicant shall consent to a definite or indefinite extension of this time period. Failure of the Planning Board to act within this time period and such extensions thereto as may be consented to by the applicant shall constitute approval of the application, and the Secretary of the Planning Board shall issue a conditional use permit upon written request of the applicant (the Secretary shall state on a permit so issued that it is issued in default of action by the Planning Board).

(1) If the Planning Board finds that the proposed use would violate or tend to violate the purposes and intent of this chapter, it shall deny the application and notify the applicant in writing of its findings.

(2) If the Planning Board finds that the proposed use, with or without conditions, has low flood damage potential, either acting alone or in combination with existing or future uses does not obstruct flood flows or increase flood heights and/or velocities, does not affect adversely the water-carrying capacity of any delineated floodway and/or channel, does not increase local runoff and/or erosion and does not stress unduly the natural environment of the floodplain or degrade the quality of surface water or the quality and quantity of groundwaters, it shall issue a conditional use permit with or without conditions.

D. If the Planning Board shall find that conditions are necessary to promote the public safety, health and welfare; to protect public and private property and wildlife; and to preserve, protect and enhance the natural environment of the floodplain, it shall condition the conditional use permit as necessary. These conditions may include, but are not limited to, the following:

(1) Modification of waste disposal and water supply facilities.

(2) Imposition of operational controls, sureties, and deed restrictions.

(3) Requirements for construction of stormwater detention facilities, channel modifications, dikes, levees and other protective measures.

(4) Installation of an adequate flood warning system.

(5) Installation of fill no lower than one foot above the elevation of the perimeter of the floodplain in which situated which shall extend at such height for a distance of at least 15 feet beyond the limits of any structure erected thereon.

(6) Structures built on fill shall have their first floor and/or basements at a minimum of one foot above the elevation of the perimeter of the floodplain in which situated.

(7) Structures not built on fill shall be otherwise elevated so that the first floor is at a minimum of one foot above the elevation of the perimeter of the floodplain in which situated or shall be floodproofed. Floodproofing alone shall not be adequate for residences, hospitals, nursing homes, schools, day care centers and the like.

(8) Floodproofing measures shall be consistent with the flood protection elevation for the particular area; flood velocities, durations, rates of rise, hydrostatic and hydrodynamic forces and other similar factors. The consistency of the proposed floodproofing measures shall be certified by a licensed professional engineer on a plan or document submitted by the applicant showing the floodproofing measures to be employed. Any or all of the following floodproofing measures may be required:

(a) Anchorage to resist flotation and lateral movement.

(b) Installation of watertight doors, bulkheads and shutters or similar devices.

(c) Reinforced walls to resist water pressures.

(d) Use of paints, membranes or mortars to reduce seepage of water through walls.

(e) Addition of weight to structures to resist flotation.

(f) Installation of pumps to lower water levels in structures.

(g) Construction of water supply and waste treatment systems in a manner which prevents the entrance of floodwaters.

(h) Pumping facilities or comparable measures for the subsurface drainage systems of buildings to relieve external foundation wall and basement flood pressures.

(i) Construction that resists rupture or collapse caused by water pressure or floating debris.

(j) Installation of valves or controls on sanitary and storm drains which will permit the drains to be closed to prevent backup of sewage or stormwaters into the structure. (Gravity drainage of basements may be eliminated by mechanical devices.)

(k) Location of all electrical equipment, circuits and installed electrical appliances in a manner which will assure that they are not subject to inundation and flooding.

(l) Storage facilities for chemicals, explosives, buoyant materials, flammable liquids or other toxic or hazardous materials shall be situated above the elevation of the perimeter of the floodplain in which situated and shall be floodproofed to prevent flotation of storage containers or damage to storage containers which could result in the escape of toxic materials into the floodwaters.

(m) Use of construction materials which are resistant to water damage.

(9) Postponement of development until such time as protective measures are installed.

ARTICLE V
Miscellaneous Provisions

§ 255-23. Flood insurance.

Flood insurance, in accordance with the National Flood Insurance Program of the United States Department of Housing and Urban Development, shall be required for all developments in the floodplain.

§ 255-24. Issuance of building permit and certificate of occupancy.

A. No building permit shall be issued by the Construction Official for any proposed structure or development to be located within any floodplain until a stream encroachment permit shall have been issued by the Department and either the Construction Official has determined that the proposed structure or development involves the construction or installation of an impermeable surface of less than 400 square feet and has issued a conditional use permit waiver to which waiver the Borough Engineer has concurred or a conditional use permit shall have been issued by the Planning Board.

B. No certificate of occupancy shall be issued by the Construction Official for any structure or development unless proof has been submitted to him that all provisions of this chapter have been fully complied with.

§ 255-25. Appeals.

A. Any person may appeal to the Borough Council any action taken by the Planning Board or by the Borough Construction Official under the provisions of this chapter within 10 days of the date on which the action was taken by serving the Borough Clerk, in person or by certified mail, with a notice of appeal specifying the grounds thereof and the name and address of the appellant and the name and address of his/her attorney, if represented.

B. The Borough Council shall review the appeal using the procedures mandated by Sections 8b through 8g of the Municipal Land Use Law (Chapter 291 of the Laws of 1975),[2] as applicable.

C. Nothing in this chapter shall be construed to restrict the right of any person to obtain a review by any court of competent jurisdiction according to law.

§ 255-26. Interpretation.

This chapter shall not be construed to repeal the provisions of Chapter 184, Land Use, of this Code.

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2. Editor's Note: See N.J.S.A. 40:55D-17.

§ 255-27. Prohibited conduct.

The spilling, dumping, or disposal of materials other than stormwater into the Borough separate storm sewer system is prohibited. The spilling, dumping, or disposal of materials other than stormwater in such a manner as to cause the discharge of pollutants into the Borough separate storm sewer system is also prohibited.

§ 255-28. Exceptions to prohibition.

Exceptions to prohibition include:

A. Water line flushing and discharges from potable water sources.

B. Uncontaminated groundwater (e.g., infiltration, crawl space or basement sump pumps, foundation or footing drains, rising groundwaters).

C. Air-conditioning condensate (excluding contact and noncontact cooling water).

D. Irrigation water (including landscape and lawn watering runoff).

E. Flows from springs, riparian habitats and wetlands, water reservoir discharges and diverted stream flows.

F. Residential car washing water and residential swimming pool discharges.

G. Sidewalk, driveway and street wash water.

H. Flows from fire-fighting activities.

I. Flows from rinsing of the following equipment with clean water:

   (1) Equipment used in the application of salt and de-icing materials immediately following salt and de-icing material applications. Prior to rinsing with clean water, all residual salt and de-icing materials must be removed from equipment and vehicles to the maximum extent practicable using dry cleaning methods (e.g., shoveling and sweeping). Recovered materials are to be returned to storage for reuse or properly discarded.

   (2) Rinsing of equipment, as noted in the above situation, is limited to exterior, undercarriage, and exposed parts and does not apply to engines or other enclosed machinery.

§ 255-29. Violations and penalties. [Amended 6-13-2006 by Ord. No. 06-11R]

Any person(s) in violation of the provisions of this chapter shall be subject to a fine not to exceed $2,000, up to 90 days in jail, or both.

Chapter 256

STORMWATER CONTROL FOR NON-MAJOR DEVELOPMENTS

GENERAL REFERENCES

Environmental Commission — See Ch. 25.

Land use — See Ch. 184.

Soil removal — See Ch. 250.

Stormwater control for major developments — See Ch. 255.

Flood damage prevention — See Ch. 257.

§ 256-1. Applicability.

This chapter shall be applicable to any development not classified as a major development under Chapter 255-6 (hereafter referred to as a "non-major development").

§ 256-2. Administration.

A. Stormwater management for non-major developments shall be reviewed by the Borough Engineer in conjunction with any application submitted to the Planning Board, including site plans, subdivisions and variances. In addition to materials required under Chapter 184 of the Borough Code, the applicant shall submit topographical information, design calculations, soil boring logs and other information related to stormwater management, if requested by the Borough Engineer. The Planning Board may specify stormwater management measures as conditions of approval.

B. In cases where a non-major development does not require Planning Board approval, but a building permit is required, the Borough Construction Official shall forward a copy of each application for a building permit to the Borough Engineer.

(1) If the Borough Engineer determines that the non-major development involves the construction or installation of an impervious surface of less than 200 square feet, the Borough Engineer shall notify the Construction Official who then may proceed with the normal business of issuing a building permit without further consideration of stormwater management.

(2) If the Borough Engineer determines that the non-major development involves the construction or installation of an impervious surface of 200 square feet or more, the Borough Engineer shall review the application for stormwater management. The Borough Engineer shall return the application to the Construction Official with appropriate comments and/or requirements to be incorporated as conditions of the issuance of the building permit.

(3) Any party aggrieved by any decision of the Borough Engineer acting under this chapter as part of the building permit process shall have the right to petition the Mayor and Council to review the Borough Engineer's decision. If the Mayor and Council decide that, due to the peculiar or unique circumstances of the matter, strict compliance is not practical or would create an undue hardship, then the Mayor and Council may, on such terms and conditions as they deem appropriate, waive any requirements set forth by the Borough Engineer.

C. In those cases where the non-major development requires neither the approval of the Planning Board nor issuance of a building permit, the non-major development shall be exempt from the requirements of this chapter.

§ 256-3. Design standards.

Except in particularly unusual situations to be determined by the Borough Engineer, use of the following design standards for a non-major development shall satisfy the requirements of this chapter:

A. Route each new downspout to prefabricated, high-density polyethylene drywells with a nominal storage capacity of approximately 100 gallons.

B. Route each new downspout to a stone-filled infiltration trench with a volume of approximately 36 cubic feet (three feet wide, three feet deep and four feet long).

C. Route each new downspout to a rain garden with a minimum area of 150 square feet.

D. Existing downspouts may be similarly routed to offset increased runoff from new patios, driveways and other increases in impervious coverage.

E. In each of the foregoing instances, provisions shall be made for overflow of excess drainage. Overflows shall be discharged to downstream pervious areas as sheet flow. Direct piping of downspouts to the curb will only be allowed in situations where sheet flow is impractical or would create hazards to property.

F. All facilities shall be designed in accordance with acceptable engineering practices subject to the approval of the Borough Engineer. The Borough Engineer will supply greater specification of these design guidelines upon request. The applicant's engineer may submit alternate designs, which shall be subject to the approval of the Borough Engineer if he/she finds that they are reasonably consistent with this section.

§ 256-4. Maintenance.

The owner of any installation or system installed under this chapter to control or regulate stormwater runoff shall properly maintain such installation or system to ensure its correct functioning.

§ 256-5. Violations and penalties.

Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land which is part of a non-major development, in violation of this chapter, shall be subject to the penalties prescribed under §§ 184-193 and 184-194 of the Borough Code.

APPENDIX 2

MAJOR DEVELOPMENT STORMWATER SUMMARY REPORT FORM

Major Development Stormwater Summary

General Information	
1. Project Name:	
2. Municipality:	County: Block(s): Lot(s):
3. Site Location (State Plane Coordinates – NAD83):	E: N:
4. Date of Final Approval for Construction by Municipality: Date of Certificate of Occupancy:	
5. Project Type (check all that apply): Residential☐ Commercial☐ Industrial☐ Other (please specify) _____	
6. Soil Conservation District Project Number:	
7. Did project require an NJDEP Land Use Permit?	Yes◯ No◯ Land Use Permit #:
8. Did project require the use of any mitigation measures? If yes, which standard was mitigated? _____	Yes◯ No◯

Site Design Specifications	
1. Area of Disturbance (acres):	Area of Proposed Impervious (acres):
2. List all Hydrologic Soil Groups:	
3. Please Identify the Amount of Each Best Management Practices (BMPs) Utilized in Design Below: Bioretention Systems ___ Constructed Wetlands ___ Dry Wells ___ Extended Detention Basins ___ Infiltration Basins ___ Combination Infiltration/Detention Basins ___ Manufactured Treatment Devices___ Pervious Paving Systems ___ Sand Filters ___ Vegetative Filter Strips ___ Wet Ponds ___ Grass Swales ___ Subsurface Gravel Wetlands ___ Other _____	

Storm Event Information		
Storm Event - Rainfall (inches and duration):	2 yr.: _____	10 yr.: _____
	100 yr.: _____	WQDS: _____
Runoff Computation Method: NRCS: Dimensionless Unit Hydrograph☐ NRCS: Delmarva Unit Hydrograph☐ Rational☐ Modified Rational☐ Other: _____		

Basin Specifications (answer all that apply) *If more than one basin, attach multiple sheets*	
1. Type of Basin:	Surface/Subsurface (select one): Surface◯ Subsurface◯
2. Owner (select one): ◯Public ◯Private: If so, Name:	Phone number:
3. Basin Construction Completion Date:	
4. Drain Down Time (hr.):	
5. Design Soil Permeability (in./hr.):	
6. Seasonal High Water Table Depth from Bottom of Basin (ft.):	Date Obtained:
7. Groundwater Recharge Methodology (select one):	2 Year Difference◯ NJGRS◯ Other◯ NA◯
8. Groundwater Mounding Analysis (select one):	Yes◯ No◯ If, Yes Methodology Used:
9. Maintenance Plan Submitted:	Yes◯ No◯ Is the Basin Deed Restricted: Yes◯ No◯

Comments:

Name of Person Filling Out This Form: _____ Signature: _____

Title: _____ Date: _____ 2/2/2018

Basin Specifications (answer all that apply)
If more than one basin, attach multiple sheets

1. Type of Basin: Surface/Subsurface (select one): Surface ◯ Subsurface ◯
2. Owner (select one): ◯ Public ◯ Private: If so, Name: Phone number:
3. Basin Construction Completion Date:
4. Drain Down Time (hr.):
5. Design Soil Permeability (in./hr.):
6. Seasonal High Water Table Depth from Bottom of Basin (ft.): Date Obtained:
7. Groundwater Recharge Methodology (select one): 2 Year Difference ◯ NJGRS ◯ Other ◯ NA ◯
8. Groundwater Mounding Analysis (select one): Yes ◯ No ◯ If, Yes Methodology Used:
9. Maintenance Plan Submitted: Yes ◯ No ◯ Is the Basin Deed Restricted: Yes ◯ No ◯

Basin Specifications (answer all that apply)
If more than one basin, attach multiple sheets

1. Type of Basin: Surface/Subsurface (select one): Surface ◯ Subsurface ◯
2. Owner (select one): ◯ Public ◯ Private: If so, Name: Phone number:
3. Basin Construction Completion Date:
4. Drain Down Time (hr.):
5. Design Soil Permeability (in./hr.):
6. Seasonal High Water Table Depth from Bottom of Basin (ft.): Date Obtained:
7. Groundwater Recharge Methodology (select one): 2 Year Difference ◯ NJGRS ◯ Other ◯ NA ◯
8. Groundwater Mounding Analysis (select one): Yes ◯ No ◯ If, Yes Methodology Used:
9. Maintenance Plan Submitted: Yes ◯ No ◯ Is the Basin Deed Restricted: Yes ◯ No ◯

Basin Specifications (answer all that apply)
If more than one basin, attach multiple sheets

1. Type of Basin: Surface/Subsurface (select one): Surface ◯ Subsurface ◯
2. Owner (select one): ◯ Public ◯ Private: If so, Name: Phone number:
3. Basin Construction Completion Date:
4. Drain Down Time (hr.):
5. Design Soil Permeability (in./hr.):
6. Seasonal High Water Table Depth from Bottom of Basin (ft.): Date Obtained:
7. Groundwater Recharge Methodology (select one): 2 Year Difference ◯ NJGRS ◯ Other ◯ NA ◯
8. Groundwater Mounding Analysis (select one): Yes ◯ No ◯ If, Yes Methodology Used:
9. Maintenance Plan Submitted: Yes ◯ No ◯ Is the Basin Deed Restricted: Yes ◯ No ◯

Name of Person Filling Out This Form: ________________________ Signature: ________________________

Title: ____ Date: ____________________________

APPENDIX 3

LOCAL PUBLIC EDUCATION PROGRAM

NJDEP STORMWATER BROCHURE

SAMPLE ORDINANCE EDUCATION LETTER

OTHER NJDEP EDUCATIONAL BROCHURES

OTHER NJDEP EDUCATIONAL BROCHURES

How Does Urbanization Change a Watershed?
Alternatives to Pesticide
Using Leaf Compost
Yard Trimmings Management Strategies in New Jersey
Home Composting
Vermicomposting
Minimizing Waste Disposal: Grass Clippings
Backyard Leaf Composting
What is Ground Water?
What is Nonpoint Source Pollution?
What's a Watershed?
Clean Water Raingers Coloring Book
Clean Water Raingers Handbook
NJ Clean Communities Litter Activity Book

NJ Department of Environmental Protection
Division of Watershed Management
PO Box 418
Trenton, NJ 08625-0418
609-984-0058

WATER RESOURCE PROTECTION PRACTICES

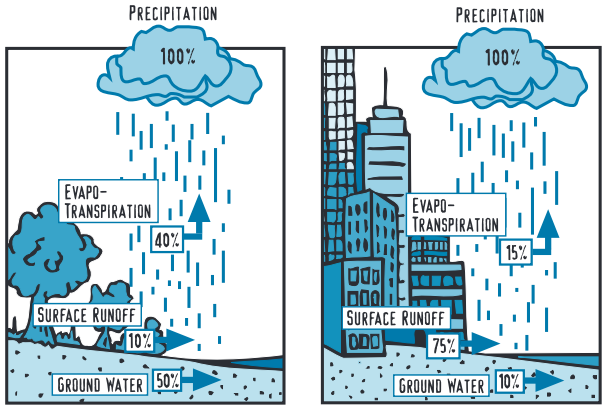
State of New Jersey
Christine Todd Whitman, Governor
Department of Environmental Protection
Robert C. Shinn, Jr., Commissioner

Printed on Recycled Paper
Reprinted March 1999

How does urbanization change a watershed?

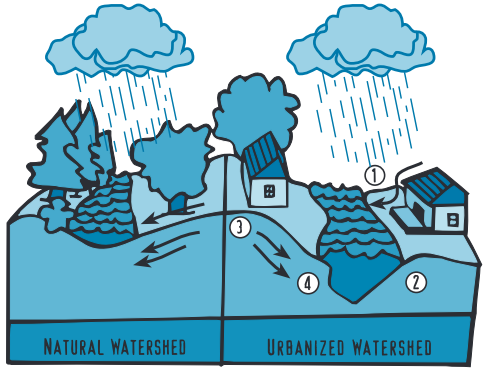
Urbanization (or development) has a great effect on local water resources. It changes how water flows in the watershed and what flows in the water. Both surface and ground water flow are changed.

As a watershed becomes developed, trees, shrubs and other plants are replaced with impervious surfaces (roads, rooftops, parking lots and other hard surfaces that do not allow stormwater to soak into the ground). Without the plants to store and slow the flow of stormwater, the rate of stormwater runoff is increased. Less stormwater is able to soak into the ground because sidewalks, roads, parking lots and rooftops block this infiltration. This means a greater volume of water reaches the waterway faster and less of that water is able to infiltrate to ground water. This in turn leads to more flooding after storms but reduced flow in streams and rivers during dry periods. The reduced amount of infiltrating water can lower ground water levels, which in turn can stress local waterways that depend on steadier flows of water.



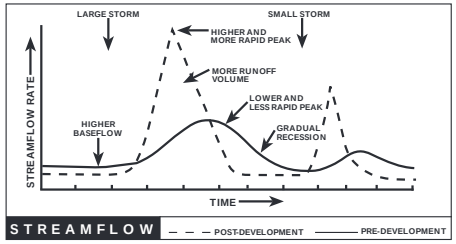
NATURAL WATERSHED URBANIZED WATERSHED

In the stream, more erosion of stream banks and scouring of channels will occur due to volume increase. This in turn degrades habitat for plant and animal life that depend on clear water. Sediment from eroded stream banks clogs the gills of fish and blocks light needed for plants. The sediment settles to fill in stream channels, lakes and reservoirs. This also increases flooding and the need for dredging to clear streams or lakes for boating.

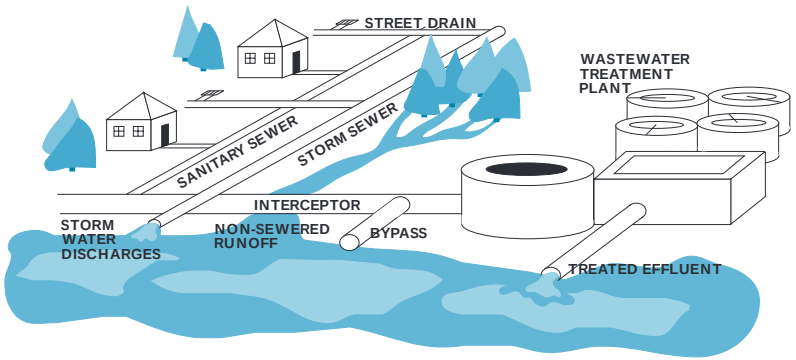


① INCREASED RUNOFF ② STREAMBANK EROSION ③ DECREASED INFILTRATION
④ DECREASED GROUND WATER FLOW TO STREAM

In addition to the high flows caused by urbanization, the increased runoff also contains increased contaminants. These include litter, cigarette butts and other debris from sidewalks and streets, motor oil poured into storm sewers, heavy metals from brake linings, settled air pollutants from car exhaust and pesticides and fertilizers from lawn care. These contaminants reach local waterways quickly after a storm.



Stormwater Sewer Basics



Stormwater flows into the stormwater system through a storm drain. These are frequently located along the curbs of parking lots and roadways. The grate that prevents larger objects from flowing into the storm sewer system is called a catch basin. Once below ground, the stormwater flows through pipes which lead to an outfall where the stormwater enters a stream, river or lake. In most areas of New Jersey, the stormwater sewer goes directly to local waterway without any treatment.

In some areas of the state, the outfall may lead to a stormwater management basin. These basins control the flow of stormwater and can also improve water quality, depending on how they are designed. These basins are frequently seen in newer commercial and residential areas.

In some older urban areas of the state, the stormwater and sanitary sewer systems may be combined. Here both stormwater and sewage from households and businesses travel together in the same pipes. Both stormwater and sewage are treated at sewage treatment plants except during heavy rains. During these occasions, both the stormwater and untreated sewage exceed the capacity of the treatment plant and this overflow is directed into local waterways.

Protecting Stormwater Sewers

In the first rush of water from a rainstorm, much of the debris and other pollutants that had settled on the land surface and in the stormwater sewer since the last storm will be picked up and carried into the local stream. This can significantly add to water quality problems. It is therefore important to protect the stormwater system from sources of pollution.

The following should never be dumped down storm drains, road gutters or catch basins: motor oil, pet waste, grass trimmings, leaves, debris and hazardous chemicals of any kind. Anything dumped in our stormwater collection systems will be carried into our streams.

Controlling Stormwater Flow

Managing stormwater to reduce the impact of development on local watersheds and aquifers relies on minimizing the disruption in the natural flow - both quality and quantity of stormwater. By designing with nature, the impact of urbanization can be greatly reduced.

This can be accomplished by following these principles:

- minimizing impervious surfaces;
- maximizing natural areas or areas of dense vegetation;
- structural stormwater controls such as stormwater management basins; and
- practicing pollution prevention by avoiding contact between stormwater and pollutants.

You Can Make a Difference in Your Own Backyard

Managing stormwater in your own backyard is important. As an integral part of the watershed you live in, what you do in your backyard makes a difference. Here are some examples of what you can do at home:

1. Reduce impervious surfaces by using pavers or bricks rather than concrete for a driveway or sidewalk.
2. Divert rain from paved surfaces onto grass to permit gradual infiltration.
3. Landscape with the environment in mind. Choose the appropriate plants, shrubs and trees for the soil in your yard; don't select plants that need lots of watering (which increases surface runoff), fertilizers or pesticides.
4. Maintain your car properly so that motor oil, brake linings, exhaust and other fluids don't contribute to water pollution.
5. Keep stormwater clean. Never dump litter, motor oil, animal waste, or leaves into storm drains or catch basins.

Alternatives to Pesticides

When planting a garden this year, consider using alternative methods to control pests, rather than chemical pesticides. Here are a few you might try.

HANDPICKING is time-consuming but unbeatable. Use gloves to remove visible offending insect and weed pests.

BARRIERS AND TRAPS - Barriers and traps are types of mechanical controls that can be employed to capture or impede pests.

COLLARS: To stop hatching larvae from burrowing into the soil surrounding your plants, use "collars" made of stiff paper, heavy plastic or tar paper. Cut a piece a foot square and fit snugly around the stem of the plant and press into the soil an inch or so deep. Use a paper clip to hold in place. This prevents cutworms and other burrowing insects from getting into the soil around your plants.

NETTING: Fine netting such as cheese cloth, placed over the bed, will protect seedlings from chewing insects, keep cats and birds away, and prevent flying insects from laying eggs.

COFFEE CAN TRAP**:** An effective technique for trapping non-flying insects is to bury a tin can in the bed of your garden so that the lip of the can is flush with the soil surface. Some bugs will fall in the can and be unable to get out. The can should be emptied often. This trap also collects beneficial insects and is a good way to monitor the insect population in your garden.

STICKY BOARD**:** A board or thick piece of paper painted yellow and coated with a sticky substance such as tanglefoot will attract and intercept aphids and other small flying insects.

TRAP PLANTS - Some insects, if given a choice, will opt to feed on one type of plant or another. For example: maggots prefer radishes over corn and tomato worms prefer dill over tomatoes. Therefore, certain plants can be strategically placed so that they lure harmful insects away from plants you wish to protect. These are commonly referred to as "trap plants." Once the trap plant has become infested, the target insect can be picked off and dropped in soapy water or the entire plant can be pulled up and disposed of.

BENEFICIAL INSECTS - It is important to recognize that not all insects in a garden are "pests." A garden and its surroundings contain many insects that are actually beneficial to the garden because they feed on insects that are harmful. Therefore, it is good to learn how to identify garden insects and determine whether they are harmful or beneficial. Many gardening books provide illustrations of the most common beneficial and harmful insects and will provide information on how to promote the population of beneficial insects such as ladybugs, bees, green lacewings, praying mantises, dragonflies, predacious mites and thrips, predacious wasps and spiders. Some companies such as seed catalogues sell beneficial insects by mail order.

COMPANION PLANTING - Some plants possess the natural ability to repel certain types of insects. Companion planting is the practice of strategically placing insect-repelling plants next to crops that will benefit from their natural properties. For example, planting garlic among vegetables helps fend off

Japanese beetles, aphids, the vegetable weevil, and spider mites; basil planted near tomatoes repels tomato horn worms; and marigolds interplanted with cucurbits (i.e., zucchini, cucumbers, etc.) discourage cucumber beetles.

CROP ROTATION - Planting different kinds of vegetables in each different section of your garden plot each year will help reduce pest infestation. In the fall, some insects lay their eggs in the soil a couple of inches below the surface. The eggs hatch in the spring and immediately begin the search for their food source. Many insects will feed on only one or types of vegetables. If the plant they prefer to eat is located several feet or yards away, the insect must migrate to the source. Many will die along the way or fall prey to birds and other insects. Also, certain families of plants (e.g., potatoes and peppers - nightshade family) attract the same pests.

In addition, many crops predominately absorb a particular nutrient from the soil. By rotating your crops each year, the soil in a particular section of the garden will have the opportunity to rest and regenerate.

DIVERSIFIED PLANTING - A common practice among home gardeners is to plant a single crop in a straight row. This encourages pest infestation because it facilitates easy travel of an insect or disease from one host plant to another. By intermingling different types of plants and by not planting in straight rows, an insect is forced to search for a new host plant thus exposing itself to predators. Also, this approach corresponds well with companion planting.

If you must use pesticides, consider the following:

LOW TOXICITY PESTICIDES - Formulated, biodegradable pest-control substances are commercially available. Although these products are pesticides, they have low toxicity to mammals and do not last long in the environment. The local County Extension Service can provide information on these and other pesticide products.

For more information, contact:

Ann R. Waters, Outreach Coordinator
Pesticide Control Program
CN 411, Trenton, NJ 08625
Phone: (609) 984-5014
Email: awaters@dep.state.nj.us

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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 l8 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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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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RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
NEW BRUNSWICK

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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 l50 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 l0 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 l0 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 l0 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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NJ Department of Environmental Protection
Division of Watershed Management
PO Box 418
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WATER RESOURCE PROTECTION PRACTICES

State of New Jersey
Christine Todd Whitman, Governor
Department of Environmental Protection
Robert C. Shinn, Jr., Commissioner

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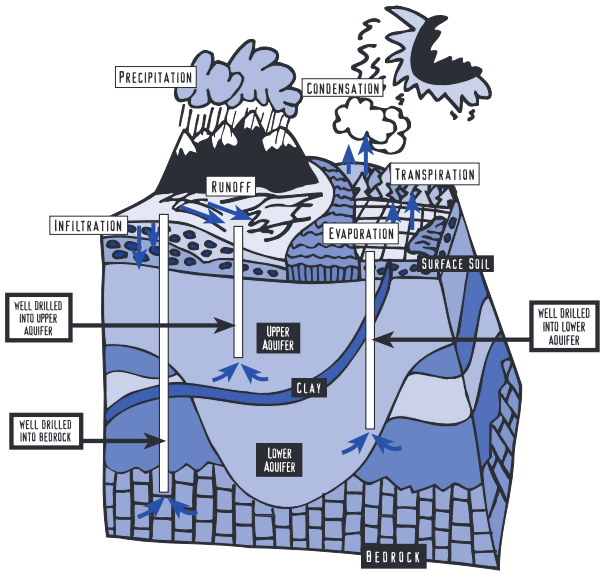
WHAT IS GROUND WATER?

Where does the water that rains on your home go? After it leaves your lawn, street or sidewalk, where is it headed? Does it wander into a wetlands? Does it puddle in your backyard? Does it zip down a sink hole? If it soaks into the ground, it becomes ground water.



A sizable amount of rainwater runoff seeps into the ground to become ground water. Ground water moves into water-filled layers of porous geologic formations called aquifers. If the aquifer is close to the surface, its ground water can flow into nearby waterways or wetlands, providing a base flow. Depending on your location, aquifers containing ground water can range from a few feet below the surface to several hundred feet underground. Aquifer recharge areas are locations where rainwater and other precipitation seeps into the earth's surface to enter an aquifer. Contrary to popular belief, aquifers are not flowing underground streams or lakes.

Ground water moves at an irregular pace, seeping from more porous soils, from shallow to deeper areas and from places where it enters the Earth's surface to where it is discharged or withdrawn. A system of more than 100 aquifers is scattered throughout New Jersey, covering 7,500 square miles.

WHY IS GROUND WATER IMPORTANT?

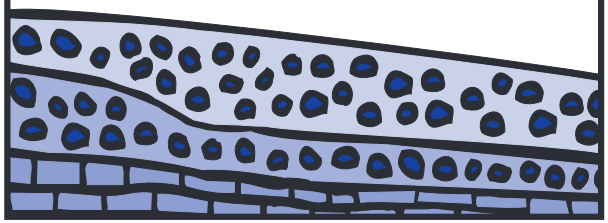
Ground water is the primary drinking water source for half of the state's population. Most of this water is obtained from individual domestic wells or public water supplies which tap into aquifers. New Jersey agriculture also depends on a steady supply of clean ground water for irrigation.

GROUND WATER COMPLICATIONS

Humans have an impact on ground water in a number of ways. One way people influence ground water is by changing where stormwater flows. By changing the contour of the land and adding impervious surfaces such as roads, parking lots and rooftops, people change how and where water goes. When it rains, the stormwater in a developed area is less able to soak into the ground because the land is now covered with roads, rooftops and parking lots. Less ground water will be recharged and more water will flow directly into streams and rivers.

Another way people affect ground water is by adding potential pollution sources. How the land above ground water is used by people, whether it is farms, houses or shopping centers, has a direct impact on ground water quality. As rain washes over a parking lot, it might pick up road salt and motor oil and carry these pollutants to a local aquifer. On a farm or suburban lawn, snow melt might soak fertilizers and pesticides into the ground.

When properly used, the amount of ground water pumped out for human purposes is less than what nature supplies to recharge the aquifer. If overused, more water is pumped out than is recharged. With less ground water in the aquifer, it becomes more difficult to use and more susceptible to pollution and salt water intrusion.

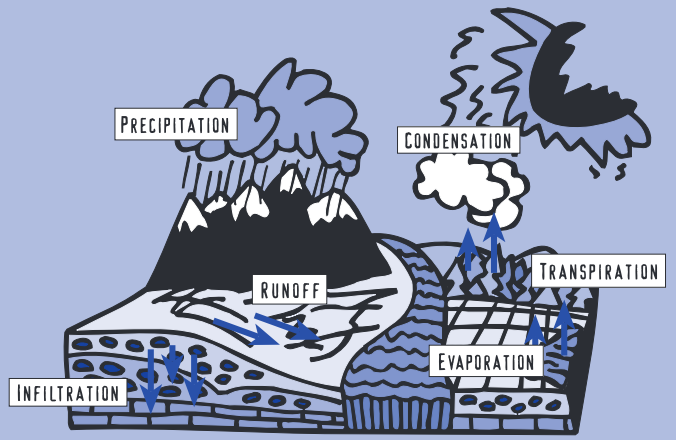


WATER CONSERVATION

Conserving water through efficient water use can help prevent pollution. Using less water reduces the runoff of agricultural pollutants pesticides and fertilizers. Diverting less water from waterways or aquifers leaves more water in streams or lakes, protecting existing ecosystems such as wetlands (which absorb certain types of pollution) and water supplies.

Water conservation can also save money by reducing pumping and treatment costs both before water reaches your home and after it leaves. Reduced water use may extend the life of existing sewage treatment facilities. It can also eliminate the need to develop a new water supply. New wells and reservoirs are expensive and time consuming to locate and build.

THE WATER CYCLE



For millions of years, water has been used. It is constantly being recycled and reused. It is important to understand how water moves through the Earth's water cycle, which is defined as the movement of water from the Earth's surface into the atmosphere and back to the Earth's surface again.

When it rains, the rainwater flows overland into waterways or is absorbed by the ground or plants. Water evaporates from land and water bodies, becoming water vapor in the atmosphere. Water is also released from trees and other plants through "transpiration." The water vapor from evaporation and transpiration forms clouds in the atmosphere which in turn provide precipitation (rain, hail, snow, sleet) to start the cycle over again. This process of water recycling, known as the water cycle, repeats itself continuously.

What is Nonpoint Source Pollution?

Nonpoint Source Pollution, or people pollution, is a contamination of our ground water, waterways, and ocean that results from everyday activities such as fertilizing the lawn, walking pets, changing motor oil and littering. With each rainfall, pollutants generated by these activities are washed into storm drains that flow into our waterways and ocean. They also can soak into the ground contaminating the ground water below.

Each one of us, whether we know it or not, contributes to nonpoint source pollution through our daily activities. As a result, nonpoint source pollution is the BIGGEST threat to many of our ponds, creeks, lakes, wells, streams, rivers and bays, our ground water and the ocean.

The collective impact of nonpoint source pollution threatens aquatic and marine life, recreational water activities, the fishing industry, tourism and our precious drinking water resources. Ultimately, the cost becomes the burden of every New Jersey resident.

But there's good news - in our everyday activities we can stop nonpoint source pollution and keep our environment clean. Simple changes in YOUR daily lifestyle can make a tremendous difference in the quality of New Jersey's water resources. Here are just a few ways you can reduce nonpoint source pollution.

LITTER: Place litter, including cigarette butts and fast food containers, in trash receptacles. Never throw litter in streets or down storm drains. Recycle as much as possible.

FERTILIZERS: Fertilizers contain nitrates and phosphates that, in abundance, cause blooms of algae that can lead to fish kills. Avoid the overuse of fertilizers and do not apply them before a heavy rainfall.

PESTICIDES: Many household products made to exterminate pests also are toxic to humans, animals, aquatic organisms and plants. Use alternatives whenever possible. If you do use a pesticide, follow the label directions carefully.

HOUSEHOLD HAZARDOUS PRODUCTS: Many common household products (paint thinners, moth balls, drain and oven cleaners, to name a few) contain toxic ingredients. When improperly used or discarded, these products are a threat to public health and the environment. Do not discard with the regular household trash. Use natural and less toxic alternatives whenever possible. Contact your County Solid Waste Management Office for information regarding household hazardous waste collection in your area.

MOTOR OIL: Used motor oil contains toxic chemicals that are harmful to animals, humans and fish. Do not dump used motor oil down storm drains or on the ground. Recycle all used motor oil by taking it to a local public or private recycling center.

CAR WASHING: Wash your car only when necessary. Consider using a commercial car wash that recycles its wash water. Like fertilizers, many car detergents contain phosphate. If you wash your car at home, use a non-phosphate detergent.

PET WASTE: Animal wastes contain bacteria and viruses that can contaminate shellfish and cause the closing of bathing beaches. Pet owners should use newspaper, bags or scoopers to pick up after pets and dispose of wastes in the garbage or toilet.

SEPTIC SYSTEMS: An improperly working septic system can contaminate ground water and create public health problems. Avoid adding unnecessary grease, household hazardous products and solids to your septic system. Inspect your tank annually and pump it out every three to five years depending on its use.

BOAT DISCHARGES: Dumping boat sewage overboard introduces bacteria and viruses into the water. Boat owners should always use marine sanitation devices and pump-out facilities at marinas.

As you can see, these suggestions are simple and easy to apply to your daily lifestyle. Making your commitment to change at least one habit can result in benefits that will be shared by all of us and add to the health and beauty of New Jersey's water resources.



What's a watershed?

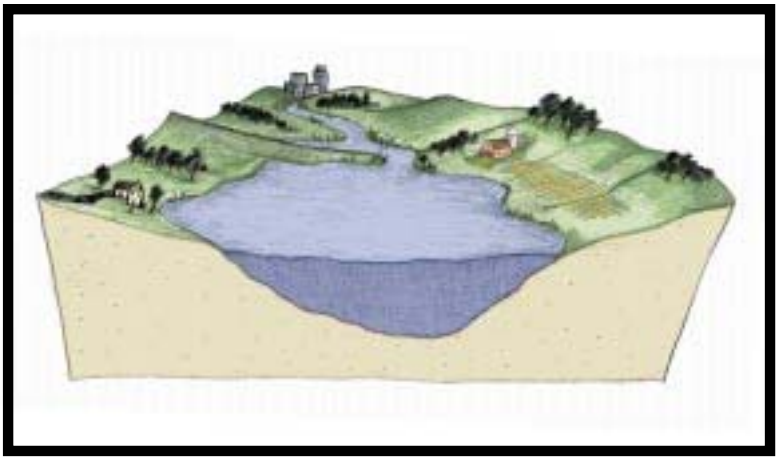
No matter where you are in New Jersey, you are in a watershed. Watersheds are everywhere ... from your front doorstep to the local park to the shopping mall to the creek down the road. Watersheds are the link between our land, our water and our communities because the quality of our water is linked to how we use the watershed surrounding it.

So what is a watershed?





What's a watershed?



A watershed is the area of land that drains into a body of water such as a river, lake, stream or bay. It is separated from other watersheds by high points in the area such as hills or slopes. It includes not only the waterway itself but also the entire land area that drains to it. For example, the watershed of a lake would include not only the streams entering that lake but also the land area that drains into those streams and eventually the lake. Drainage basins generally refer to large watersheds that encompass the watersheds of many smaller rivers and streams.

What's the water cycle?

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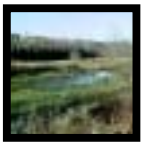
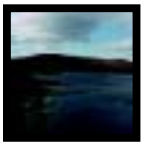
What's your watershed address?

Where does the water that rains on your home go? After it leaves your lawn, street or sidewalk where is it headed? Does it flow downhill straight to a nearby stream or lake? Does it wander into a wetlands? Does it puddle in your backyard? Does it zip down a storm drain to a local creek?

That destination, whether it's a puddle, a pond, a bay or a lake, is your watershed address. It could be Duck Pond, Spring Lake, Millstone River, Barnegat Bay or Beaver Brook. Just like there are towns within counties within states, there are subwatersheds within watersheds within drainage basins. For example, the rain that falls on your driveway might flow into Lake Hopatcong, which flows into the Musconetcong River, which flows into the Delaware River. So your watershed address would be Lake Hopatcong, Musconetcong River, Delaware River even though your mail finds you through Jefferson Township, Morris County, New Jersey.





What's ground water?

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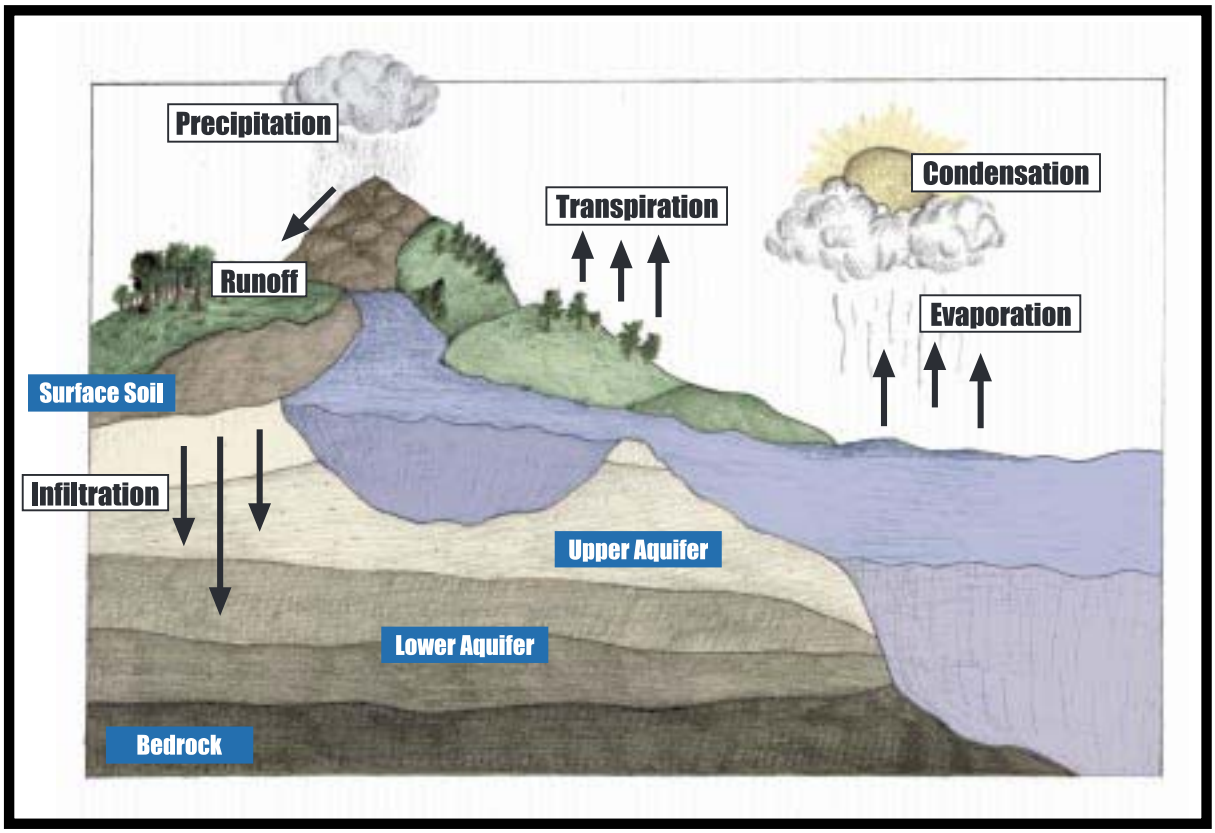


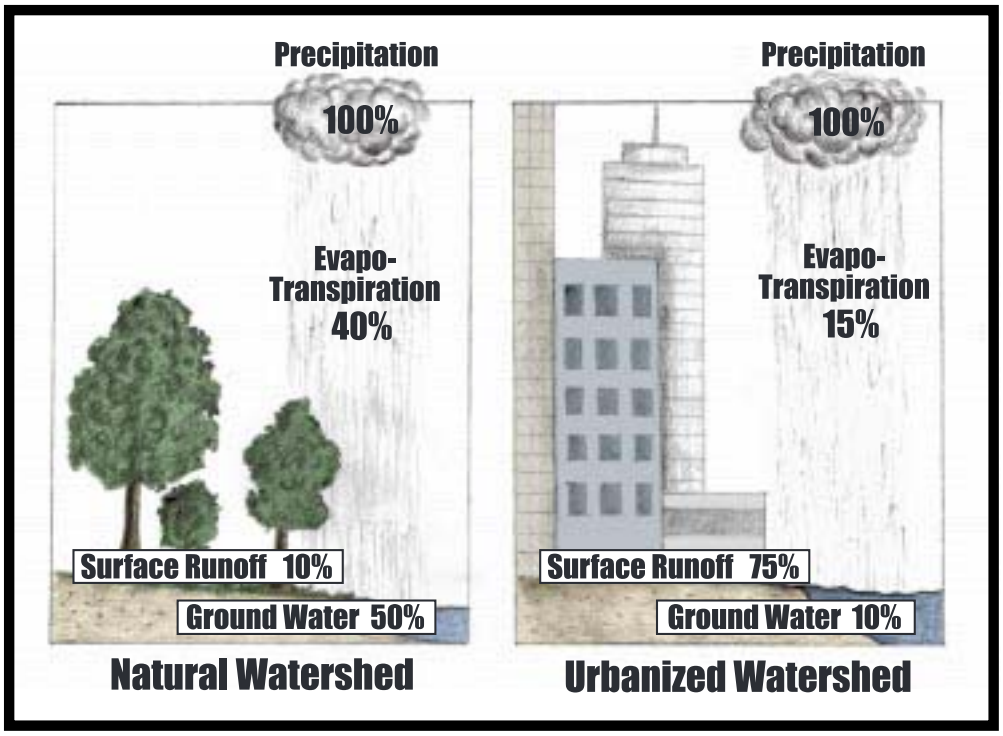
How does urbanization change a watershed?

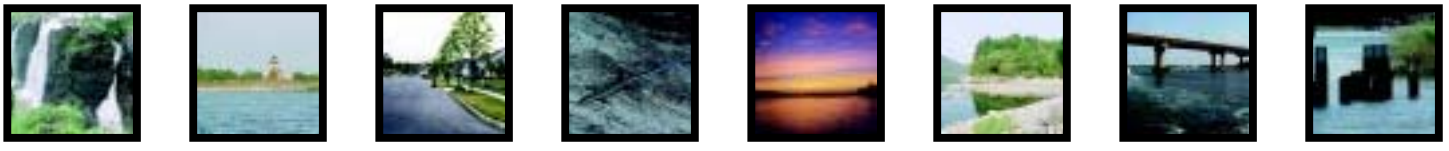
Urbanization (or development) has a great effect on local water resources. It changes how water flows in the watershed and what flows in the water. Both surface and ground water flow are changed.

As a watershed becomes developed, trees, shrubs and other plants are replaced with impervious surfaces (roads, rooftops, parking lots and other hard surfaces that do not allow stormwater to soak into the ground). Without the plants to store and slow the flow of stormwater, the rate of stormwater runoff is increased. Less stormwater soaks into the ground because the sidewalks, roads, parking lots and rooftops block this infiltration. This means a greater volume of water reaches the waterway faster and less water infiltrates to ground water. This in turn leads to more flooding after storms and reduced flow in streams and rivers during dry periods. The reduced amount of infiltrating water can lower ground water levels, which in turn can stress local waterways that depend on steadier flows of water.

In the stream, more erosion of stream banks and scouring of channels will occur due to volume increase. This in turn degrades habitat for plant and animal life that depend on clean water. Sediment from eroded stream banks clogs the gills of fish and blocks light needed for plants. The sediment settles to fill in stream channels, lakes and reservoirs. This also increases flooding and the need for dredging to clear streams or lakes for boating.

In addition to the high flows caused by urbanization, the increased runoff also contains increased contaminants. These include litter, cigarette butts and other debris from sidewalks and streets, motor oil poured into storm sewers, heavy metals from brake linings, settled air pollutants from car exhaust and pesticides and fertilizers from lawn care. These contaminants reach local waterways quickly after a storm.





What's watershed management?

The watershed management approach seeks to effectively protect our water resources by taking into account the entire watershed. Successful watershed management requires the participation and involvement of the entire community within the watershed boundaries, including industry, government, business and citizens. Since everyone may contribute to watershed problems, all should be involved in identifying both the problems and the solutions.

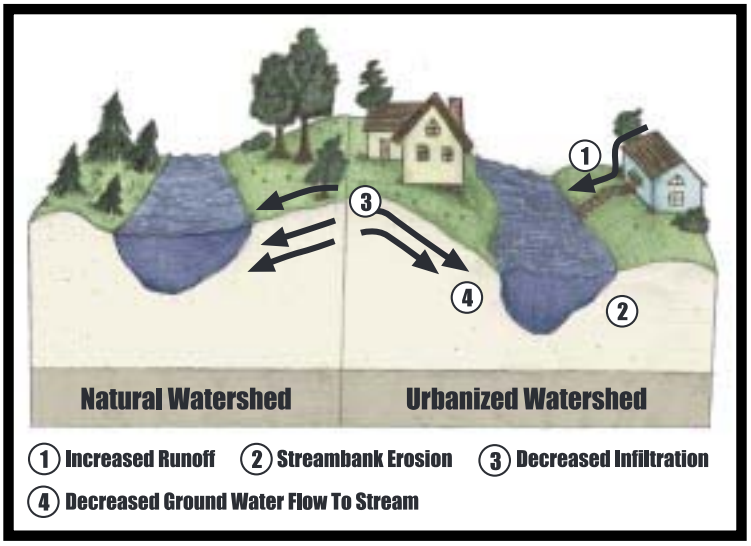
One of the first steps in watershed management is problem identification. Does the local lake choke with weeds in the summer? Are failing septic systems closing shellfish beds? Is increased runoff causing stream banks to erode?

Once the problems and their causes have been identified, practical solutions must be chosen. The watershed community must identify traditional or innovative solutions that will work in their area. These solutions can range from changes to municipal stormwater ordinances to homeowner education about lawn care to stream bank restoration projects.

Identifying which solutions are right for a particular watershed is a crucial component of the watershed management process. Different solutions work in different communities. Developed with the watershed community of industry, government, business and citizens, watershed management planning reflects the concerns and priorities of that community.

Once solutions have been identified, they must be implemented to be successful. This can be the most difficult part of the process. How can implementation be ensured? Who will carry out the plan? Is the community committed to implementing the plan? Are there resources available to do it?

The advantage of watershed management planning is that it addresses all sources of pollution within the watershed and is developed by the community most affected by it. Nonpoint source pollution is particularly suited to this approach because it is frequently beyond the scope of traditional regulatory programs. The plan can incorporate solutions ranging from change in local land use to integrated pest management. Each plan will uniquely fit the problems and solutions of its watershed.



New Jersey's five watershed bureaus and 20 watershed management areas

Northwest Bureau
(609) 633-3812

1. Upper Delaware River
2. Walkill, Pochuck, Papakating
11. Central Delaware Tributaries

Northeast Bureau
(609) 633-1179

3. Pompton, Pequannock, Wanaque, Ramapo
4. Lower Passaic, Saddle
5. Hackensack, Pascack, Hudson
6. Upper and Mid-Passaic, Whippany, Rockaway

Raritan Bureau
(609) 633-7020

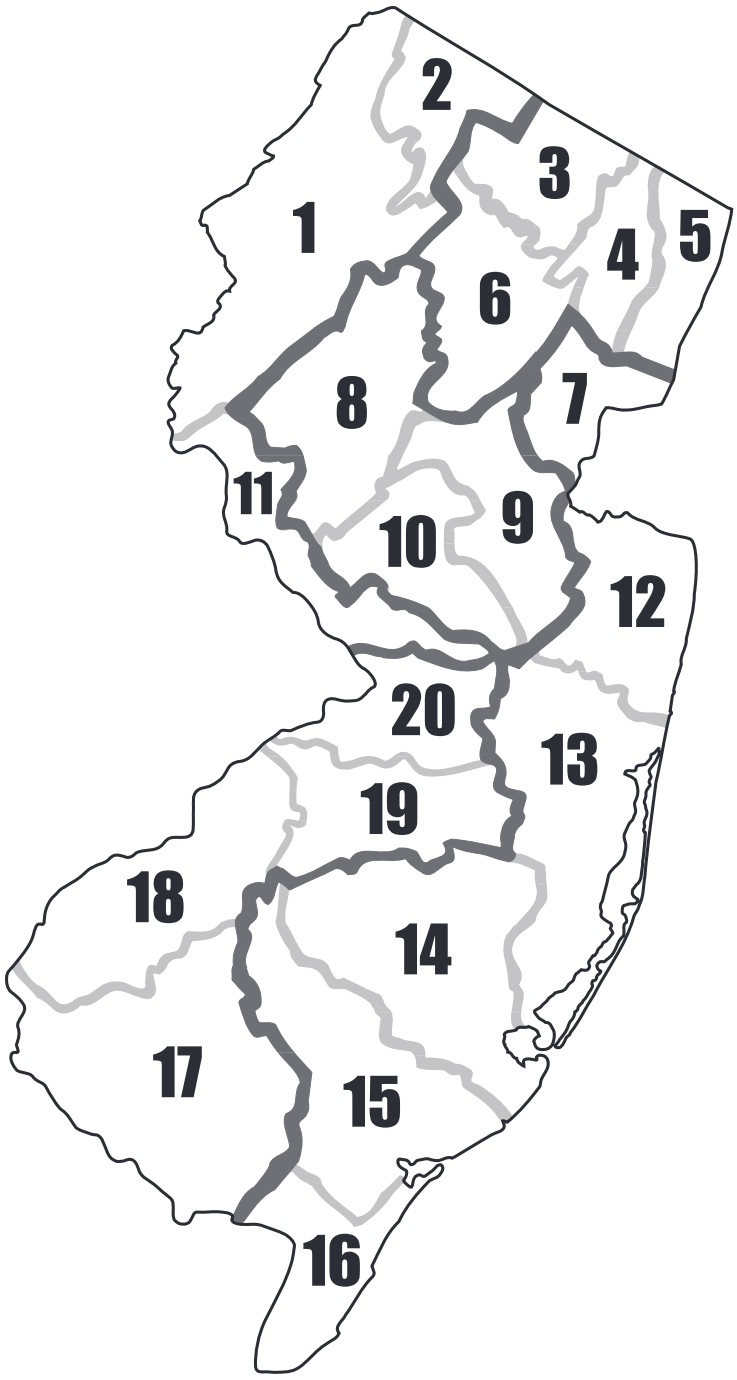
7. Elizabeth, Rahway, Woodbridge
8. North and South Branch Raritan
9. Lower Raritan, South River, Lawrence Brook
10. Millstone River

Atlantic Coastal Bureau
(609) 984-6888

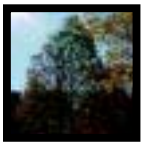
12. Monmouth Watersheds
13. Barnegat Bay Watersheds
14. Mullica, Wading River
15. Great Egg Harbor, Tuckahoe
16. Cape May Watersheds

Lower Delaware Bureau
(609) 633-1441

17. Maurice, Salem, Cohansey
18. Lower Delaware Tributaries
19. Rancocas Creek
20. Crosswicks Creek





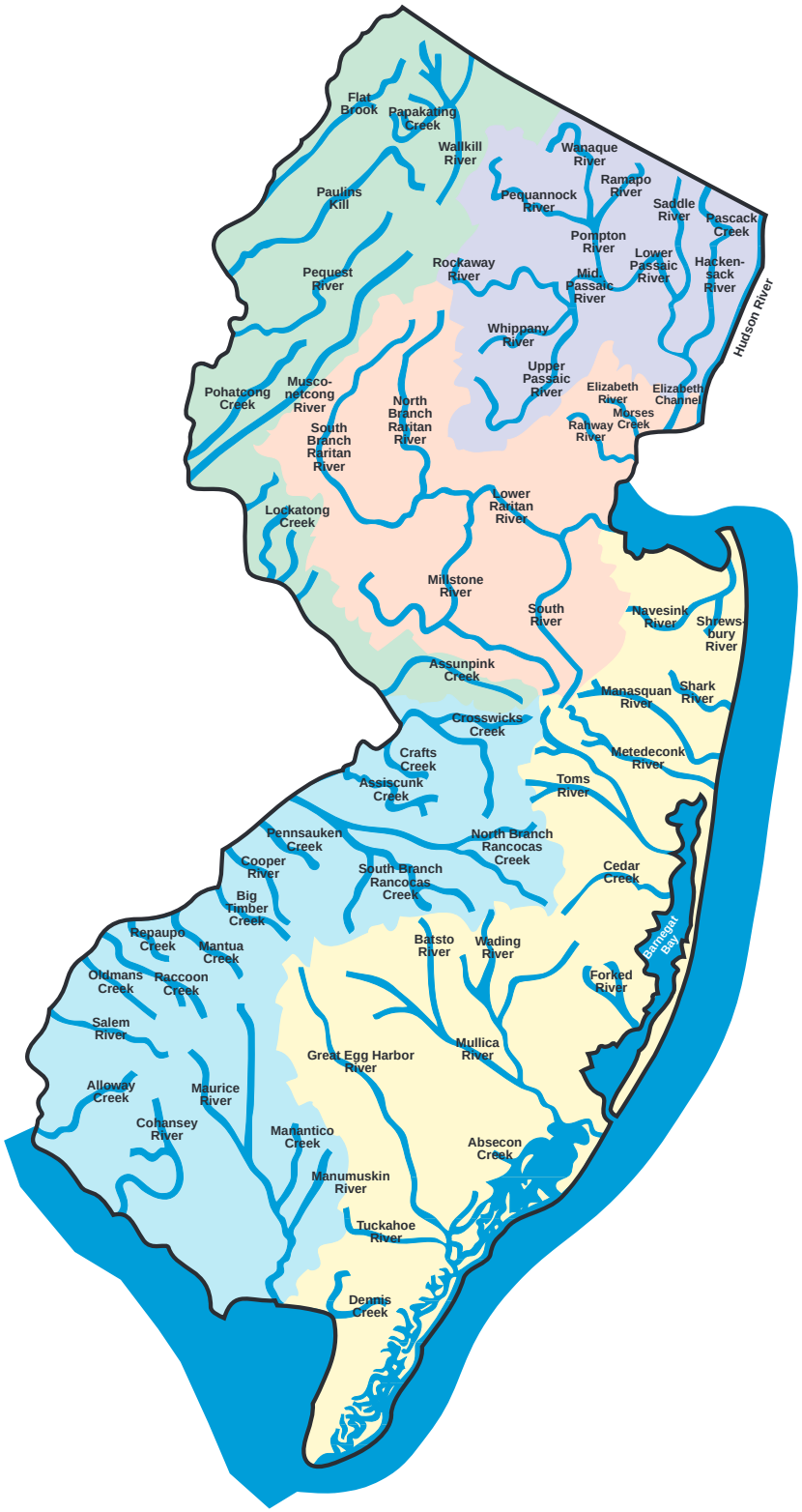





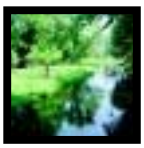
New Jersey's five watershed regions and major waterways

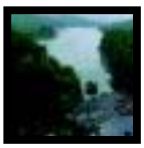
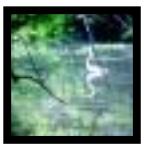
watershed regions

- Atlantic Coastal
- Lower Delaware
- Northeast
- Northwest
- Raritan





Watershed protection and nonpoint source pollution
what you can do today!

One way you can protect your watershed is to reduce nonpoint source pollution. Nonpoint source pollution or "people pollution" is contamination of our watersheds, ground water, waterways and ocean that results from everyday activities such as fertilizing the lawn, walking pets, changing motor oil and littering. With each rainfall, pollutants generated by these activities are washed from the entire watershed into local waterways. They can also soak into the ground contaminating the ground water below.

But there is good news - in our everyday activities we can stop nonpoint source pollution and keep our environment clean. Simple changes in your daily lifestyle can make a tremendous difference in the quality of New Jersey's water resources. Here are a few ways that you can reduce nonpoint source pollution:

Place litter in trash receptacles. Never throw litter, including cigarette butts and fast food containers, in streets or down storm drains. Recycle as much as possible.

Avoid the overuse of fertilizers. Do not apply them before a heavy rainfall. Do a soil test to see if fertilizers are necessary. Fertilizers contain nitrates and phosphates that, in abundance, cause blooms of algae that can lead to fish kills.

Use alternative to pesticides whenever possible. If you do use a pesticide, follow the label directions carefully. Many household products made to exterminate pests are also toxic to humans, animals, aquatic organisms and plants.

Pick up after your pet. Pet owners should use newspaper, bags or scoopers to pick up after their pets and dispose of wastes in the garbage or toilet, not the storm drain. Animal wastes contain bacteria and viruses that can contaminate shellfish and cause the closing of bathing beaches. Animal waste also contains nutrients that can cause algae blooms that are unsightly and can lead to fish kills.

Do not feed ducks and geese. Feeding ducks, geese and other waterfowl causes them to concentrate in small areas resulting in concentrated animal waste, causing the same problems as pet waste.

Dispose of household hazardous waste properly. Do not pour household hazardous products down any drain or toilet. Do not discard with the regular household trash. Use natural and less toxic alternatives whenever possible. Contact your County Solid Waste Management Office for information regarding household hazardous waste collection in your area. Many common household products (paint thinners, mothballs, drain and oven cleaners, to name a few) contain toxic ingredients. When improperly used or discarded, these products are a threat to public health and the environment.

Recycle all used motor oil. Do not dump used motor oil down storm drains or on the ground. Take it to a local public or private recycling center. Used motor oil contains toxic chemicals that are harmful to animals, humans and fish.

Wash your car only when necessary. Consider using a commercial car wash that recycles its wash water. Like fertilizers, many car detergents contain phosphate. If you wash your car at home, use a non-phosphate detergent.

Treat your septic system with respect. Avoid adding unnecessary grease, household hazardous products and solids to your septic system. Conserve water. Inspect your tank annually and pump it out every three to five years depending on its use. An improperly working septic system can contaminate ground water and create public health problems.

Use marine sanitation devices and pump-out facilities at marinas when boating. Observe the state's no discharge zones. Dumping boat sewage overboard introduces bacteria and viruses into the water.

For additional information please contact:
New Jersey Department of Environmental Protection Watershed Management
P.O. Box 418 401 East State Street Trenton New Jersey 08625-0418
609-292-2113 www.state.nj.us/ dep/ watershedmgt

COLORING BOOK

HEY KIDS,

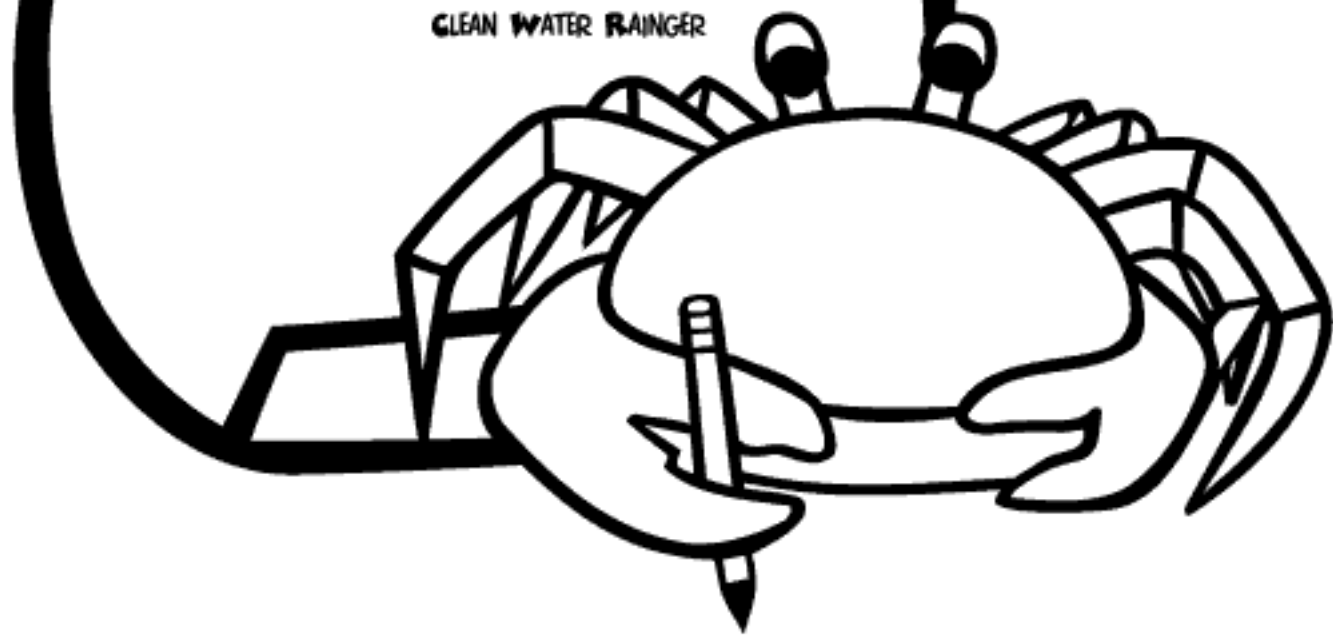
ARE YOU INTERESTED IN KEEPING NEW JERSEY'S WATER CLEAN? WELL, WE NEED YOUR HELP! NOT LONG AGO, MY FRIENDS AND I FOUND THAT ONE OF NEW JERSEY'S BIGGEST WATER POLLUTION PROBLEMS COMES FROM PEOPLE -- FROM HOW WE LIVE OUR DAILY LIVES. THAT MEANS THINGS LIKE LITTERING, NOT CLEANING UP AFTER PETS, USING TOO MANY PESTICIDES, AND DUMPING MOTOR OIL DOWN STORM DRAINS. WITH CLOSE TO EIGHT MILLION PEOPLE LIVING IN THE STATE, WHAT EVERYBODY DOES CAN REALLY ADD UP.

THIS COLORING BOOK TELLS THE STORY OF HOW WE FOUND THE SOURCE OF THE PROBLEM, AND IT TELLS WHY WE STARTED THE CLEAN WATER RANGER TEAM.

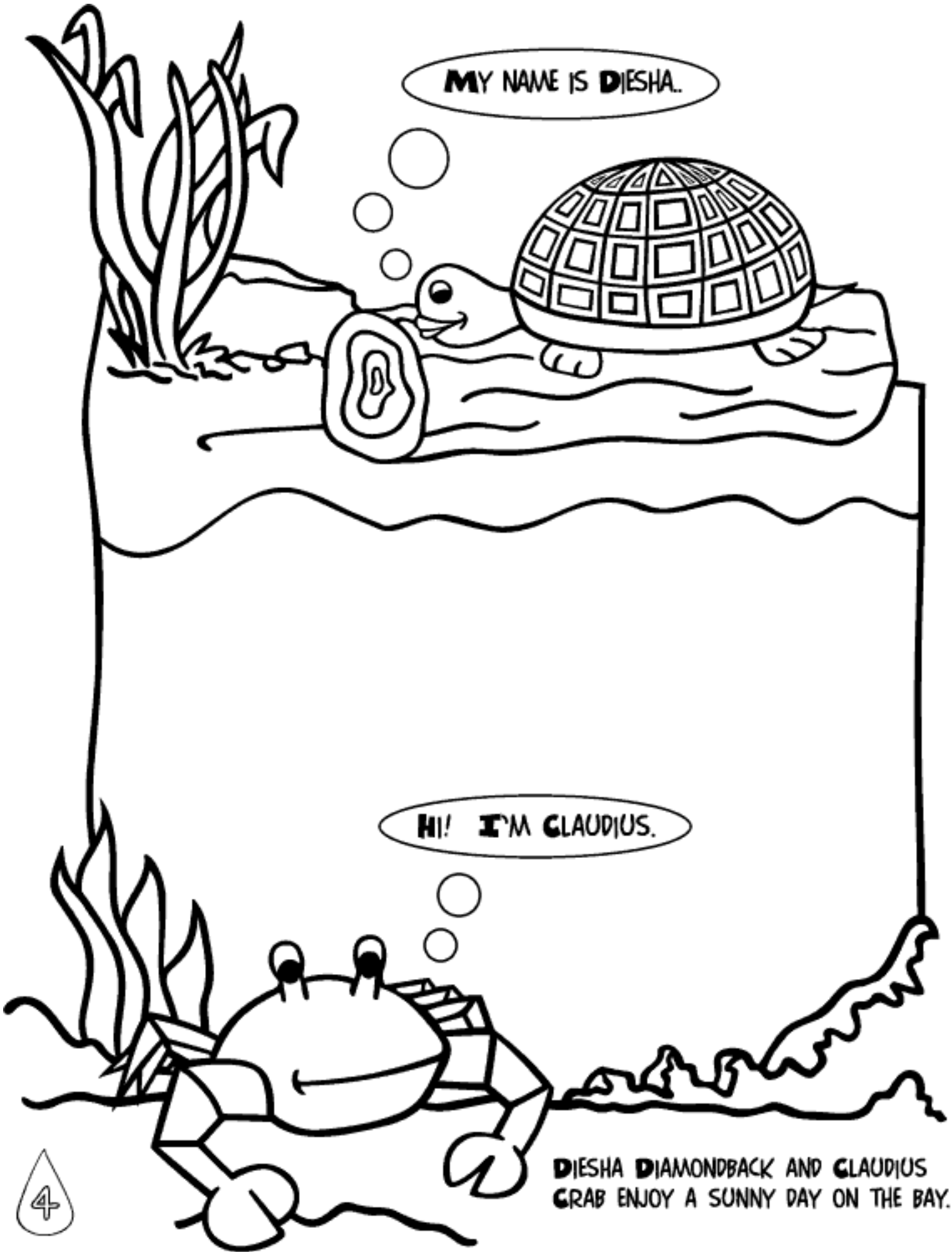
YOUR FRIEND,

Claudius Crab

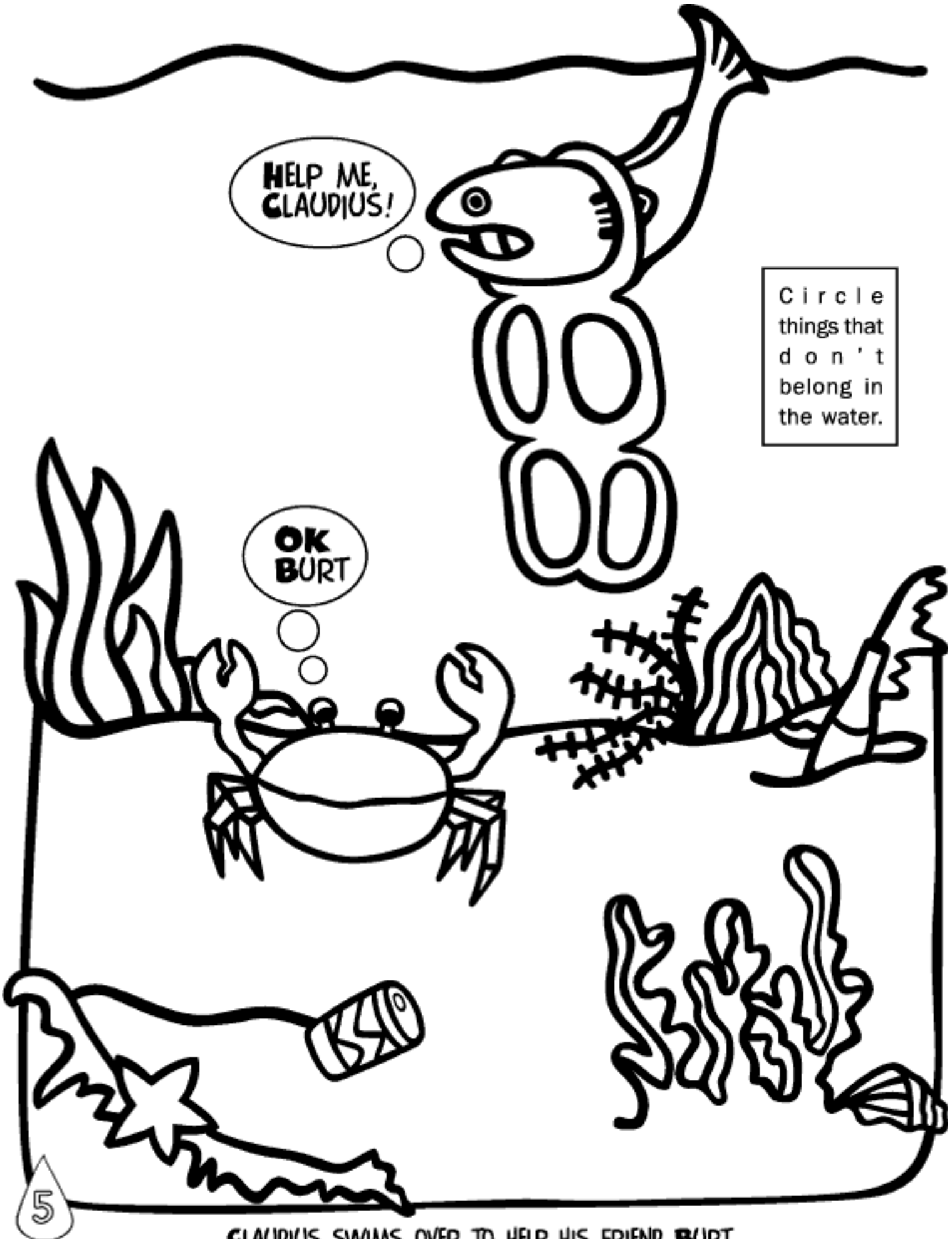
CLEAN WATER RANGER



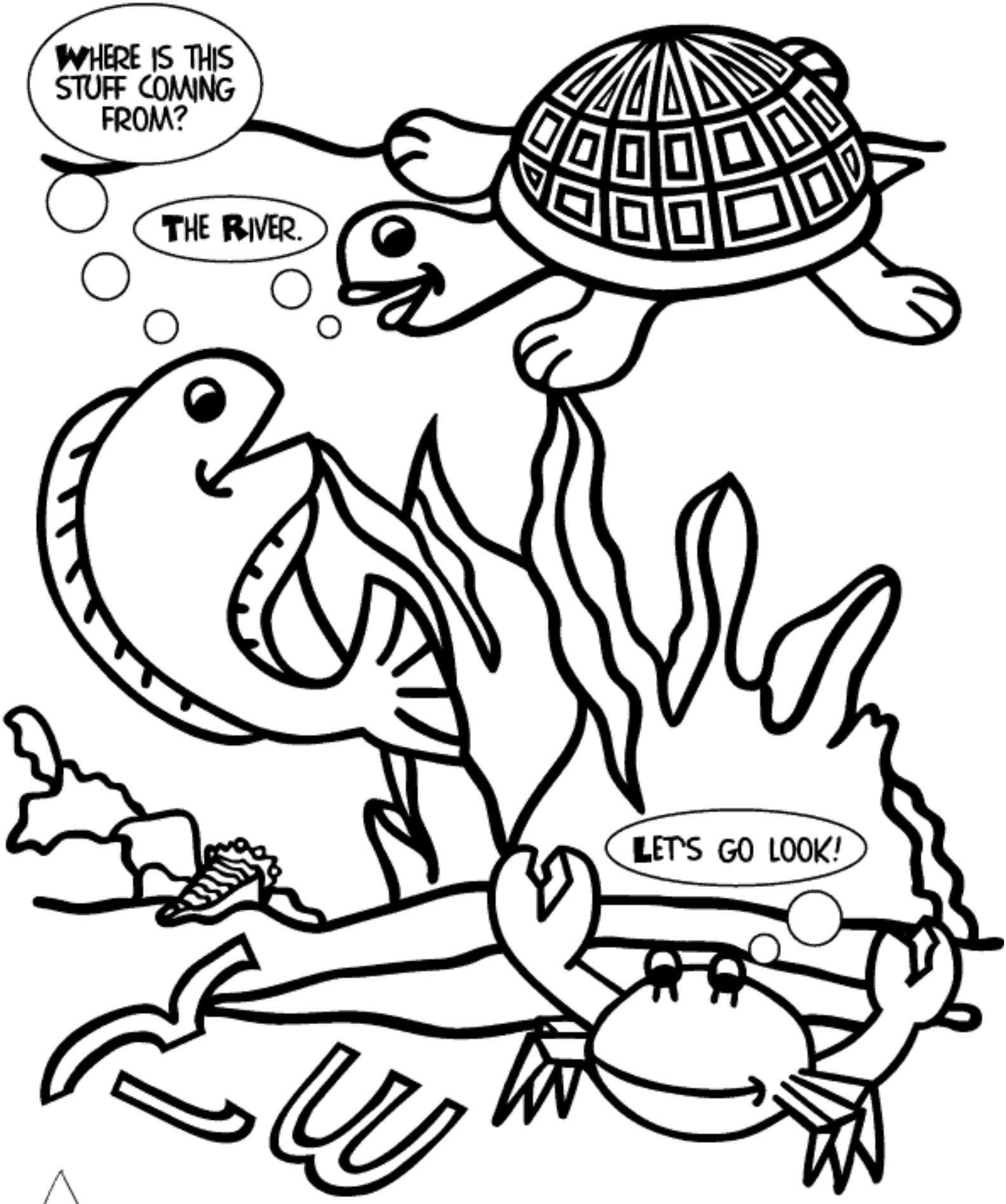
HOWIE THE GREAT BLUE HERON LIVES NEAR NEW JERSEY'S RIVERS, STREAMS, LAKES AND BAYS. HIS FRIENDS MARSHALL MUSKRAT, BURT BASS AND FRANCINE FROG, LIVE THERE TOO.



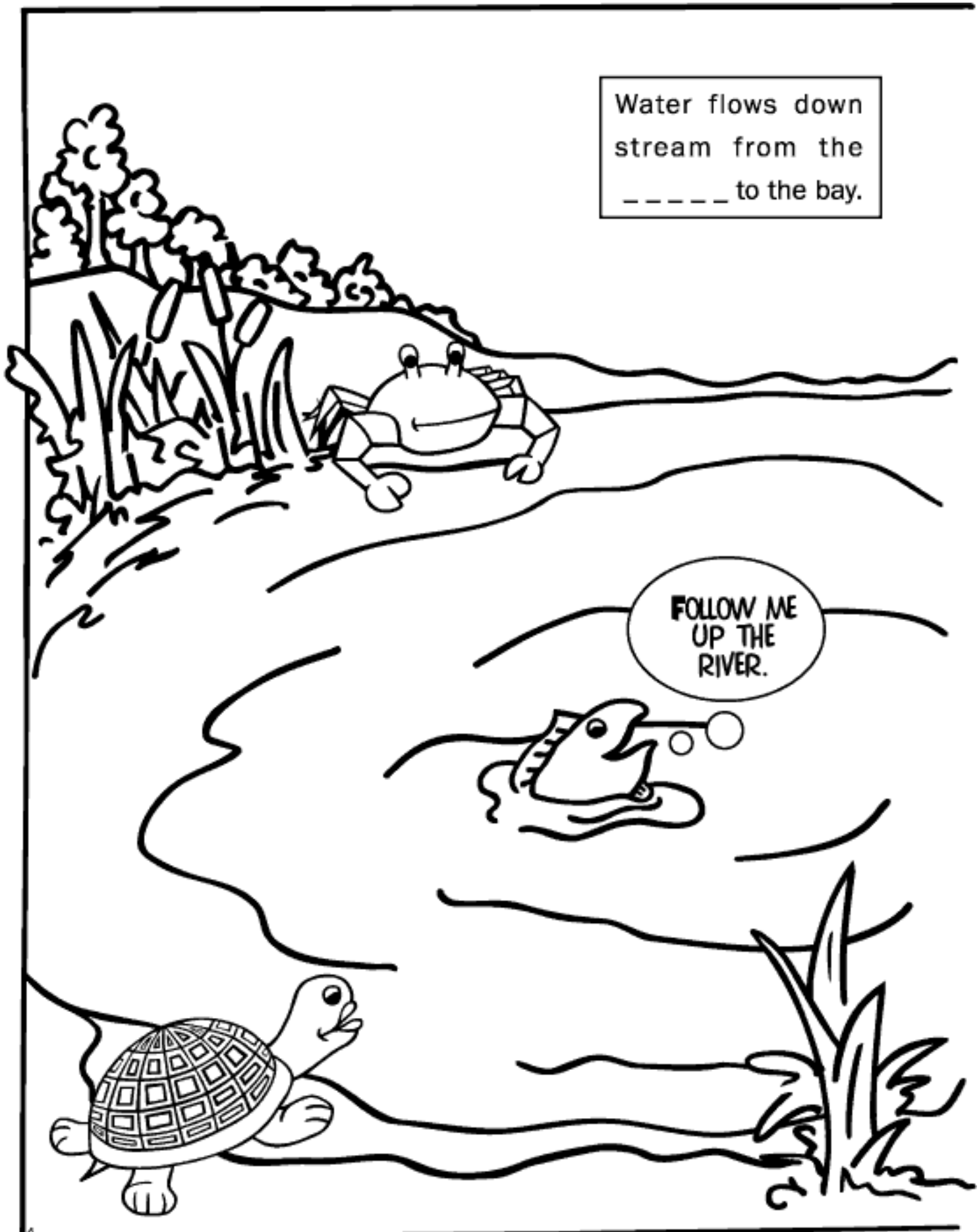
DIESHA DIAMONDBACK AND CLAUDIUS CRAB ENJOY A SUNNY DAY ON THE BAY.



CLAUDIUS SWIMS OVER TO HELP HIS FRIEND BURT.

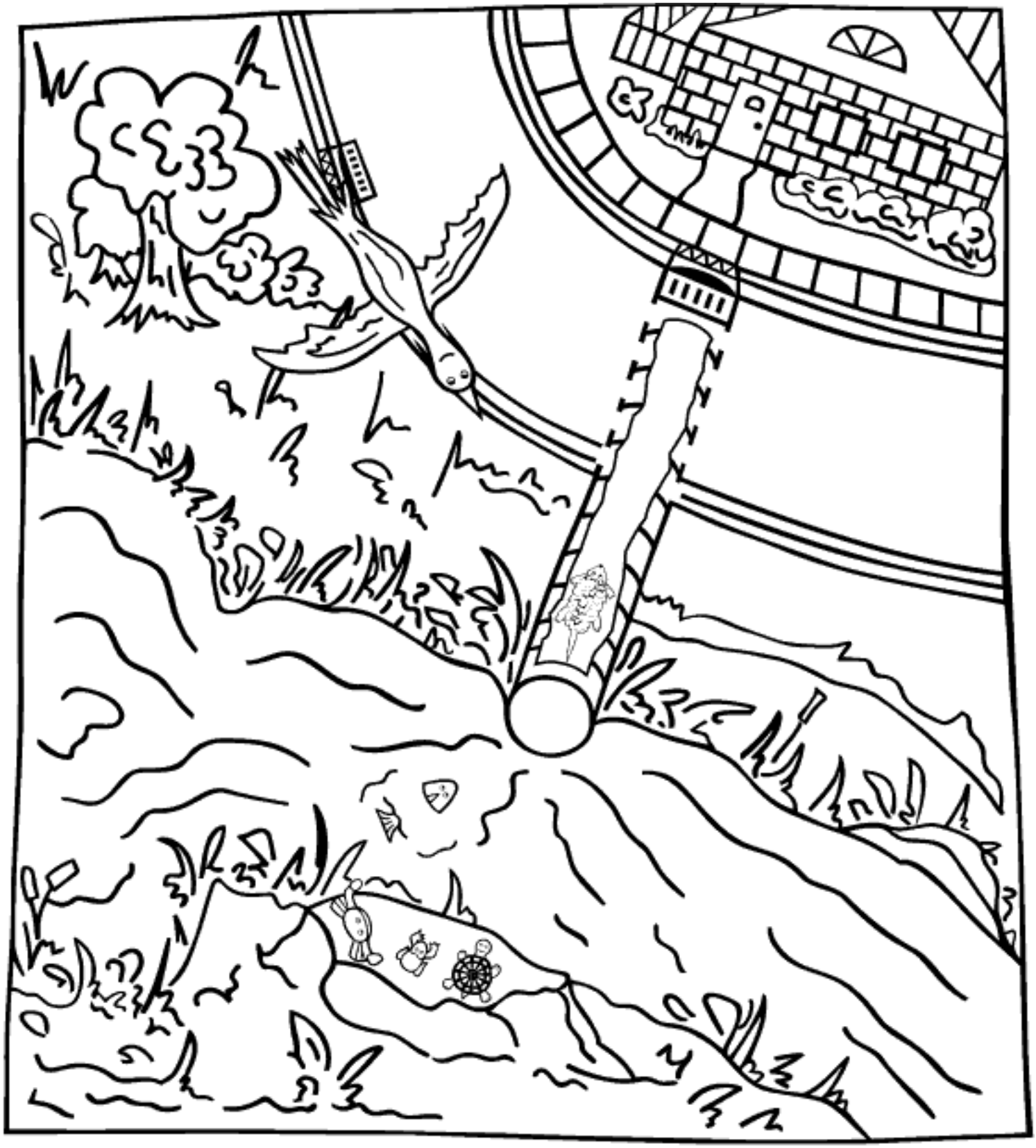


DIESHA AND HER FRIENDS WANT TO FIND WHERE THE LITTER IS COMING FROM.



CLAUDIUS, BURT AND DIESHA GO UP STREAM IN SEARCH OF THE POLLUTION SOURCE.

AS DIESHA, BURT AND CLAUDIUS SWIM UP STREAM, THEY MEET UP WITH THEIR FRIENDS, FRANCINE AND MARSHALL. THEY ALSO FIND A STORMPIPE. MARSHALL VOLUNTEERS TO GO UP THE PIPE.



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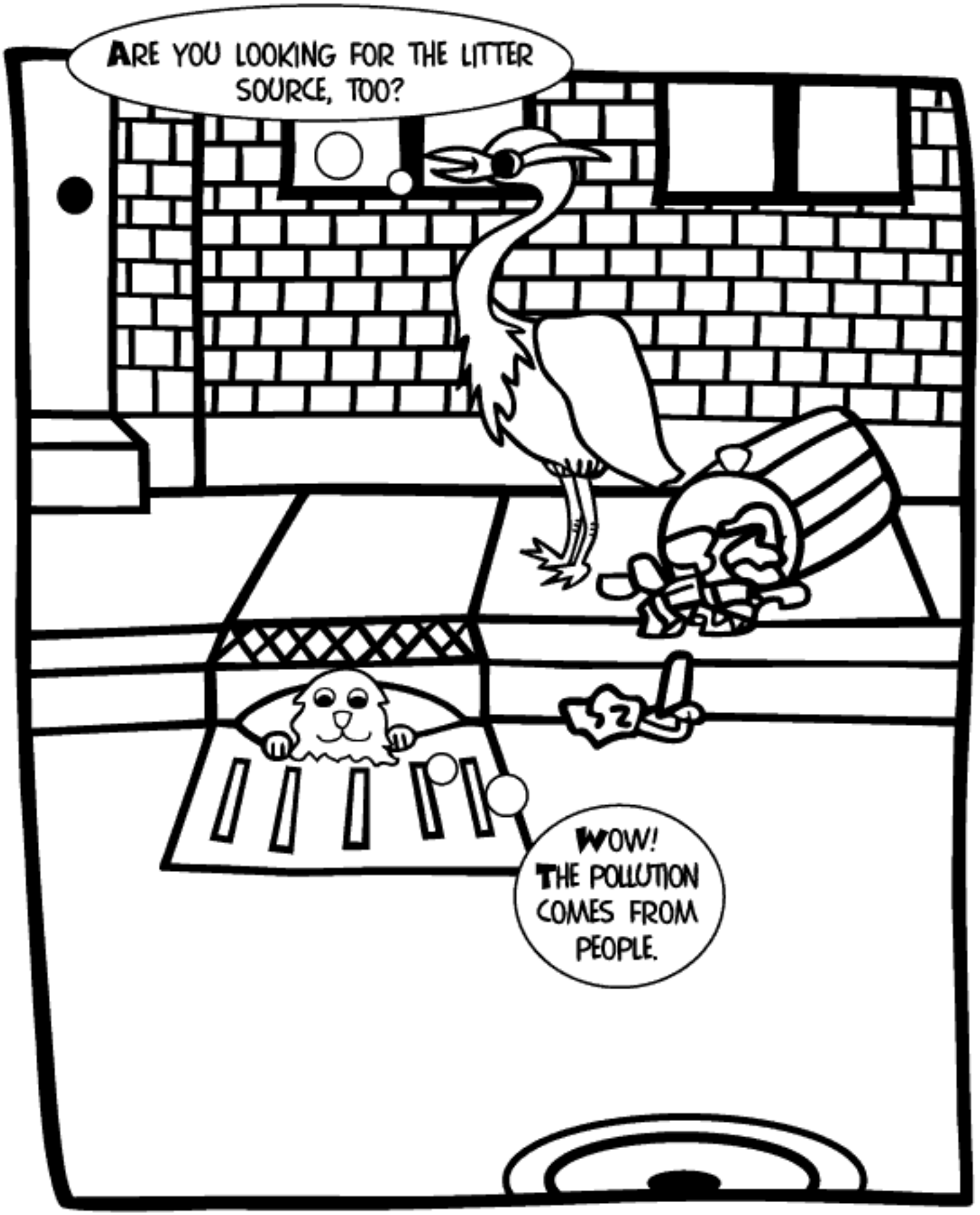
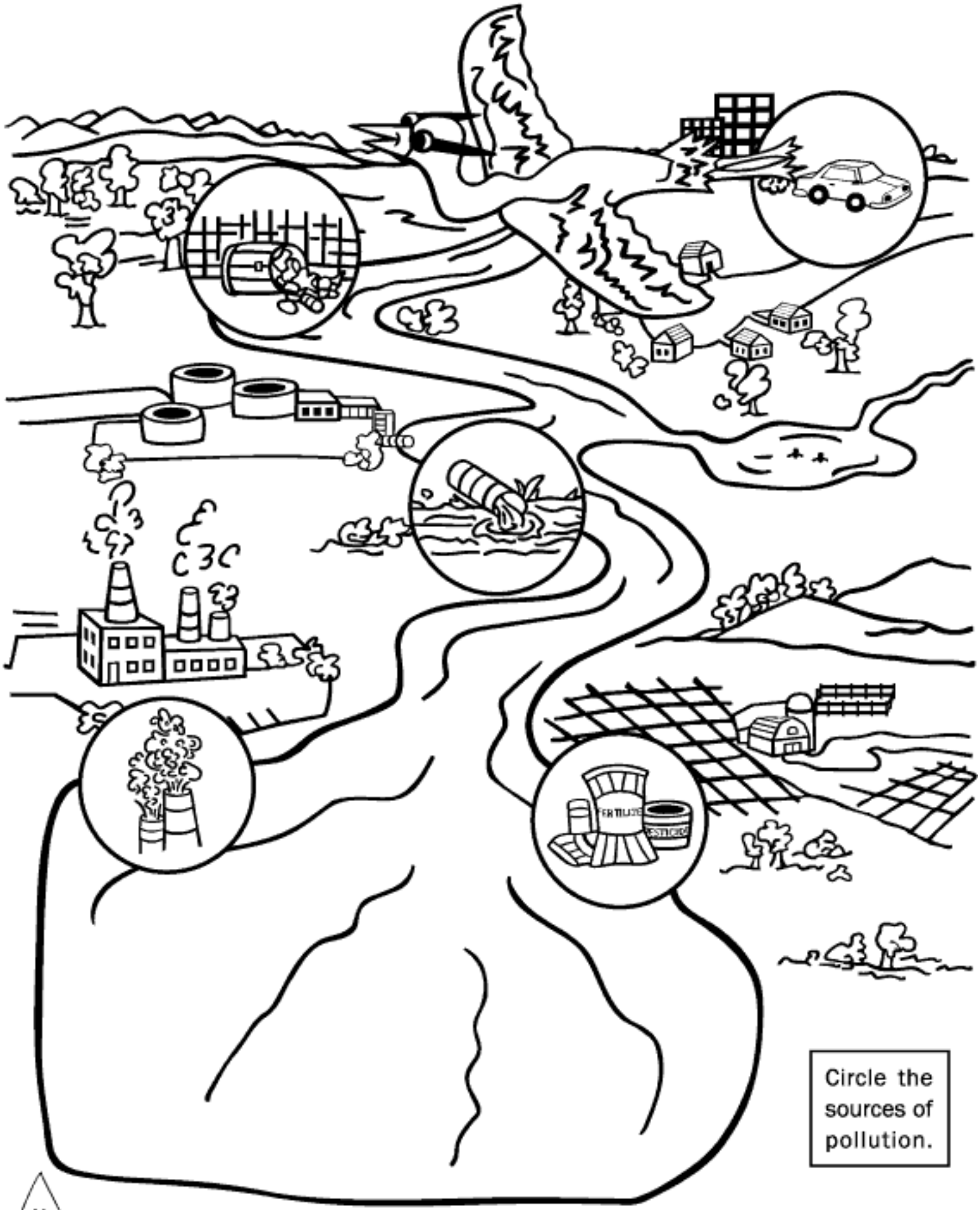
AS **H**OWIE FLIES ABOVE, **M**ARSHALL GOES THROUGH THE STORMPIPE IN SEARCH OF THE POLLUTION SOURCE.



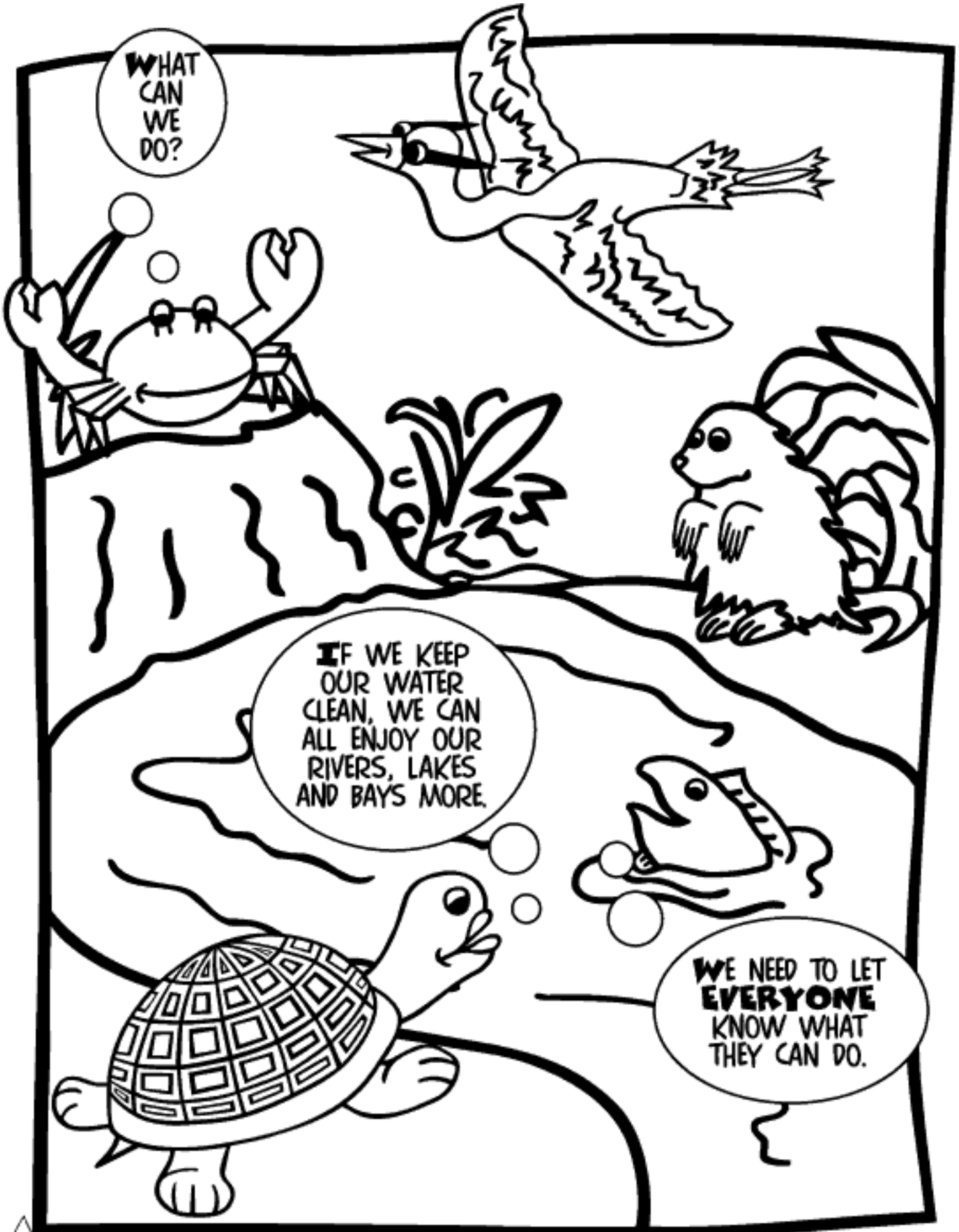
AS MARSHALL PEEKS OUT THE STORM DRAIN, HE SEES HIS FRIEND HOWIE. HE ALSO SEES WHERE THE LITTER IS COMING FROM.



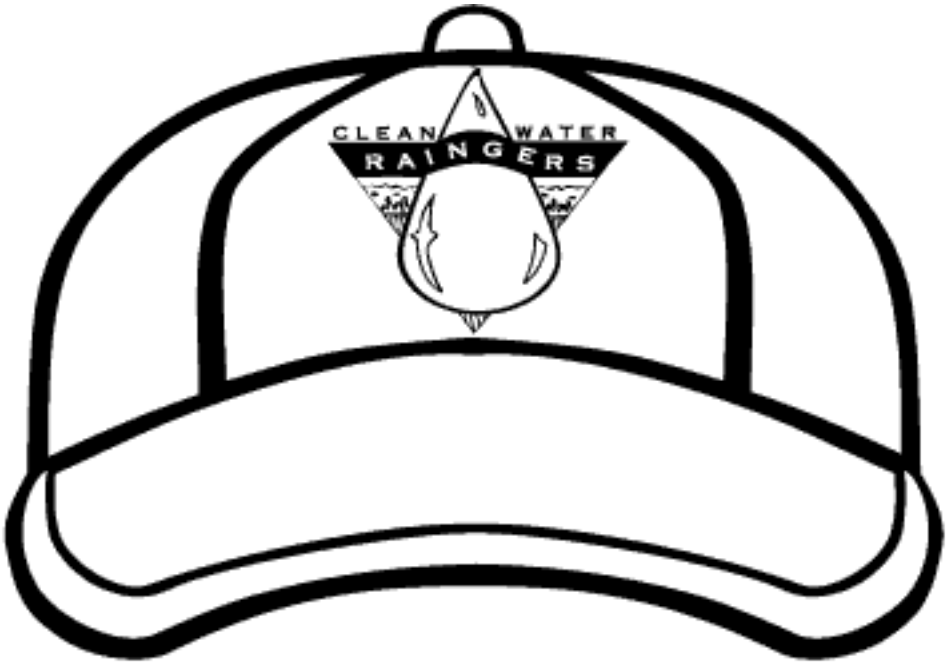
Circle the sources of pollution.

AS HOWIE FLYS BACK TO HIS FRIENDS, HE SEES OTHERS SOURCES OF POLLUTION.

HOWIE AND MARSHALL TELL THEIR FRIENDS WHAT THEY'VE FOUND.



THE FRIENDS FORM THE CLEAN WATER RAINGERS TEAM TO HELP KEEP THEIR WATER CLEAN. THAT'S RAINGERS AS IN RAIN!



Draw yourself here, so you can be a part of the Clean Water Raingers Team.

TOP TEN THINGS YOU CAN DO TO HELP KEEP WATER CLEAN AS PART OF THE CWR TEAM

1. NEVER THROW ANYTHING DOWN STORM DRAINS. THEY ARE FOR RAINWATER ONLY.

2. DON'T LITTER. ALWAYS PUT TRASH WHERE IT BELONGS.

3. ALWAYS CLEAN UP AFTER YOUR PETS. OBEY YOUR TOWN'S "POOPER SCOOPER" LAWS.

4. TELL OTHERS HOW IMPORTANT IT IS TO KEEP OUR LAND AND WATER CLEAN.

5. PLANT A TREE. THEY TAKE POLLUTANTS OUT OF GROUND WATER, PROVIDE SHADE, AND CLEAN THE AIR.

6. FIND OUT WHAT WATERWAY YOU LIVE NEAR. WHERE DOES YOUR WATER COME FROM?

7. PRECYCLE! BUY PRODUCTS THAT USE THE LEAST AMOUNT OF PACKAGING.

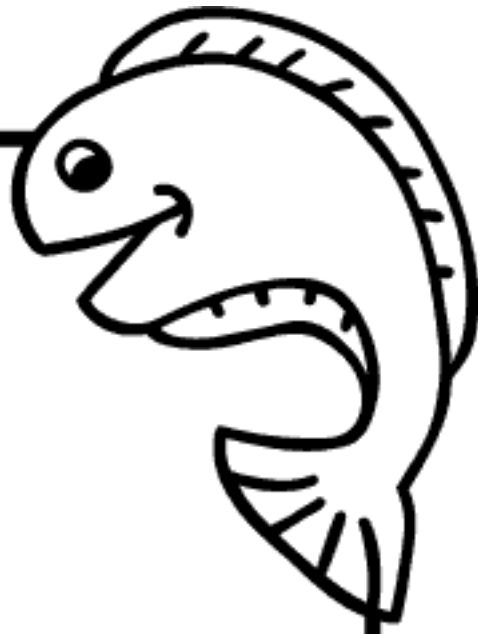
8. RECYCLE. FIND OUT WHAT IS RECYCLABLE IN YOUR COMMUNITY. BUY PRODUCTS IN RECYCLED OR RECYCLABLE CONTAINERS.

9. CONSERVE WATER WHENEVER POSSIBLE. FOR EXAMPLE, TURN OFF THE WATER WHILE BRUSHING YOUR TEETH AND DON'T LINGER IN THE SHOWER.

10. LEARN ABOUT ENVIRONMENTAL ISSUES. GET INVOLVED IN LOCAL ORGANIZATIONS.

JOIN THE TEAM!

THIS BOOK BELONGS TO...



CREDITS

THE CLEAN WATER RANGERS CONCEPT WAS DEVELOPED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION.

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

CLEAN WATER RANGERS
NJDEP
DIVISION OF WATERSHED MANAGEMENT
PO BOX 418
TRENTON, NJ 08625-0418

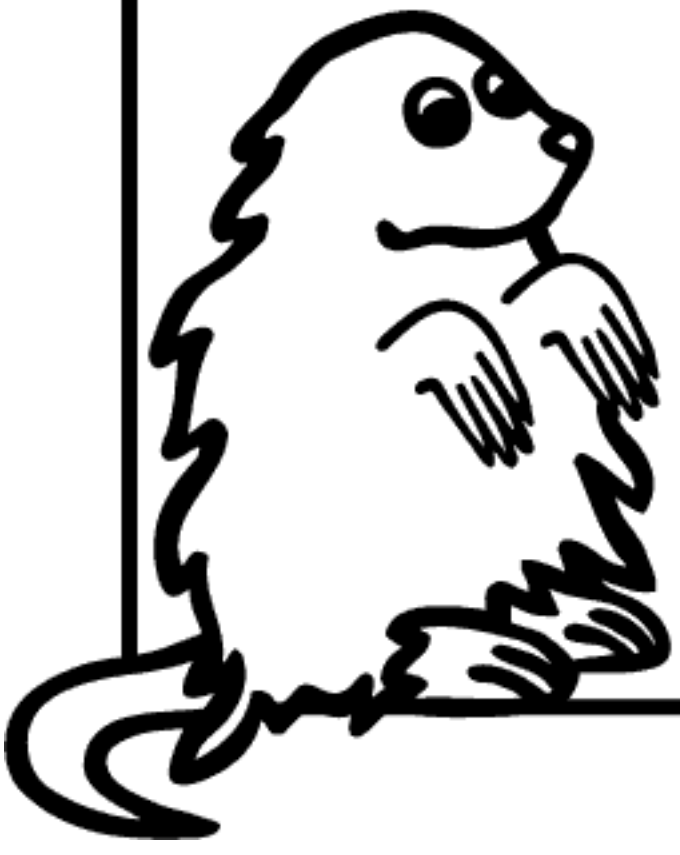
609-292-2113

DONALD T. DIFRANCESCO, ACTING GOVERNOR
STATE OF NEW JERSEY
ROBERT C. SHINN, JR., COMMISSIONER
DEPARTMENT OF ENVIRONMENTAL PROTECTION

KYRA HOFFMANN,
COORDINATOR

ERIN BRODEL,
GRAPHIC DESIGN & ILLUSTRATION

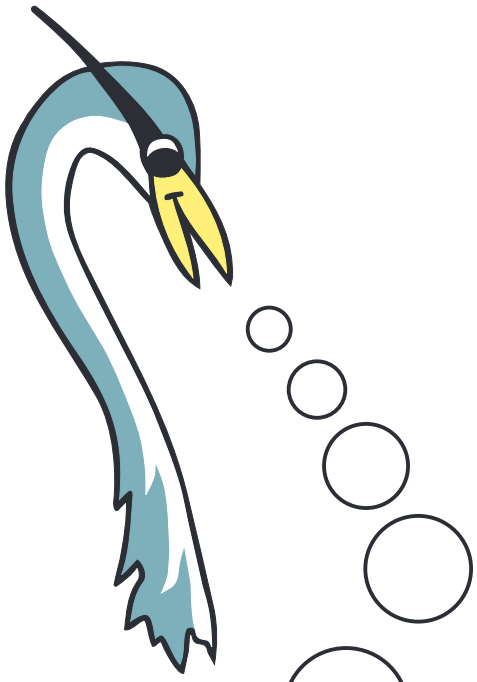
WATERSHEDS...
WHERE YOUR QUALITY OF LIFE BEGINS.
THE LINK BETWEEN OUR LAND, OUR WATER AND OUR COMMUNITY.



How To Be A Clean Water Rainger

Save this booklet! It contains valuable information you can use!

Who Are the Clean Water Raingers?



Hi! I'm Howie Heron. My friends and I have joined the Clean Water Rainger team and we're here to share what we've learned about the water quality of the great state of New Jersey. The Clean Water Raingers team is dedicated to protecting New Jersey's water. In this booklet, you'll learn how your everyday activities affect water.

CLEAN WATER RAINGERS

Dear Clean Water Rainger Candidate,

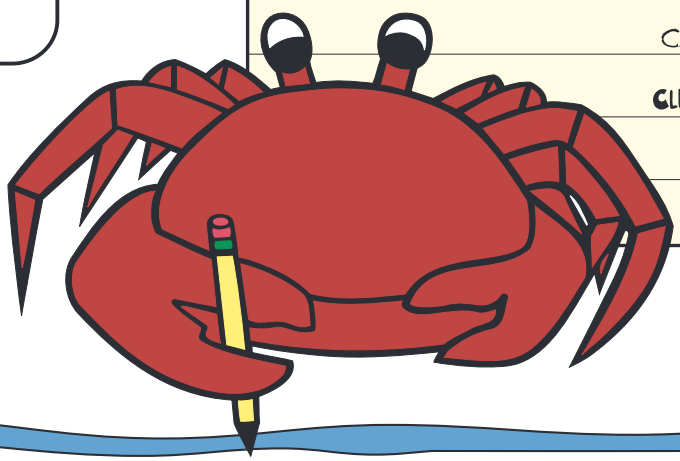
Are you interested in keeping New Jersey's water clean? Well, we need your help! Not long ago, my friends and I discovered that one of New Jersey's biggest water pollution problems comes from people -- from how we live our daily lives. That means things like littering, not cleaning up after pets, using too many pesticides, and dumping motor oil down storm drains. With eight million people living in the state, what everybody does can really add up.

We hope you will use the information in this booklet to improve water quality in your neighborhood. Join the Clean Water Rainger team and make New Jersey a better place to live, work, and play!

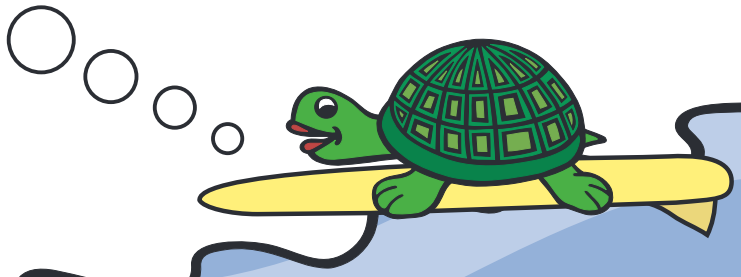
Your friend,

Claudius Crab

Clean Water Rainger



HI! I'M DIESHA DIAMONDBACK. DID YOU KNOW THAT ALL OF THE STREAMS, CREEKS, RIVERS, LAKES, AND BAYS IN NEW JERSEY EVENTUALLY FLOW TO THE ATLANTIC OCEAN? WHAT YOU DO IN YOUR HOME TOWN CAN AFFECT THE JERSEY SHORE, EVEN IF YOU LIVE FAR AWAY!



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Acknowledgments

The Clean Water Raingers concept was developed by the New Jersey Department of Environmental Protection.

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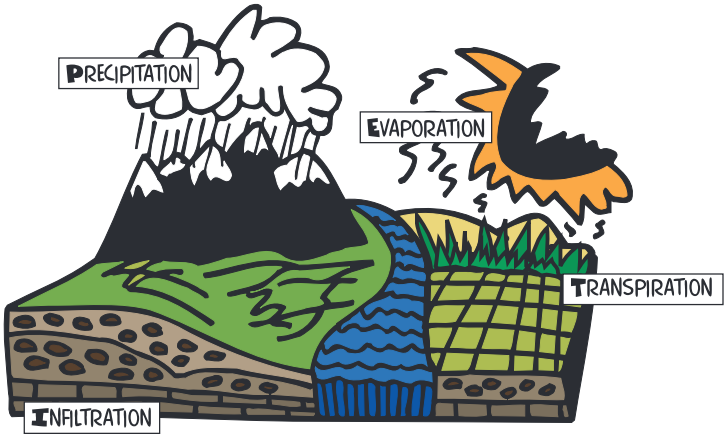
609-292-2113

www.state.nj.us/dep/watershedmgt

MARCH 2001

The Water Cycle

For millions of years, water has been recycled and reused. It is important to understand how water moves through the Earth's water cycle. When it rains, the rainwater flows on top of the land surface into waterways or is absorbed by the ground or plants. Water evaporates from land and water, becoming water vapor in the atmosphere. Water is also released from trees and other plants through "transpiration." The water vapor from evaporation and transpiration forms clouds in the atmosphere which in turn provide precipitation (rain, hail, snow, sleet) to start the cycle over again. This process of water recycling, known as the water cycle, repeats itself over and over.



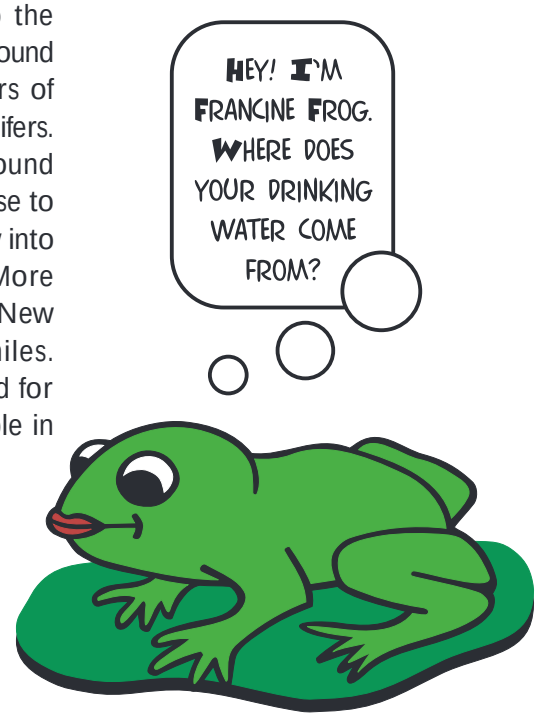
Water. It's an essential part of our lives. We use it to drink, to cook, to bathe, and to clean. It's used by industry and businesses to make their products. Farmers and gardeners use it to water their crops. Fish live in it and other animals need it to survive.

The earth has a lot of water - approximately 1.4 quintillion cubic meters of it. Yet, less than 1% of that is fresh, usable water. The oceans, glaciers, and ice caps account for greater than 99% of all water on Earth. That remaining small fraction accounts for every cloud, river, lake, pond, swamp, and aquifer. Of that, more than two thirds is below the Earth's surface.

In New Jersey, an average of 44 inches of precipitation per year replenishes the state's 6,500 miles of streams and rivers, 61,000 acres of lakes and an extensive network of underground aquifers.

What is Ground Water?

Some rainwater runoff seeps into the ground to become ground water. Ground water moves into water-filled layers of porous rock or soil that are called aquifers. Aquifers are not flowing underground streams or lakes. If the aquifer is close to the surface, its ground water can flow into nearby waterways and wetlands. More than 100 aquifers are below us in New Jersey, covering 7,500 square miles. Through wells, ground water is used for drinking water for half of the people in New Jersey.



What is a Watershed?

HOWIE HERON HERE. AS I FLY OVER NEW JERSEY, I CAN SEE THAT NEW JERSEY IS MADE OF MANY DIFFERENT WATERSHEDS. WE ALL LIVE IN A WATERSHED. WHICH ONE DO YOU LIVE IN?

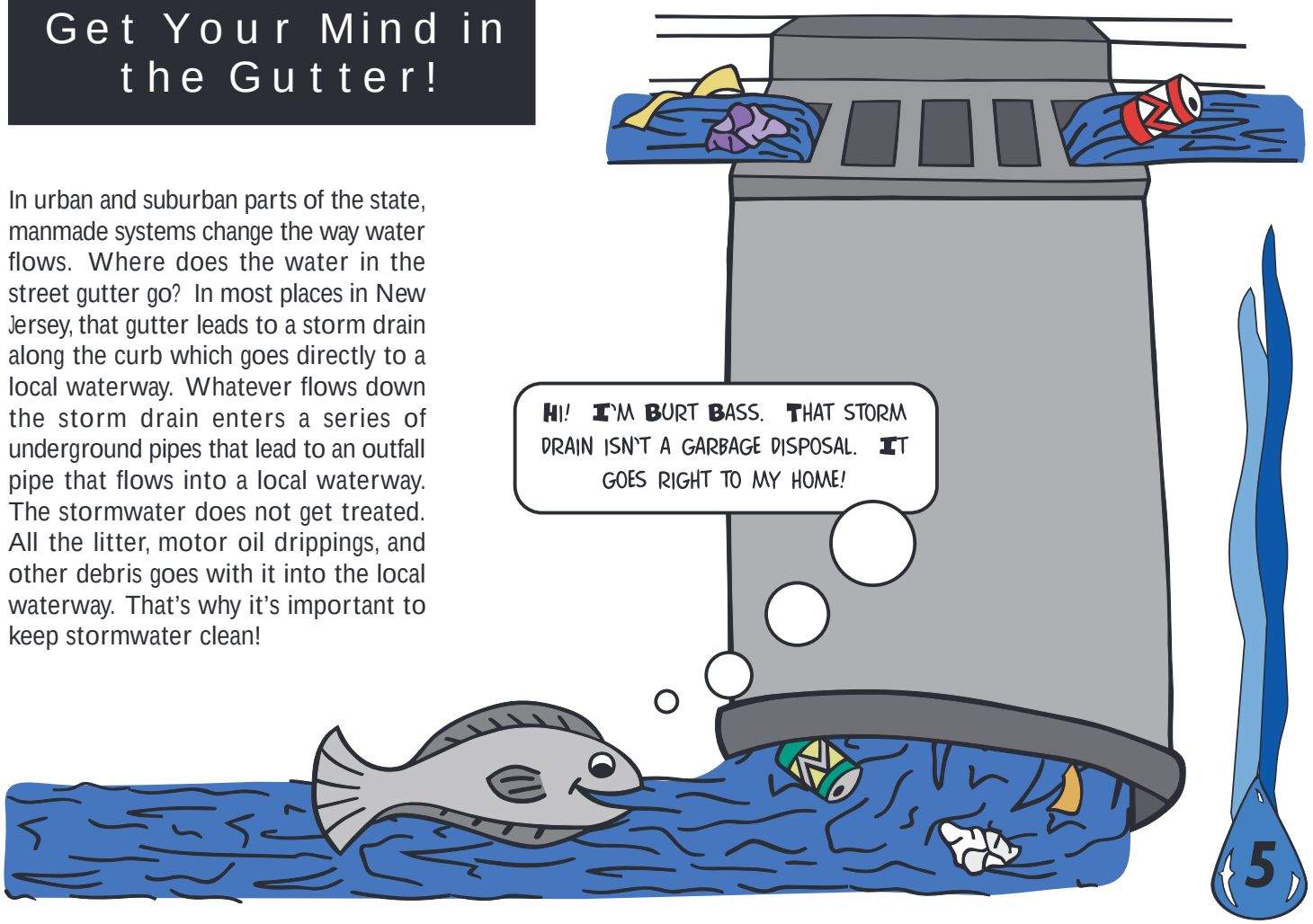
A watershed is the area of land surrounding a waterway that drains into it. A watershed includes not only the waterway itself but also the entire land area that drains to it. For example, the watershed of a lake would include not only the streams entering into that lake but also the land area that drains into those streams and eventually the lake.

A watershed can be as small as a backyard that drains to a puddle or as large as the sections of New York, Pennsylvania, New Jersey and Delaware that drain into the Delaware River.

So what happens on the land in a watershed affects the waterway. For example if too many fertilizers are used on lawns, the extra fertilizer can end up in the local waterway. The same thing goes for ground water. The extra fertilizer could end up in ground water and maybe someone's well.

Get Your Mind in the Gutter!

In urban and suburban parts of the state, manmade systems change the way water flows. Where does the water in the street gutter go? In most places in New Jersey, that gutter leads to a storm drain along the curb which goes directly to a local waterway. Whatever flows down the storm drain enters a series of underground pipes that lead to an outfall pipe that flows into a local waterway. The stormwater does not get treated. All the litter, motor oil drippings, and other debris goes with it into the local waterway. That's why it's important to keep stormwater clean!



What's Wrong With Our Water?

On his flights over New Jersey, Howie Heron sees that many water pollution problems begin upstream and concentrate as water flows toward the bays and the ocean. He has seen improvement as regulation of industries and improved sewage treatment have helped clean up the water. Now the number one problem in many areas is "polluted runoff."

Polluted runoff is stormwater runoff that picks up pollution as it washes over lawns, parking lots, roadways, farmland and other surfaces. There are four basic types of pollution in runoff: soil particles, nutrients, bacteria and toxic substances.

Soil Particles

Construction sites, farms, and eroded stream banks can be large sources of pollution. Because bare ground lacks plants to hold soil in place, rain and waves can easily lead to soil erosion.

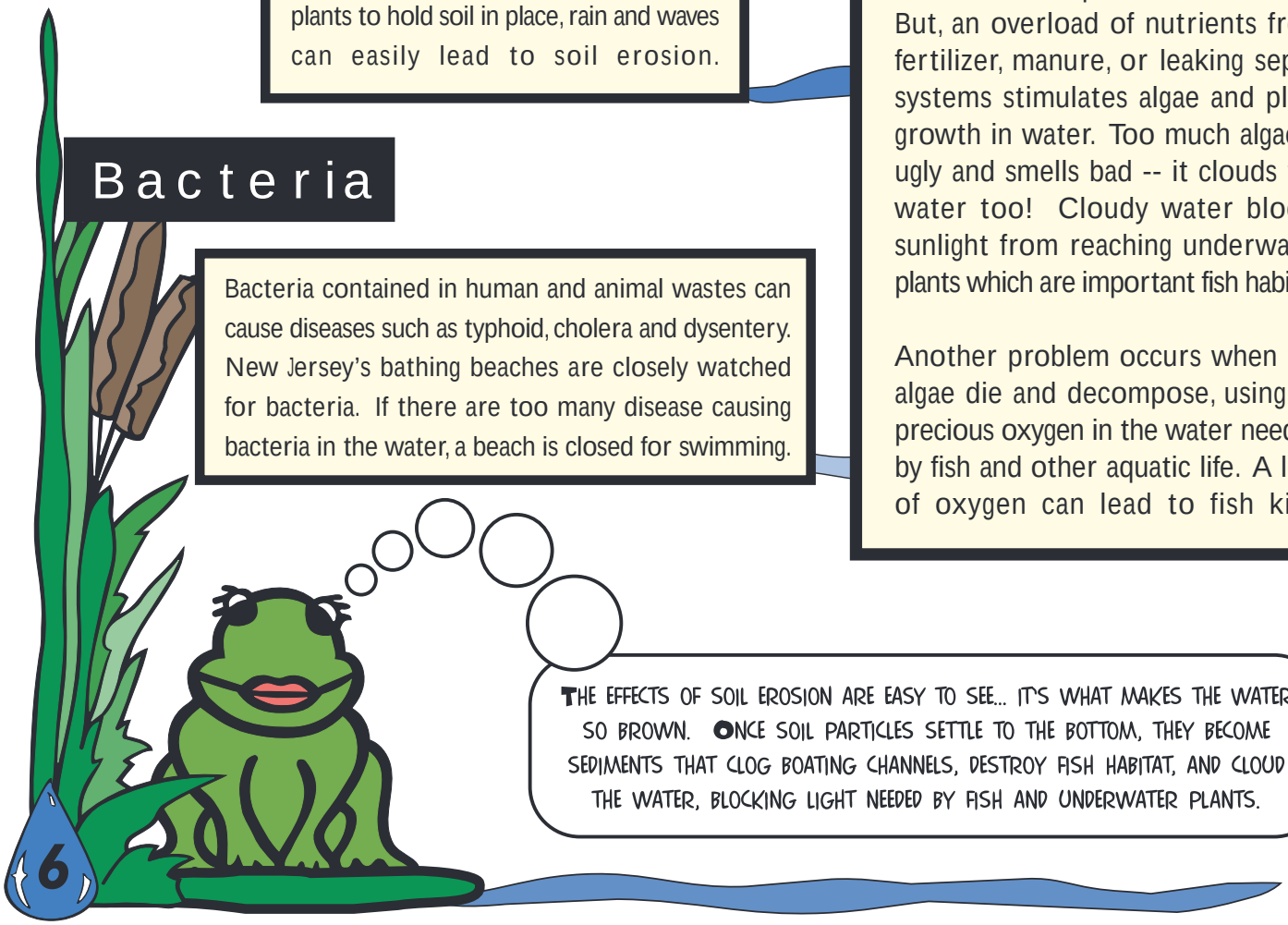
Nutrients

Nutrients, like potassium, phosphorous, and nitrogen, help plants grow. Just like we need food to survive, so do plants in the water. But, an overload of nutrients from fertilizer, manure, or leaking septic systems stimulates algae and plant growth in water. Too much algae is ugly and smells bad -- it clouds the water too! Cloudy water blocks sunlight from reaching underwater plants which are important fish habitat.

Another problem occurs when the algae die and decompose, using up precious oxygen in the water needed by fish and other aquatic life. A loss of oxygen can lead to fish kills.

Bacteria

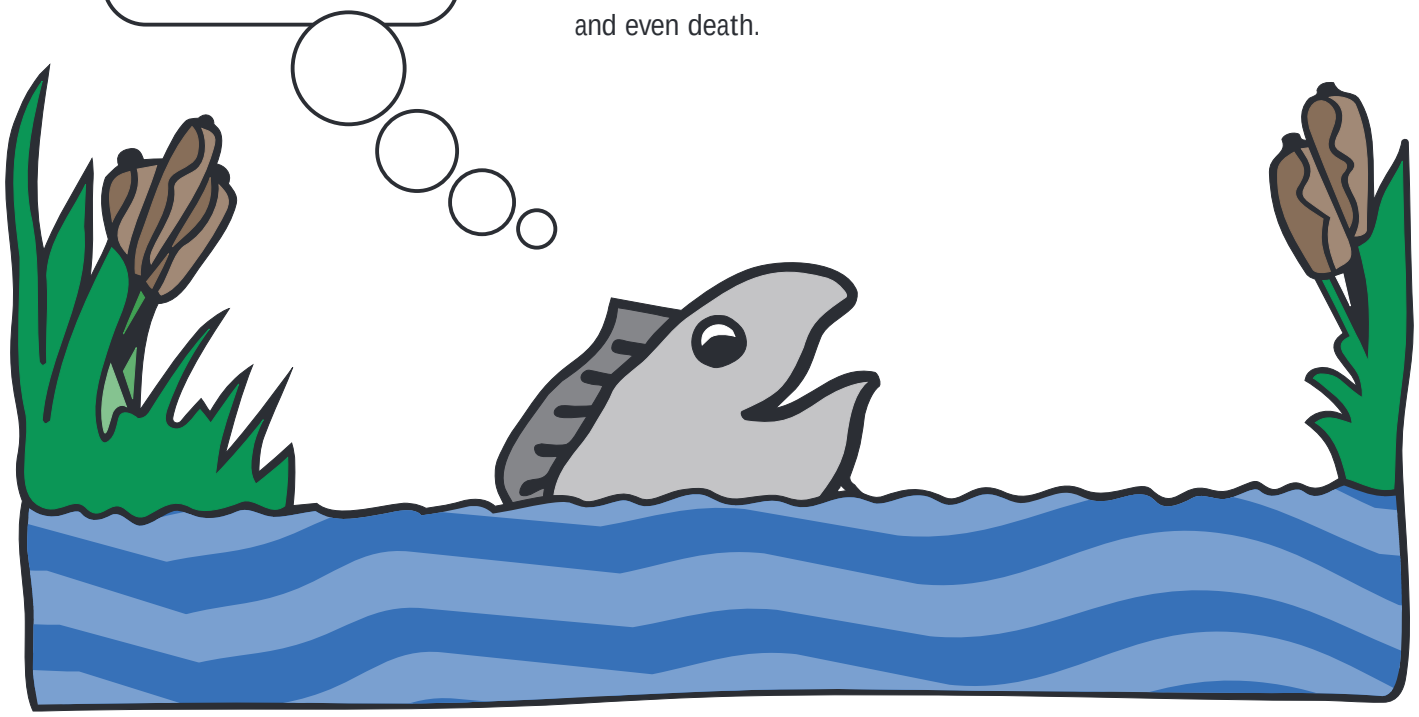
Bacteria contained in human and animal wastes can cause diseases such as typhoid, cholera and dysentery. New Jersey's bathing beaches are closely watched for bacteria. If there are too many disease causing bacteria in the water, a beach is closed for swimming.



THE EFFECTS OF SOIL EROSION ARE EASY TO SEE... IT'S WHAT MAKES THE WATER SO BROWN. ONCE SOIL PARTICLES SETTLE TO THE BOTTOM, THEY BECOME SEDIMENTS THAT CLOG BOATING CHANNELS, DESTROY FISH HABITAT, AND CLOUD THE WATER, BLOCKING LIGHT NEEDED BY FISH AND UNDERWATER PLANTS.

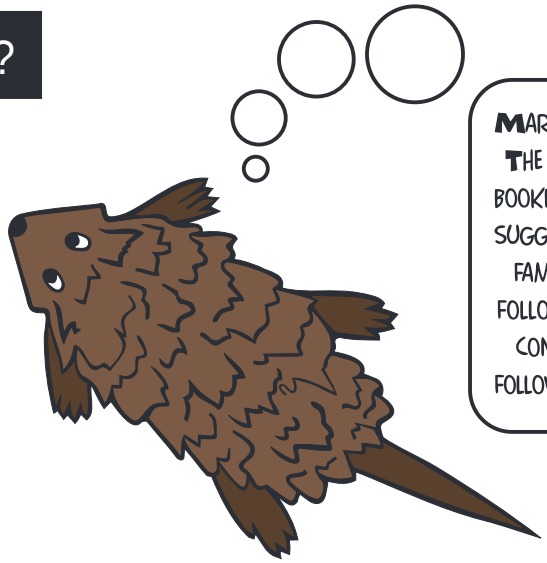
Toxic Substances

Toxic substances include oil and gas, heavy metals (zinc, mercury, cadmium, lead, etc.) and pesticides. When these substances are washed off sidewalks, parking lots, lawns, gardens, and cropland, they can end up in nearby streams and lakes and can even soak into the ground. Once in the water system, these pollutants can be carried downstream to settle into lakes, bays, and aquifers. Toxic substances can contaminate small organisms, which are eaten by fish and birds. The toxins build up in the fat of the larger animals, possibly leading to illness, birth defects, and even death.

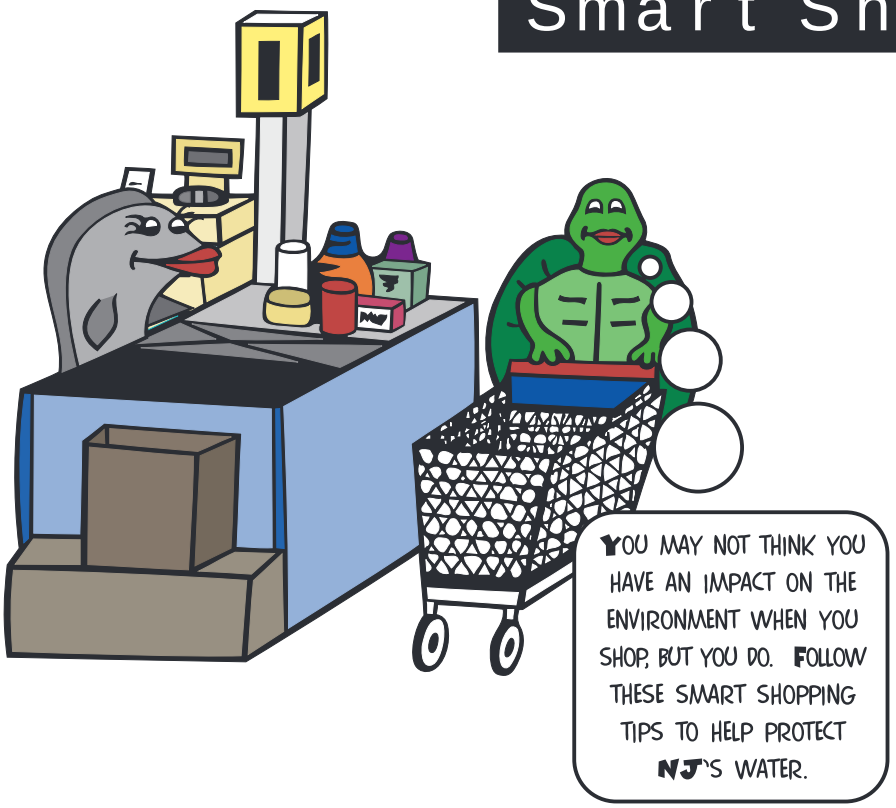


What Can You Do?

The most important thing you can do to improve New Jersey's water is to learn about the ways in which you and others affect the environment. Lots of little changes will make the biggest difference!



Smart Shopping Tips



Precycle! That means buying products that use the least amount of packaging. This helps by reducing water pollution from manufacturing and trash disposal problems.

Recycle! Find out what is recyclable in your community. Buy products in recyclable containers. Buy containers or products made from recycled materials.

Read labels and be aware of what they mean before you buy. Watch for signal words such as "caution," "warning," and "danger." These indicate that an item is a potentially hazardous product that consumers need to be concerned about.

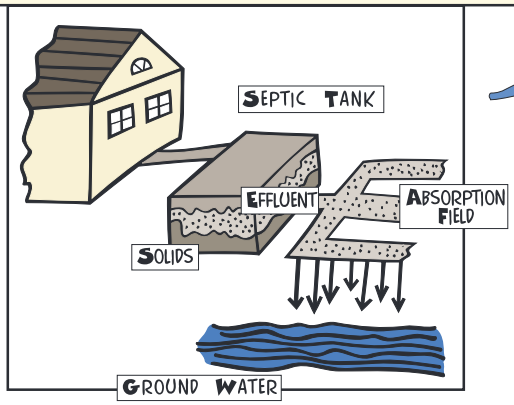
Thank You For Shopping Smart!

Don't Dump It Down the Drain

About 500,000 New Jersey homes use septic systems for the wastewater from their sinks, toilets, dishwashers, washing machines and showers. Rather than send their wastewater to a sewage treatment plant, homes with septic systems treat their wastewater in their own backyard.

How does a septic system work?

Septic systems work by using bacteria to decompose wastes sent into the system. A typical septic system has underground pipe leading from the home to an underground holding tank where most of the pollutants are treated. An underground system of small pipes leads from the tank into the backyard. These pipes allow treated water to soak into the ground.



Treat them with respect.

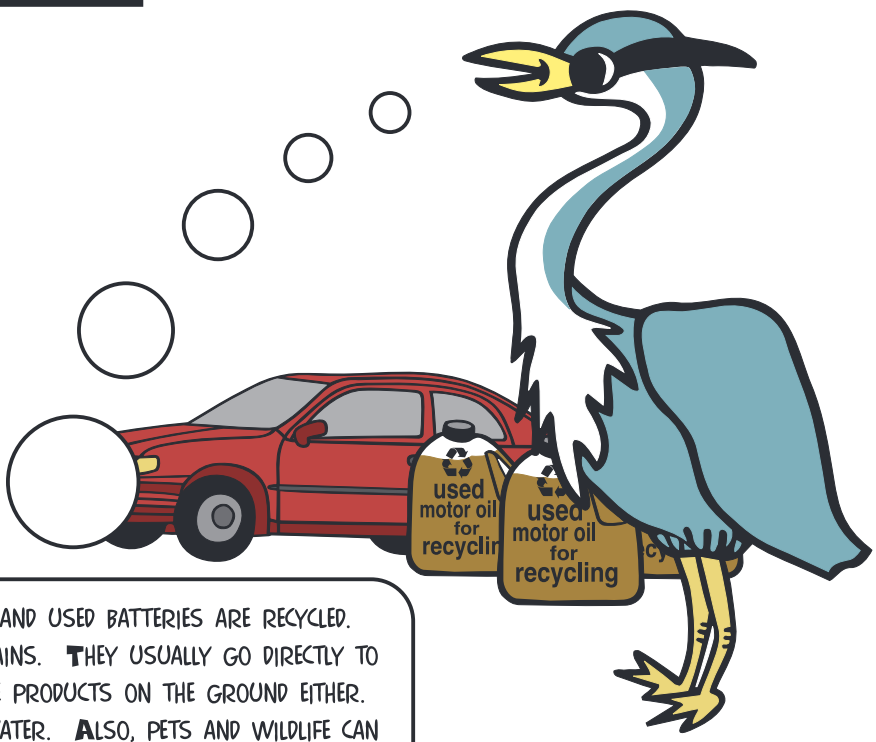
In order to keep these systems working, it's important to treat them right. To do this, you must be careful about what is put down the drain. The following things should not be put down household drains: hazardous household chemicals (for example, paints, varnishes, pesticides, drain cleaners), motor oil and other automotive fluids, cooking oils and grease, and large amounts of bulky materials such as kitter litter, diapers, or paper towels. These items may cause a septic system to stop working and can contaminate ground water.

Conserve.

It's also important to conserve water with a septic system. The less water the septic system treats, the longer the system will last.

Getting Around

You may not think of cars as a source of water pollution but they can be. Think of a parking lot or street. All that oil, grease, and other fluids that stain the pavement are washed into local waterways when it rains or as snow melts. Little bits of tires and brakes that wear off the car drop onto the pavement and are washed into waterways too. How do you avoid this pollution? Cars should be maintained properly and leaks fixed as soon as possible. That makes safety and environmental sense!



BE SURE USED MOTOR OIL, ANTIFREEZE, AND USED BATTERIES ARE RECYCLED. NEVER DUMP ANYTHING DOWN STORM DRAINS. THEY USUALLY GO DIRECTLY TO A LOCAL WATERWAY. NEVER DUMP THESE PRODUCTS ON THE GROUND EITHER. HERE THEY CAN SOAK INTO THE GROUND WATER. ALSO, PETS AND WILDLIFE CAN BE ATTRACTED TO SWEET TASTING ANTIFREEZE, BUT IT'S TOXIC TO THEM.

Scoop the Poop

Feces, guano, dung, poop, and road apples are all forms of animal waste which can be a serious water pollution problem. Too much animal waste from pets, wildlife, or livestock adds too many nutrients and disease-causing bacteria to the water.

If you walk your pet near a lake or stream, it's important to clean up after your dog. Don't leave animal waste on the sidewalk or roadway either. When it rains, the waste can be washed down the storm drain to the nearest waterway.

Trees, Turf, Bugs and Birds

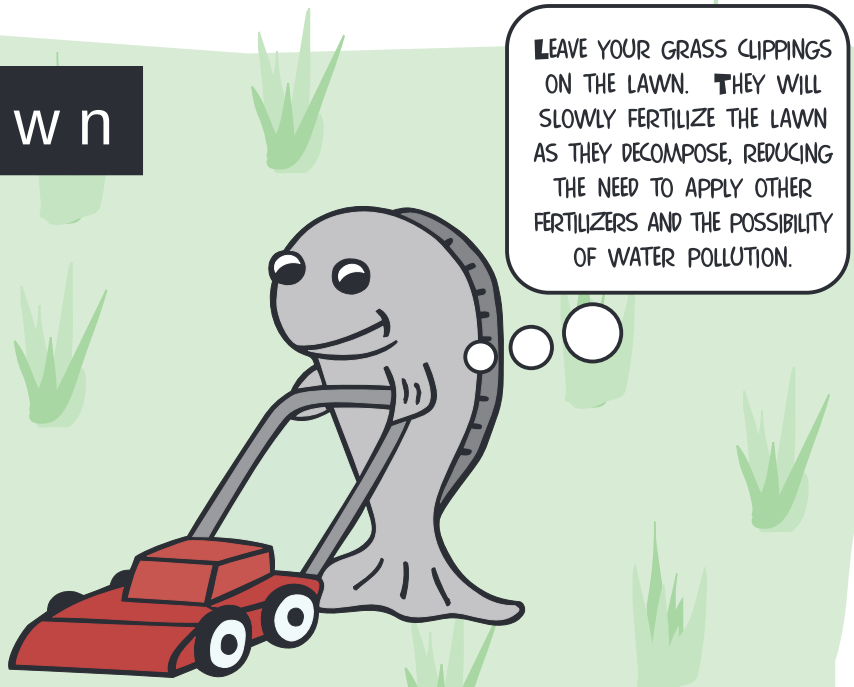
Most people like a healthy landscape surrounding their home. It can increase the value of your home and produce environmental benefits such as preventing soil erosion, keeping your home cooler in the summer, and filtering pollutants from runoff. The right combination of plants can even attract wildlife, butterflies, and birds.

Unfortunately using too many fertilizers and pesticides on lawns and gardens can also be a source of pollution. It's important to use these products wisely - at the right time and the right amount - if they're needed at all. Make sure the products are needed and, if so, use them according to the label.

Many people consider all insects to be harmful to the lawn or garden, but most insects are not harmful. In fact, many of them eat other harmful insects. Don't automatically turn to pesticides. These chemicals can also be dangerous to human health and the environment. All home and garden pesticides are poisonous to some degree. The most important thing to remember is to read and follow the label carefully if you are going to use a pesticide.

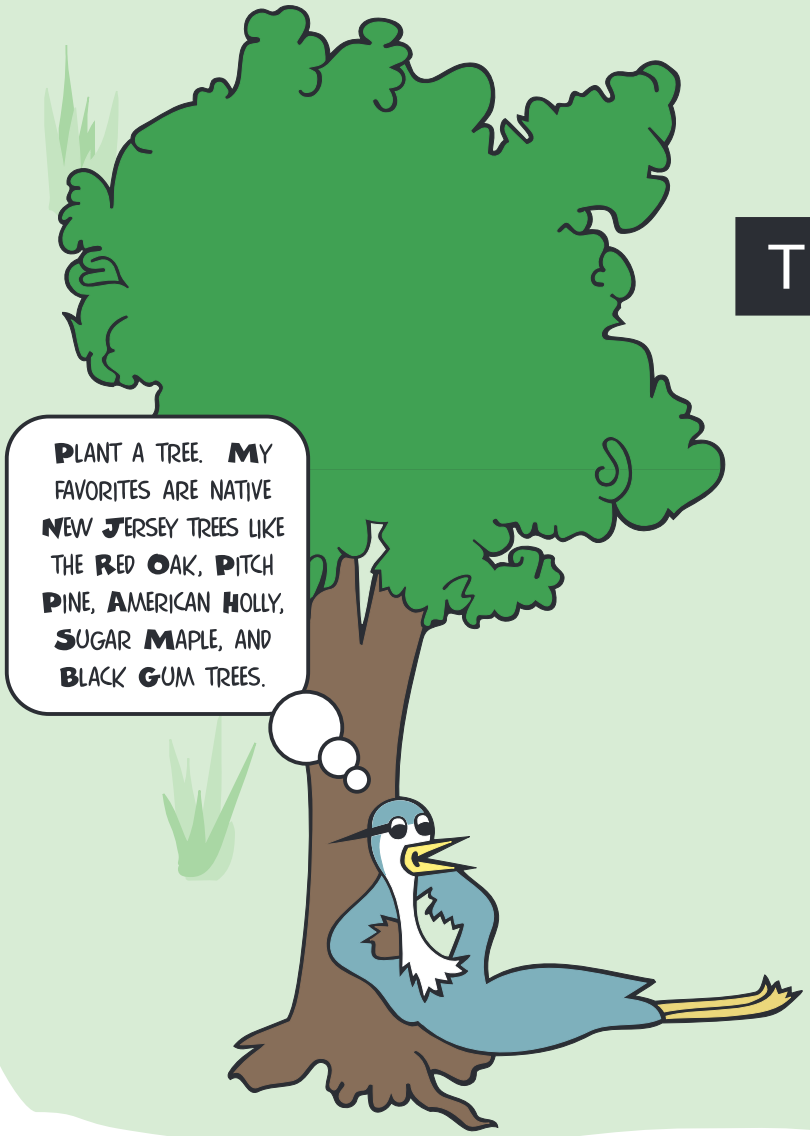
Mowing the Lawn

Always mow with a sharp blade set at the right height (about 2 to 3 inches). Never mow more than one third of the grass height. Cutting more will stress you lawn's health, opening the door to weeds and disease. A healthy lawn doesn't need pesticides.

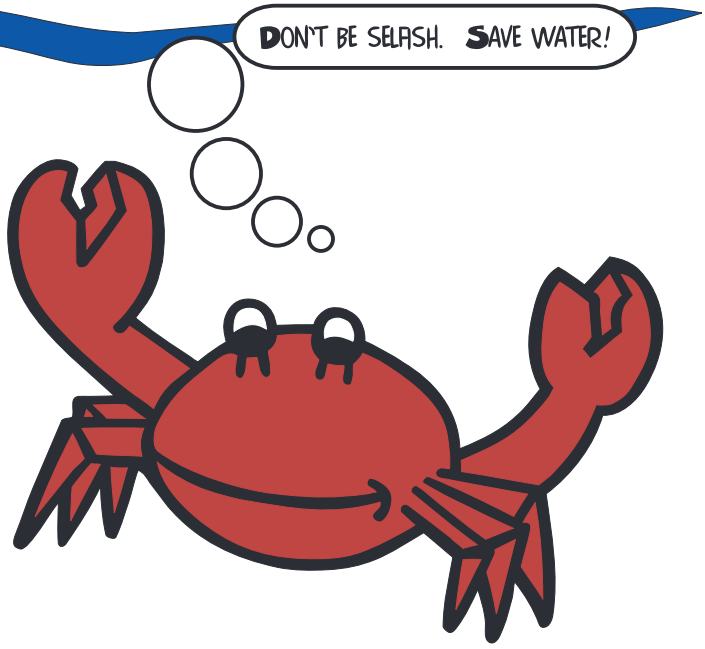


Trees Are Tops

Trees provide a whole range of environmental benefits. They provide shade - especially important during a hot summer day. This keeps your house cooler and shelters other plants from the drying sun. Trees use nutrients and can prevent those nutrients from entering waterways. Their roots hold the soil in place, thereby preventing soil erosion.



Slow the Flow

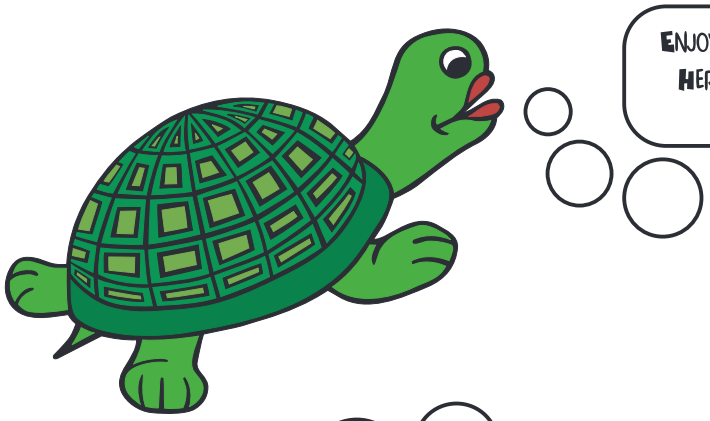


Like any valuable resource, water should be conserved both outdoors and indoors. We can't make new water so we need to conserve the clean water that's available to us.

Inside the home: Don't let the water run while you brush your teeth. Take short showers. Flush only when necessary. Don't use the toilet as a trash can.

Outside the home: Don't overwater the yard. Sweep sidewalks and driveways rather than hose them down. Use plants that don't need a lot of water.

Boating and Fishing Tips



Slow down and observe "No Wake" zones, which are designated to protect the shore. A wake is the wave caused by a boat moving too quickly through the water. Fast moving boats cause large waves that can cause the shoreline to erode.

Recycle old fishing line. Never throw it overboard.

Keep a trash bag handy and remember to recycle.

Never dispose of bait or fish waste overboard.

Glossary

AQUIFER - water filled underground layers of cracked rock, sand, gravel, or clay. Wells tap into aquifers to provide water for people to use.

EROSION - movement of soil commonly caused by running water or wind.

EVAPORATION - movement of water from land to the air when the sun heats up water and it becomes water vapor.

FERTILIZER - nutrient source for plants.

GROUND WATER - water that lies beneath the earth's surface.

PESTICIDE - chemical used to control a pest, such as an insect, weed or rodent.

POLLUTED RUNOFF - rain water or snow melt that carries pollutants.

PRECIPITATION - water that falls back to land from clouds as snow, sleet, hail or rain.

PRECYCLE - selection of products and packaging that produce the least amount of trash.

RECYCLE - reuse of materials such as plastic, glass or metal in either its original or different form rather than putting them in the garbage.

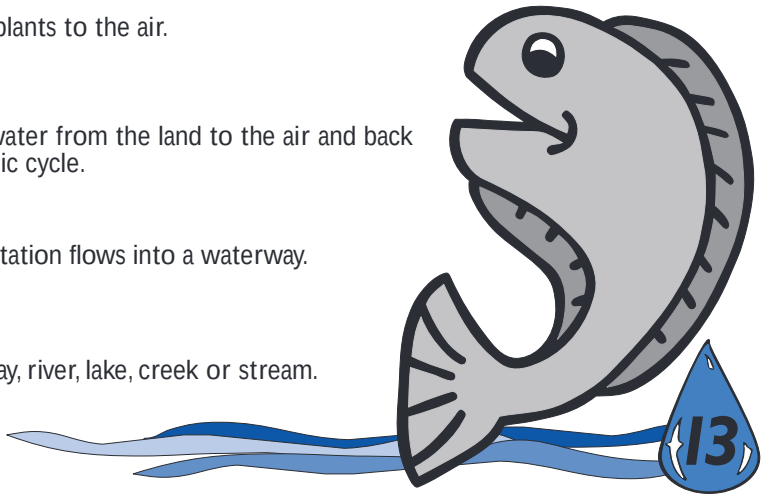
STORM SEWERS - underground pipe system that carries stormwater from streets and parking lots to local waterways.

TRANSPIRATION - movement of water from plants to the air.

WATER CYCLE - natural process of recycling water from the land to the air and back again, also called the hydrologic cycle.

WATERSHED - the land area from which precipitation flows into a waterway.

WATERWAY - a body of water, for example a bay, river, lake, creek or stream.



Top Ten Things You Can Do to Help Keep Water Clean

1. Never throw anything down storm drains. They are for rainwater only.

2. Don't litter. Always put trash where it belongs.

3. Always clean up after your pets. Obey your town's "pooper scooper" laws.

4. Tell others how important it is to keep our land and water clean.

5. Plant a tree. They take pollutants out of ground water, provide shade, and clean the air.

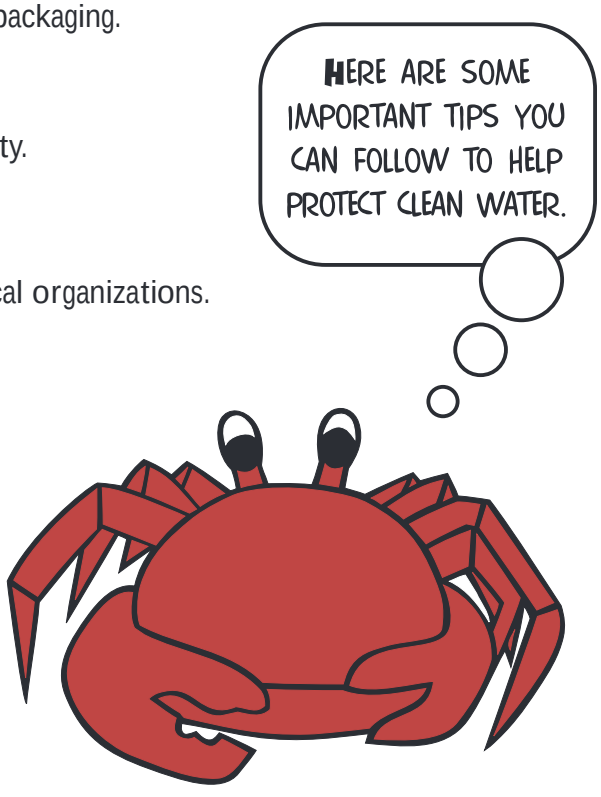
6. Find out what waterway you live near. Where does your water come from?

7. Precycle! Buy products that use the least amount of packaging.

8. Recycle. Find out what is recyclable in your community. Buy products in recycled or recyclable containers.

9. Learn about environmental issues. Get involved in local organizations.

10. Conserve water whenever possible. For example, turn off the water while brushing your teeth and don't linger in the shower.



You've Got the Know-How Now!

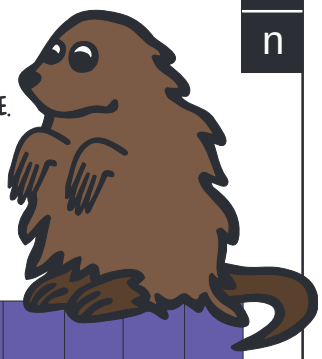
Now you know how to be a Clean Water Rainger! Join the team. Thanks for taking the time to read about how you can become a member of the team that's part of the solution to water pollution.

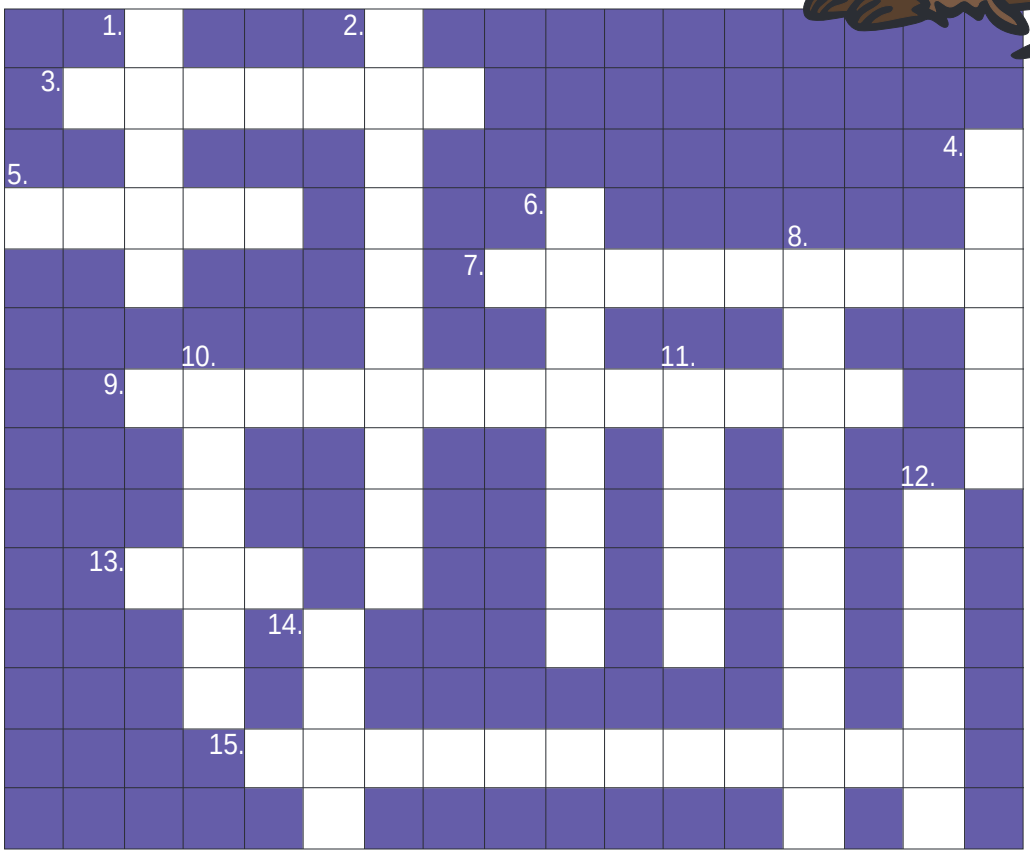
clean water raingers

crossword

down

1. FOR MILLIONS OF YEARS, _____ HAS BEEN REUSED AND RECYCLED.
2. USING TOO MUCH _____ ON YOUR LAWN CAN CAUSE WATER POLLUTION.
4. _____ YOUR USE OF PESTICIDES.
6. _____ , NUTRIENTS, SOIL PARTICLES AND TOXIC SUBSTANCES ARE FOUR TYPES OF POLLUTION IN RUNOFF.
8. A _____ _____ IS NOT A GARBAGE DISPOSAL.
10. RAINWATER _____ CAN BECOME POLLUTED AS IT FLOWS ACROSS THE LAND.
11. _____ CAN HELP PREVENT WATER POLLUTION BY USING NUTRIENTS AND HOLDING SOIL IN PLACE.
12. RAINWATER SEEPS INTO THE SOIL TO BECOME _____ WATER.
14. FRANCINE ____ EATS INSECTS AND IS AN ALTERNATIVE PEST CONTROL.





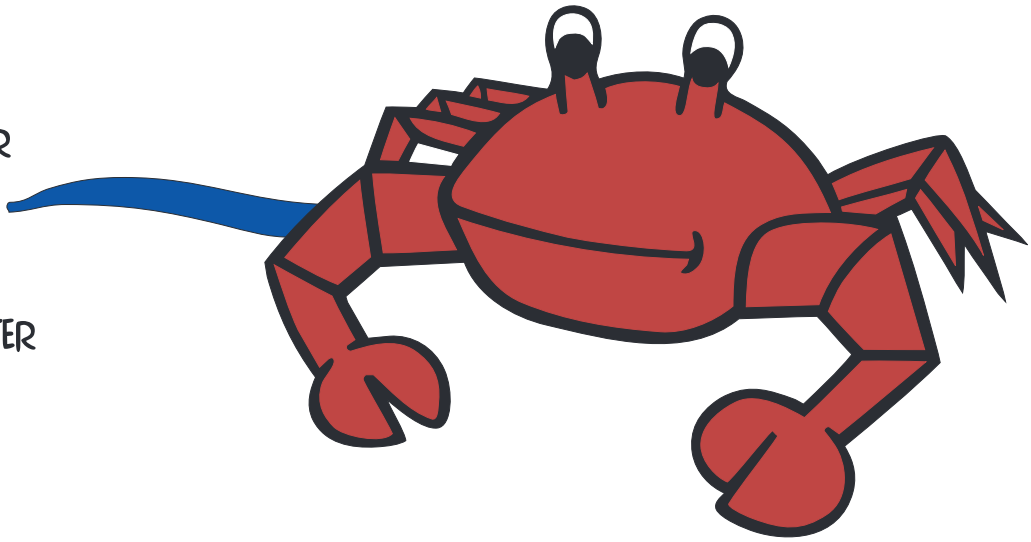
across

3. THE CLEAN WATER _____ TEAM IS WORKING TO KEEP NJ'S WATER CLEAN.
5. _____ UP AFTER PETS.
7. THE LAND SURROUNDING A WATERWAY IS ITS _____ .
9. RAIN AND SNOW ARE TWO TYPES OF _____ .
13. ____ CAN HELP KEEP WATER CLEAN.
15. USING PLANTS THAT DON'T USE A LOT OF WATER IS ONE WAY TO PRACTICE WATER _____ .

clean water raingers word search

FIND THESE WORDS ACROSS, DOWN, UP OR DIAGONALLY.

AQUIFER
BACTERIA
CLEAN WATER
CONSERVE
EROSION
FERTILIZER
GROUND WATER
LITTER
PESTICIDE
RAIN
RAINGERS
RECYCLE
RUNOFF
STORM DRAIN
STORM SEWER
WATER CYCLE
WATERSHED



E	C	N	N	O	I	S	O	R	E	C	Y	Q	L	E
G	O	A	E	F	E	R	T	I	L	I	Z	E	R	S
N	N	R	A	I	N	D	B	Q	C	R	A	O	N	N
I	S	E	L	Q	C	T	R	E	Y	C	L	E	L	I
A	P	T	S	R	U	M	B	A	C	T	E	R	I	A
R	E	T	A	W	D	N	U	O	R	G	L	A	T	R
E	S	T	O	R	M	S	E	W	E	R	Q	Q	T	D
T	T	I	U	G	A	N	F	F	T	O	F	U	E	M
A	I	L	R	E	F	I	U	Q	A	U	E	H	L	R
W	C	U	N	E	E	A	N	R	W	N	S	F	C	O
N	I	Q	I	B	R	R	A	G	R	R	T	F	Y	T
A	D	A	A	G	R	E	V	R	E	S	N	O	C	S
E	E	G	R	N	L	I	T	T	E	R	W	N	E	N
L	R	I	F	I	U	Q	A	Q	C	L	S	U	R	A
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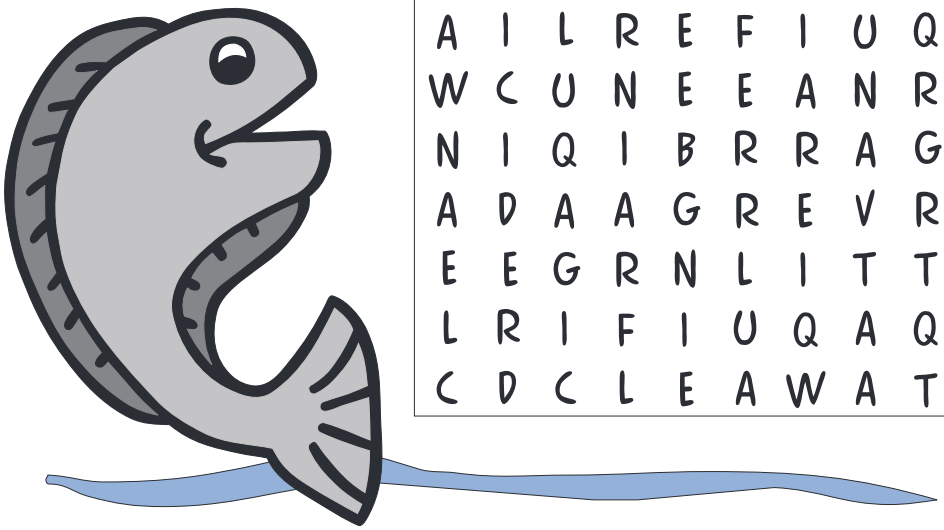

crossword answers

	1.	W			2.	F									
3.	R	A	I	N	G	E	R								
		T				R								4.	R
5.															
C	L	E	A	N		T		6.	B						E
		R				I	7.	W	A	T	E	R	8. S	H	E	D
						L			C				T			U
			10.								11.					
	9.	P	R	E	C	I	P	I	T	A	T	I	O	N		C
			U			Z			E		R		R			E
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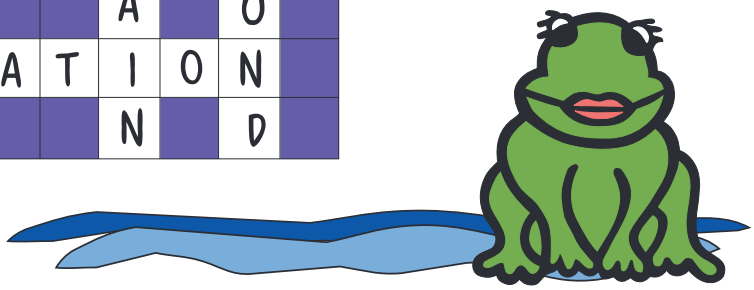
	13.	Y	O	U		R			I		E		D		R	
			F		14. F				A		S		R		O	
			F		R								A		U	
				15. C	O	N	S	E	R	V	A	T	I	O	N	
					G								N		D	



word search answers

E	C	N	N	O	I	S	O	R	E	C	Y	Q	L	E
G	O	A	E	F	E	R	T	I	L	I	Z	E	R	S
N	N	R	A	I	N	D	B	Q	C	R	A	O	N	N
I	S	E	L	Q	C	T	R	E	Y	C	L	E	L	I
A	P	T	S	R	U	M	B	A	C	T	E	R	I	A
R	E	T	A	W	D	N	U	O	R	G	L	A	T	R
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N	I	Q	I	B	R	R	A	G	R	R	T	F	Y	T
A	D	A	A	G	R	E	V	R	E	S	N	O	C	S
E	E	G	R	N	L	I	T	T	E	R	W	N	E	N
L	R	I	F	I	U	Q	A	Q	C	L	S	U	R	A
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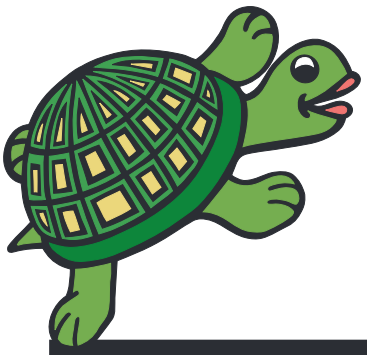
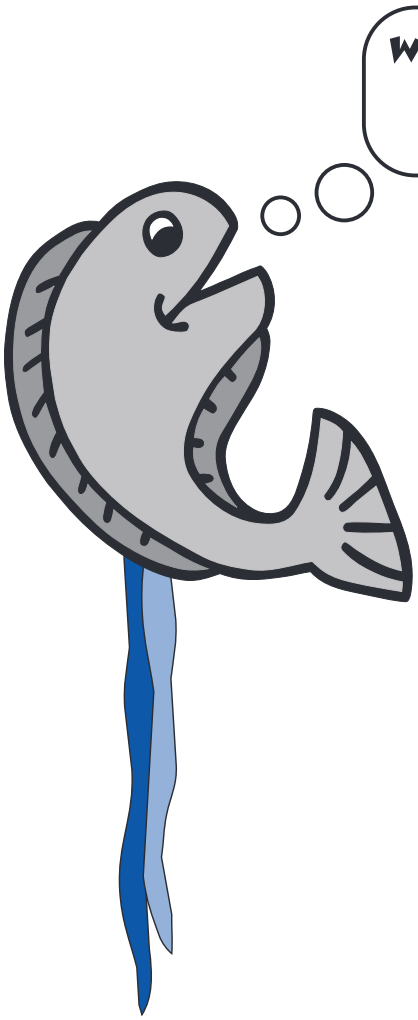
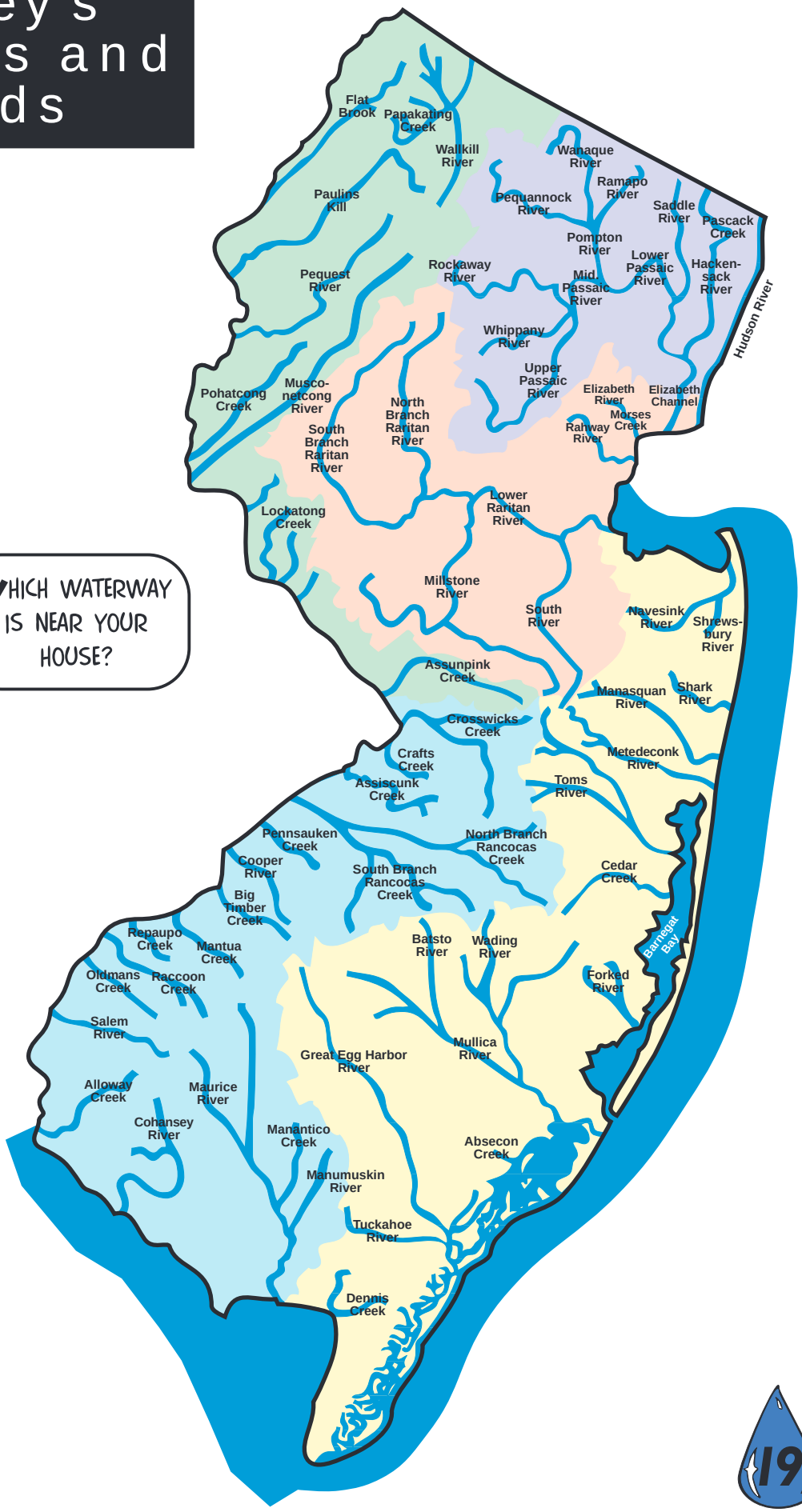


New Jersey's Waterways and Watersheds

Watersheds

- Atlantic Coastal
- Lower Delaware
- Northeast
- Northwest
- Raritan





New Jersey Department of Environmental Protection
Division of Watershed Management
PO Box 418
Trenton, NJ 08625-0418
609-292-2113
Donald T. DiFrancesco, Acting Governor
Robert C. Shinn, Jr., Commissioner

New Jersey Clean Communities Litter Activity Book

Clean Communities

The activity book has been produced to educate youth about the harmful effects of litter on wildlife and the environment. Please do your part to make your community cleaner. Our mission is to reduce litter through education. Clean Communities are safe, healthy, sustainable communities.

The NJ Clean Communities Council not only provides grants to towns and counties to help fight litter but also administers the Adopt-a-Beach and Adopt-a-Highway programs.

Courtesy of NJ Clean Communities Council, Inc.

www.njclean.org

Time Table for Litter Decomposition

How long do you think it takes for these items to decompose? Match the item to the time. Use your best guess.

-- Paper

450 Years

--Cotton Shirt

2-4 Weeks

--Wool Mittens

Undetermind

--Tin Can

200-500 Years

--Aluminum Can

1 Year

--Plastic Six Pack

100 Years

--Glass Bottle

1-5 Months

So, Make New Jersey Glitter and Can the Litter ! ! !

Answer Key -> paper = 2-4 weeks, cotton shirt = 1-5 months, wool mittens = 1 year, tin can = 100 years, aluminum can = 200-500 years, plastic six pack = 450 years, glass bottle = undetermined

Don't Be a Litter Bug Word Search

E A J T Z T Y H C S J X P U U
D S C E P S Q S Q U T J L B G
W A U A E L R A K M C L A Y L
P I N E N V I R O N M E N T Y
C U R G R S E T B U F T T Q K
L T N A E L X W Y P A X S V E
K I A A C R R G U O Y G G F G
R I T Y E A O J S L A M I N A
R J C T P L Q U Y L X W C D B
V E S P E A C G S U W A T E R
R I E C N R D U H T R A E E A
T R R U B B I S H I W H D S G
S G U B V F T F X O K U D M F
J A R C K U Y Z A N C G T F V
Z N G R P M M G L E N R Q M X

Find the hidden words from the list below.
They can be horizontal, vertical, or diagonal – forward or backward:

AIR
ANIMALS
BUG
CANS
CLEANUP
DANGEROUS
EARTH
ENVIRONMENT
GARBAGE
LITTER
PLANTS
POLLUTION
RECYCLE
REDUCE
REUSE
RUBBISH
TRASH
TREES
UGLY
WATER
WRAPPERS

Keep it Clean !

Use the words from the list below to complete the tips on how each of us can help prevent litter pollution.

1. **Always set an _____ by not littering.**
2. **If your parents own a car, make sure they have a _____.**
3. **When you visit the park, put your _____ in a trash can.**
4. **Help your family put _____ in a bin at curbside.**
5. **When you put out the trash at _____ make sure the garbage can lid is on tight.**
6. **If your school _____ doesn't have a trash can, ask your principal to put one out along with a recycling container.**
7. **Ask your parents to take you to a recycling _____.**
8. **Participate in a _____ trash cleanup day.**

COMMUNITY	EXAMPLE
HOME	LITTER
LITTERBAG	CENTER
PLAYGROUND	RECYCLABLES

Trash Math

Soda cans here, water bottles there - it all adds up !

Did you know that the average person throws away 5 pounds (lbs) of trash a day?

Figure out how many pounds of trash you throw away:

in one week ... **5 lbs** **x** _____ **=** _____ **lbs per week**
Number of days in a week

in one month... _____ **lbs per week x** _____ **=** _____ **lbs per month**
Number of weeks in a month

in one year... _____ **lbs per month x** _____ **=** _____ **lbs per year**
Number of months in a year

Want to convert these numbers to tons? Divide each one by 2,000 !

Recycling Fun Facts

Recycling helps reduce the amount of trash we throw away so make sure you recycle.

- **The average American uses 650 pounds of paper a year !**
- **Recycling one ton of paper saves 17 trees, 6,953 gallons of water, 463 gallons of oil, and 4,077 kilowatts of energy !**
- **About 50 % of the paper used in the United States is recycled**

Match the Message Coloring Page

Keep NJ Litter Free !

A ___ Don't Pollute My Stream !
B ___ Keep The Trash Off My Back !
C ___ I Can't Bear Trash !
D ___ Litter in My Woods, Owl That Hurts !
E ___ Buck The Trend, Litter Sure Does Offend !
F ___ Keep Trash Out Of Our Hare !

(Write the correct letter in the sign each animal is holding)

To Trash or Not to Trash?

Trash: Broken, discarded, or worthless things, rubbish

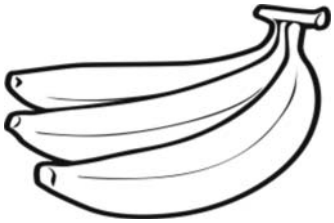
Recyclables: Materials which can be reused

Circle/Color the items below which can be saved from becoming trash

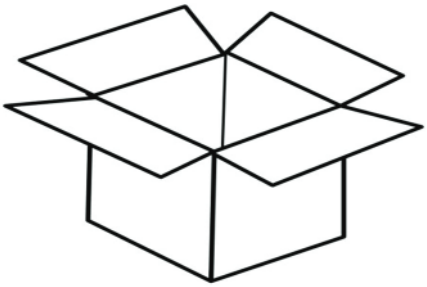
Milk Carton

Newspapers

Soda Can

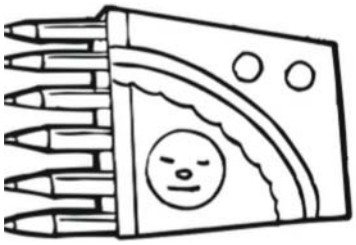


Banana Peels



Cardboard Box

Grass Clippings



Used Crayons

Plastic Bag

Old Books

Word Scramble

See how many litter related words you can unscramble using the clues provided:

ebragga: discarded food waste or any other unwanted or useless material.

_____

rppae: many different kinds can be recycled from your parent's offices and your home.

_____

sgars: if you leave it on the ground instead of bagging it, it can actually make your lawn greener and healthier.

_____

rtetli: pieces of trash that have been carelessly left on the ground, especially in a public place or outdoors.

_____

gbsa: whether plastic or paper, you can use them again until they fall apart. Then they can often be recycled.

_____

elrcyce: to save or collect waste material so that it can be used again.

_____

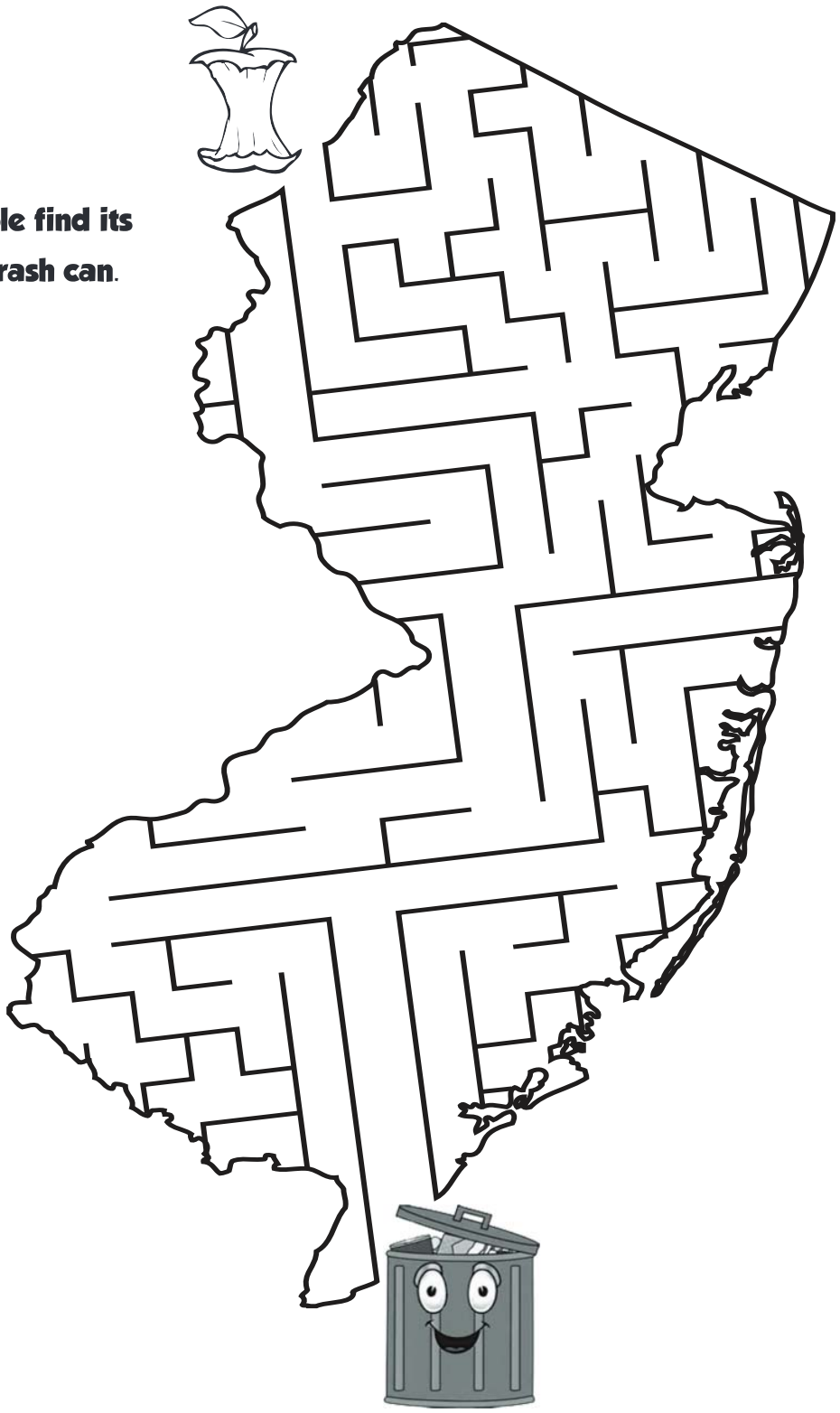
nelca: free from dirt or litter.

_____

(We made a list in case you need some help:
recycle, paper, litter, bags, garbage, clean, grass)

Help NJ Put Litter in its Place !

Help the apple find its way to the trash can.



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The NJ Clean Communities Council is a 501c3 nonprofit corporation whose mission is to reduce litter through education. The NJ Clean Communities Council works with the state departments of environmental protection and treasury to administer the Clean Communities program, disbursing grants to 558 municipalities and 21 counties for the implementation of grassroots, community-driven litter abatement programs. The NJ Clean Communities Council also administers New Jersey's Adopt-a-Beach and Adopt-a-Highway programs.

New Jersey Clean Communities Council

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Voice: 609-989-5900 • Fax: 609-989-9066
www.njclean.org

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BOROUGH OF FANWOOD

APPENDIX 3 – LOCAL PUBLIC EDUCATION PROGRAM

Statewide Basic Requirement:

Local Public Education Program - Tier A Municipalities shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater and to involve the public in reducing pollutants in stormwater and mitigating flow.

The Tier A Municipality shall annually conduct activities that total at least 12 points and include activities from at least three of the five categories as set forth in the Table (Points System for Public Education and Outreach Activities) below. At a minimum, at least one of the activities shall involve educating businesses and the general public of hazards associated with illicit connections and improper disposal of waste. Records shall be kept necessary to demonstrate compliance with this requirement, including date of activities and any other relevant documentation.

Category 1: General Public Outreach		
Activity	**Description**	**Points**
Website & Social Media	Maintain a stormwater related page on the municipal website or on a municipal social media site. The web page may include links to other stormwater related resources, including the NJDEP stormwater website (www.njstormwater.org).	1
Newspaper Ad	Use Department created and approved stormwater education materials available on www.cleanwaternj.org to publish an ad in a newspaper or newsletter that serves the municipality.	1
Radio/ Television	Broadcast a radio or television public service announcement from www.cleanwaternj.org on a local radio or municipal public service channel.	1
Green Infra-structure Signage	Post signs at municipally-owned green infrastructure sites that describe the function and importance of the infrastructure, contact phone number, municipal identification number, and/or website for more information. *New signs receive 0.5 credits per sign. Existing signs that are maintained or upgraded receive 0.25 credits per sign. A maximum of 5 credits are allowed.	5*
Billboard/ Sign	Produce and maintain (for credit in subsequent years) a billboard or sign which can be displayed on a bus, bus stop shelter, recreation field (outfield sign), or other similar public venue.	2
Mural	Produce and maintain (for credit in subsequent years) the planning and painting of a stormwater pollution themed mural, storm drain art or other artwork at a local downtown/commercial area or other similar public venue.	2
Stormwater Facility Signage	Post signs at municipally-owned stormwater management basins or other structural stormwater related facilities that describe the function and importance of the facility, contact phone number, municipal identification number, and/or website for more information. *New signs receive 0.5 credits per sign. Existing signs that are maintained or upgraded receive 0.25 credits per sign. A maximum of 5 credits are allowed.	5*

Category 2: Targeted Audiences Outreach		
Activity	**Description**	**Points**
Stormwater Display	Present a stormwater related display or materials at any municipal event (e.g., Earth Day, town picnic), at the municipal building or other similar public venue.	1
Promotional Item	Distribute an item or items with a stormwater related message (e.g., refrigerator magnets, temporary tattoos, key chains, bookmarks, pet waste bag dispensers, coloring books, and pens or pencils). Municipality must initially have available a minimum number of the items equal to 10% of the municipal population.	2
Mailing or e-Mailing Campaign	Provide information to all known owners of stormwater facilities not owned or operated by the municipality (i.e., privately owned) highlighting the importance of proper maintenance of stormwater measures. For assistance, see information at www.nj.gov/dep/stormwater/maintenance_guidance.htm.	3
Mailing or e-Mailing Campaign	Distribute any of the Department's educational brochures, tip cards, or a municipally produced equivalent (e.g., community calendar, newsletter, or recycling schedule) via a mailing to every resident and business in the municipality.	2
Ordinance Education	Distribute a letter or e-mail from the mayor or municipal official to every resident and business in the municipality highlighting the requirements and environmental benefits of the Pet Waste, Wildlife Feeding, Litter Control, Improper Disposal of Waste, Containerized Waste/Yard Waste Collection, Private Storm Drain Inlet Retrofitting and Illicit Connection ordinances. Provide a link to the municipal website where subject ordinances are posted.	3
Category 3: School / Youth Education and Activities		
Activity	**Description**	**Points**
School Presen-tations	Provide water-related educational presentation(s) and/or activities to local preschool, elementary, middle, and/or high school classes using municipal staff or local partner organizations. Topics could include stormwater, nonpoint source pollution, watersheds, water conservation and water quality. For ideas, see information at www.nj.gov/dep/seeds. *Presentations receive 1 credit/presentation, with a maximum of 5 credits allowed.	5*
Water Education Workshops	Provide water-related professional development workshops for local teachers from a registered NJ Department of Education Professional Development Provider.	2
Storm Drain Labeling	Organize a project to label and/or maintain storm drain labels (that are not already precast with a message) with a scout troop, local school district, or faith-based group, or other community youth group for a minimum of 40 labels. This project could also include stenciling over precast labels to improve legibility.	3
Educational Contest for Schools	Organize an educational contest with a local school district or a local community organization serving youth to design a poster, magnet, rain stick, rain barrel or other craft/art object. Contest themes shall have an appropriate stormwater message. Winning entries are to be displayed at publicly accessible locations within the municipality such as at the town hall, library, post office, or school. The winning design should be shown on the municipality's website or social media site, if practical.	3
AmeriCorps Event	Coordinate an event (e.g. volunteer stream monitoring, educational presentations, or stormwater awareness project) through AmeriCorps NJ Watershed Ambassador Program.	4
Clean-up	Sponsor or organize a litter clean up for a scout troop, local school district, faith-based group or other community youth group along a local waterway, public park, stormwater facility, or in an area with storm drains that discharge to a local lake or waterway.	3

Category 4: Watershed/Regional Collaboration		
Activity	**Description**	**Points**
Regional Stormwater Collaboration	Participate in a regional stormwater, community collaborative or other watershed-based group on a regular basis to discuss impaired waterbodies, TMDLs, regional stormwater related issues, or watershed restoration plans that address those waterbodies. Evaluate, develop and implement remedies that resolve stormwater-related issues within the affected waterbody or watershed.	3
Green Infrastructure Workshop	Organize or participate in a rain barrel, rain garden or other green infrastructure workshop on a regional or watershed basis. This could be a partnership exercise with a local watershed organization, utility, university, school, youth/faith-based group, and/or other organization.	3
Community Activity	Organize or participate in the organization of a regional or watershed-based event to carry out stormwater activities such as stormwater facility maintenance or litter clean-up. The municipality may identify and enter into a partnership agreement with a local group such as a watershed organization, utility, university, school, youth/faith-based group, and/or other organization to carry out these activities	3
Category 5: Community Involvement Activities		
Activity	**Description**	**Points**
Volunteer Stormwater Assessment or Stream Monitoring	Establish a volunteer stormwater facility assessment (inspection, inventory and/or mapping) or stream monitoring program for a waterbody within the municipality in order to gauge the health of the waterway through chemical, biological or visual monitoring protocols. Contact NJDEP's AmeriCorps NJ Watershed Ambassador Program or review USEPA National Directory of Volunteer Monitoring Programs.	3
Rain Barrel Workshop	Organize or participate in a rain barrel workshop. This could be a partnership exercise with a local watershed organization, university, school, youth/faith-based group, and/or other nonprofit.	3
Rain Garden Workshop	Organize or participate in a rain garden training or installation workshop. This could be a partnership exercise with a local watershed organization, university, school, youth/faith-based group, and/or other nonprofit.	3
Community Event	Organize or participate in the organization of a community event to carry out stormwater activities such as stormwater measure maintenance or a stream buffer restoration. The municipality may identify and enter into a partnership agreement with a local group such as a watershed organization, university, utility, school, youth/faith-based group, and/or other nonprofit to carry out these activities.	3
Community Involvement	Organize a project with a local organization to create and post signs at either green and/or gray stormwater infrastructure sites or facilities that describe the function and importance of the facility, contact phone number, municipal identification number, and/or website for more information. *Signs receive 0.5 credits per sign. A maximum of 5 credits are allowed.	5*

To comply with the Local Public Education requirement outlined above, the Borough will conduct the following activities:

- **WEBSITE (1 POINT)** – The Borough will maintain a stormwater related page on their municipal website that includes stormwater related information and links to the Clean Water website and the NJDEP stormwater website.

- **MAILING CAMPAIGN (2 POINTS) –** The Borough will distribute the a one-page, double-sided NJDEP provided brochure entitled "Solutions to Stormwater Pollution" to all residents and businesses along with one of its municipal mailings. Additional copies will be made available to the public at Borough Hall and posted on the Borough municipal website.

- **ORDINANCE EDUCATION (3 POINTS)** – The Borough will distribute a letter from the mayor to all residents and business along with one of its municipal mailings highlighting the requirements and benefits of the stormwater related ordinances adopted.

- **STORMWATER DISPLAY (1 POINT)** – The Borough will coordinate a display at the Borough's Fanwood Day which is held every year on the 3rd Saturday in September.

  During this event, Borough personnel will setup a booth at the site and distribute the following educational materials, which cover topics such as stormwater/nonpoint source pollution, storm drain inlet labeling, fertilizer/pesticide education, waste disposal, pet waste, litter, improper disposal of waste, wildlife feeding, and yard waste:

  - How Does Urbanization Change a Watershed?
  - Alternatives to Pesticide
  - Using Leaf Compost
  - Yard Trimmings Management Strategies in New Jersey
  - Home Composting
  - Vermicomposting
  - Minimizing Waste Disposal: Grass Clippings
  - Backyard Leaf Composting
  - What is Ground Water?
  - What is Nonpoint Source Pollution?
  - What's a Watershed?
  - Clean Water Raingers Coloring Book
  - Clean Water Raingers Handbook
  - NJ Clean Communities Litter Activity Book

- **SIGN (2 POINTS)** – The Borough will post and maintain a stormwater related sign on their digital sign located off of Ocean Avenue.

Additional Measures:

Additional activities will be evaluated and coordinated as needed throughout the reaminder of the permit year in order to complete accumulating the minimum 12 points required.

Other activites that are under consideration may include coordinating with the NJ Watershed Ambassadors Program to conduct free classroom workshops, and/or presentations at the local public schools, providing magnets, buttons, bookmarks, or pencils that portray the message of stormwater prevention at future annual educational events or coordinating stream/water body cleanups with local organizations. Final determination of additional activities to be conducted is to be determined at a later date and will be documented appropriately to record the date and event held for future reporting purposes in the Borough's Annual Inspection and Recertification Report.

APPENDIX

SAMPLE ORDINANCE EDUCATION LETTER

[DATE]

RESIDENT
[ADDRESS LINE 1]
[ADDRESS LINE 2]

Re: Stormwater Management
Best Practices and Ordinance Education

Dear Resident,

You may not be aware that pollution on streets, parking lots and lawns is washed by rain into our storm drains, and into our drinking water supplies and oceans and lakes that we fish in and our children play in. Stormwater pollution is one of New Jersey's greatest threats to clean and plentiful water, and that's why we must all do something about it. By practicing healthy household habits, homeowners can keep common pollutants like pesticides, pet waste, grass clippings, and automotive fluids off the ground and out of stormwater.

Stormwater management is not only critical to our environment, it is critical to our own health and well-being. As part of New Jersey's initiative to keep our water clean and plentiful and to meet federal requirements, the Borough is working with the New Jersey Department of Environmental Projection (NJDEP) in various initiatives to protect our water bodies.

One such initiative is the adoption of various stormwater related ordinances prohibiting various activities that contribute to stormwater pollution. A summary of these ordinances is listed below. Failure to comply can result in the assessment of fines or other penalties.

- Littering in General – This ordinance is provided to keep litter such as garbage, refuse, rubbish or other unconsumed substance or waste material from being washed into the municipal separate storm sewer system (MS4), where it would cause pollution of our waterways.

- Pet Solid Waste – This ordinance is provided to keep pet feces or droppings from being washed into the Borough's MS4, where it would cause pollution of our waterways.

- Feeding of Wildlife – This ordinance prohibits the feeding of unconfined wildlife in any public park or other property owned and operated by the Borough in order to keep wildlife from concentrating in small areas and their feces from causing pollution of our waterways.

- Collection and Disposal of Yard Waste – This ordinance prohibits the sweeping, raking, blowing or other placement of yard waste that is not containerized at the curb or along the street at least ten feet away from any storm drain inlet and no more than five days prior to a

scheduled pickup to avoid the yard waste entering the Borough's MS4 and causing pollution of our waterways.

- Disposal of Waste into Storm Sewer System – This ordinance prohibits the spilling, dumping or disposal of materials other than stormwater in such a manner as to cause the discharge of pollutants into the Borough's MS4 system. Exceptions to this ordinance are listed and can include but not be limited to water line flushing and discharges from potable water sources, irrigation water, flow from firefighting activities, sidewalk, driveway and street wash water, etc.

- Connections to Storm Sewer System – This ordinance prohibits the illicit connection to the Borough's MS4 in order to protect public health, safety and welfare. This includes both residential and non-residential areas. Examples of prohibited materials include domestic sewage, industrial waste, non-contact cooling water, and process water.

- Retrofitting of Private Storm Drain Inlets – This ordinance is provided to require the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction or resurfacing or alteration of facilities on private properties, to prevent the discharge of solids and floatables (such as plastic bottles, cans and other litter) into the Borough's MS4, where it would cause pollution of our waterways.

Copies of these ordinances can be viewed or downloaded from the Borough's municipal website in their stormwater management at https://seabrightnj.org.sbnj/Departments/Public Works/Stormwater Management.

Very Truly Yours,

_____

Mayor Colleen Mahr
Borough of Fanwood

NJDEP STORMWATER AND PET WASTE BROCHURES

Solutions to Stormwater Pollution
Pet Waste

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

Pet Waste Pollutes Our Waters

What You Can Do To Help Protect Our Water

Clean and plentiful water is important to our families, our environment, our economy and our quality of life.

Did you know that animal waste from pets can pollute our waters? When left on the ground, pet waste is washed by rain and melting snow and ice into storm drains that carry it to our rivers, lakes, the ocean and drinking water.

Animal waste contains a high concentration of nutrients as well as bacteria and disease-causing microorganisms that can cause problems.

What you can do

Pet owners or anyone who takes your pet for walks must properly dispose of the waste by picking it up, wrapping it and either placing it in the trash or flushing it unwrapped down the toilet.

Your municipality is required to adopt and enforce local pet-waste laws. At a minimum, your community must require that pet owners or their keepers **immediately** and **properly** dispose of their pet's solid waste deposited on **any public or private property not owned or possessed by that person.** People with assistance animals such as Seeing Eye dogs are exempt.

Make sure you know what your municipality requires – and follow it.

Thank you for doing your part to keep New Jersey's waters clean.

For more information, please contact the following:

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

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

Jon S. Corzine, Governor
Lisa P. Jackson, Commissioner

CLEAN WATER
It's Up to You New Jersey

APPENDIX 4

2018 LEAF AND YARD WASTE RECYCLING PROGRAM AND SCHEDULE

THE BOROUGH OF FANWOOD
ANNUAL "FREE" RABIES CLINIC

Autumn Date, To Be Announced

La Grande Park Building

La Grande Avenue, Fanwood, NJ

PRSRT STD
U.S. POSTAGE
PAID
UNION, NJ
PERMIT NO. 309

Fanwood Department of Public Works
Fanwood Place
Fanwood, NJ 07023

Borough of Fanwood
DEPARTMENT OF PUBLIC WORKS

2018 Annual Schedule | Reduce, Reuse, Recycle: Go Green!

CONTENTS

2018 PMUA CURBSIDE RECYCLE COLLECTION SCHEDULE (THURSDAYS)

FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY
8, 22	8, 22	5, 19	3, 17, 31	14, 28	12, 26
AUGUST	**SEPTEMBER**	**OCTOBER**	**NOVEMBER**	**DECEMBER**	**JANUARY 2019**
9, 23	6, 20	4, 18	1, 15, 29	13, 27	10, 24

Your service provider for curbside recycle collection is the Plainfield Municipal Utilities Authority (PMUA). For questions, concerns or feedback about your recycle collection service, please contact PMUA at (908) 226-2518 or ReachPMUA@pmua.org.

DEPARTMENT OF PUBLIC WORKS

Clinton H. Dicksen, C.P.W.M., Director

p: (908) 322-7404 | f: (908) 322-7622 | www.fanwoodnj.org

SPRING LEAF PICK UP:

April 9 through April 13 (all quadrants)

Leaves must be at the curb in neat windrows for pick up by Monday, April 9 at 7:00 a.m. Do not place leaves in the street prior to April 3. Gum balls are permitted to be included in leaf piles, but leaf piles containing branches or other material will not be picked up. Bagged leaves must be removed from the bags prior to placement at the curb.

Landscapers are not permitted to place material in the street other than for the dates shown herein.

BRUSH & BRANCH PICK UP PROGRAMS:

NE & NW Quadrants: April 16, June 4, September 4 (Due to 9/3 Holiday) & January 7, 2019

SE & SW Quadrants: April 23, June 11, September 10 & January 14, 2019

This program is for brush & branches only! Materials are to be placed curbside by 7:00 a.m. on Monday on the dates above. Each resident will receive one (1) pickup during their scheduled week. Branches **shall not** exceed 4' in length or exceed 12" in diameter. Materials should not obstruct roadways and sidewalks. Leaves are not permitted in the Brush program.

Landscapers are not permitted to place material in the street other than for the dates shown herein.

MULCH IS AVAILABLE TO FANWOOD RESIDENTS AT THE RECYCLING CENTER.

GRASS CLIPPINGS

Grass clippings provide beneficial nutrients to gardens and lawns reducing the need for fertilizers and contributing to the soils organic matter. It is recommended to mow your grass with a mulching mower, when done properly, you are left with neat, "just vacuumed" appearance. And thatch is not a problem incurred with mulching mowers, a common misconception. Thatch is the result of excess surface roots caused by over-watering and over-fertilizing. If you do not own a mulching mower, simply use the clippings as a garden mulch, spreading it on the surface to help eliminate weed growth, reduce soil spattering and crusting and also to help moderate the soil temperature.

If you choose to not mulch your grass, it is the responsibility of the residents to contract with their private garbage hauler or scavenger to dispose of grass clippings. **The Borough does not provide pickup of grass clippings therefore placing grass in the street is prohibited. Do not mix grass with brush and/or leaves.**

WHAT QUADRANT DO I LIVE IN?

NORTHWEST

Beverly Ave.
Byron Lane
Cecilia Place
Cottage Way
Elm Ave.
Farley Ave.
Hunter Avenue
Ginder Place
Madison Avenue
N. Martine Ave. (West Side odd #)
Mary Lane
Midway Ave.
North Ave. (Terrill Road to Martine Ave.)
Oak Court
Paterson Rd.
Paul Place
Russell Road
Stewart Place
Terrill Road (North)
Thorne Place
Tower Place
Watson Rd.
Willoughby Rd.
Willow Ave.

SOUTHWEST

Ashworth Court
Belvidere Ave
Brohm Place
Burns Way
Carsam Street
Chetwood Terr.
Coriell Ave.
Cray Terr.
Crest Lane
Fifth Street
Fourth Street (West Side)
Gere Place
Helen Street
Herbert Ave.
Kempshall Terr.
King Street
Kyte Place
LaGrande Ave. (Terrill to Martine Ave.)
Lindy Place
McDermott Pl.
Marian Ave.
South Ave. (Martine Ave. - Terrill Rd.)
Pandick Court
Robin Court
Second Street
S. Martine Ave.
South Ave.
Stagaard Place
Terrill Road (South)
Third Street
Vinton Circle

NORTHEAST

Arlene Court
Birch Street
Birchwood Terr.
Deborah Way
Estelle Lane
Forest Road
Glenwood Rd.
Graybar Terr.
Hendricks St.
Linda Place
Lois Place
Midway Ave. (Martine Ave. to North Ave.)
Montrose Ave.
Morse Ave.
Nichols Court
North Ave. (Martine Ave. to Hetfield Ave.)
Martine Ave. (East Side even #)
Oakwood Court
Pleasant Ave.
Portland Ave.
Rainier Rd.
Ridge Way
Shasta Pass
St. Johns Place
Sun Valley Way
Tillotson Rd.
Timberline Dr.
Waldon Rd.
Watchung View
Westfield Rd.
Woodland Ave.
Woodruff Place

SOUTHEAST

Beech Ave.
Clement Place
Daniel Place
First Street
Hetfield Ave.
High View Court
Jefferson Ave.
Klaniecki Place
La Grande Ave. (Martine Ave. to South Ave.)
Laurel Place
Lincoln Ave.
Locust Ave.
MacLennan Place
Old South Ave. (East)
Poplar Place
Princeton Ave.
Roosevelt Ave.
Saville Row
Shady Lane
South Ave. (Hetfield Ave. to Martine Ave.)
S. Martine Ave. (East Side)
Trenton Place
Washington Ave.
Wilson Ave.
Winfield Place

UNION COUNTY RECYCLING EVENTS 2018

ELECTRONICS	**9-1PM**
Nokia, New Providence	May 12
Union County Vo-Tech, Scotch Plains	June 30
HOUSEHOLD HAZARDOUS WASTE	**9-2PM**
Union County Vo-Tech, Scotch Plains	April 14
Union County College, Cranford	June 9
Union County Vo-Tech, Scotch Plains	August 4
Nokia, New Providence	October 27
PAPER SHREDDING	**9-1PM**
Union County Vo-Tech, Scotch Plains	April 7
Cedar Brook Park, Plainfield	April 27
Warinanco Park, Roselle/Elizabeth	May 11
Nokia, New Providence	May 19
Union County College, Cranford	June 2
Clark, DPW, Clark	June 6
Rahway Park, Rahway	June 12
Bristol Myers, Hillside	July 21
Kean University, Union	August 11
Linden Recycling Center, Linden	September 13
Westfield Memorial Park, Westfield	September 21
Union County Vo-Tech, Scotch Plains	October 6
Galloping Hill Golf Course, Kenilworth	October 18
Nokia, New Providence	November 3

FANWOOD BULK WASTE CLEANUP PROGRAM

NE & NW Quadrants: September 17

SE & SW Quadrants: September 24

Bulk waste pickup requires a permit for a one-time pickup of material, not to exceed 750 lbs. See Page 6 for details and application. Materials shall not obstruct roadway or sidewalks. Hazardous waste is unacceptable for this program. (See "Union County Recycling Events" on Pg. 10).

FALL LEAF PICK UP PROGRAM

October 15 - December 3

In order to promote efficient pickup, please do not park your vehicles within 20 feet; of the leaf piles.

Leaves **must** be at the curb in neat windrows for pick up. **Do not place leaves in the street prior to October 9.** Gum balls are permitted to be included in leaf piles, but leaf piles containing branches or other material will **not** be picked up. Bagged leaves must be removed from the bags prior to placement at the curb.

Leaves for the **final pickup** must be at the curb December 3 by 7:00 a.m.

Leaves accumulated after the December 3 deadline are to be stored on the resident's property in order to prepare the streets for effective plowing during winter storms.

CHRISTMAS TREE PICK UP (2019)

January 2 - January 31 (all quadrants)

Christmas Trees will be picked up through January 31 and must be placed at the curb by 7:00.

Wreaths and garlands are not acceptable for pickup.

IMPORTANT NOTE:

Please note the dates for placement of the materials in the street. It is the residents responsibility to notify their landscapers of the rules, restrictions and regulations for each program.

RECYCLING CENTER SCHEDULE:

North Avenue

The recycling center will be open on the following dates from 8 a.m. to 11 a.m. for Fanwood Residents ONLY:

2018 DATES:

January 6 | February 3

March 3 | April 7

May 5 | June 2

July 14 | August 4

September 8 | October 6

November 3 | December 1

WHAT ABOUT BATTERIES?

Vehicle batteries are accepted at the Recycling Center.

Alkaline batteries are not recyclable, you may dispose of them in your household trash.

Rechargeable and Lithium-ion batteries are recyclable and must be taken to Home Depot, Verizon, AT&T Mobility, Target, Radio Shack, Sears, Office Depot and Staples (call 1-877-732-1297 or visit www.call2recycle.org).

Hearing aid, watch and other button batteries are accepted at all Union County Hazardous Waste events.

Go to www.unioncountynj.org/recycle for more information

NON-CURBSIDE ITEMS: BRING TO FANWOOD RECYCLING CENTER

The following items will be accepted at the Recycling Center:

Appliances & Scrap Metal

Electronics (TVs, PCs, Monitors, Printers)

Clothing & Textiles

Light Bulbs - Fluorescent light bulbs (unbroken), Compact fluorescent lights (CFLs) are NOT accepted. Standard incandescent bulbs are NOT recyclable.

Oil ONLY - Antifreeze is NOT accepted.

Old American Flags

Please bring these items to the Fanwood Recycling Center for proper disposal, or check the Union County recycling page or the Recycle Coach mobile app for other acceptable disposal locations and events.

DO NOT leave materials unless the Recycling Center is open

Questions about drop-off? Call the DPW at (908) 322-7404

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 private 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 unwrapped 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 the 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.

FOR MORE INFORMATION

Visit www.njstormwater.org or www.nonpointsource.org

Additional information is also available at U.S. Environmental Protection Agency websites 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 | clearwaternj.org

SOLUTIONS TO STORMWATER POLLUTANTS

A GUIDE TO HEALTHY HABITS FOR CLEANER WATER

Pollution on the 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.

Storm water 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 storm water. 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.

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 water bodies 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.

BOROUGH OF FANWOOD
RESIDENTIAL BULK WASTE CLEANUP PROGRAM
2018 REGISTRATION APPLICATION

Permit Fee is **$70 for Seniors (Age 65 years or older, proof of age required) and $85 for Non-Seniors** for a one-time pickup not to exceed 750 lbs. of material.

Pick-up dates**: NW & NE Quadrants-Sept. 17th, SW & SE Quadrants-Sept. 24th**

Send **check** and completed application **NO LATER THAN SEPTEMBER 4th** to:
Borough of Fanwood, 75 North Martine Avenue, Fanwood, NJ 07023- **NO REFUNDS**
CLEANUP IS FOR FANWOOD RESIDENTS ONLY

IF SHARING WITH NEIGHBOR PLEASE ADD NEIGHBOR'S NAME AND ADDRESS

_____ X_____ _____
Name: (Print Name) Resident's Signature: Date

_____ Quadrant • NW • SW • NE • SE
Address :

_____ _____
Telephone No. (Daytime) Telephone No. (Evening)

Neighbor's Name_____Address:_____

Below are some common items with approximate weights. Please check or list any heavy items you are planning to dispose of on collection day.

- ❑ Air Conditioner……100 lbs
- ❑ Door……25 lbs.
- ❑ Dresser……170 lbs.
- ❑ Dryer……150 lbs.
- ❑ Gas Barbecue Grill……70 lbs.
- ❑ Mattress (Queen)……60 lbs.
- ❑ Rug (5 x 8)……50 lbs.
- ❑ Sofa……150 lbs.
- ❑ Toilet & tank……90 lbs.

Other (please list other items of significant weight) _____

WOOD MUST BE CUT IN 4' LENGTHS WITH NO NAILS, BUNDLED AND TIED

All materials must be curbside by 7 AM on Monday of the week designated for your quadrant, but no earlier than three (3) days prior to the designated collection date.

8.5 x 11 Placard to be displayed in front window visible from the street.

The following items are NOT acceptable and will be left for removal by resident by the end of the collection day.

- Recyclable materials listed in DPW Schedule (Page 5)
- Building or Construction Materials
- Natural Growth Items (leaves, firewood, branches, clippings)
- Hazardous Wastes (*paints, solvents, thinners, petroleum products, batteries, televisions, computer equipments, etc.)*
- Flammable Explosive Waste
- Motor Vehicle Components
- Regular Household Garbage

NOTE: Bulk items placed in boxes will be picked up. However, it is the resident's responsibility to recycle the emptied boxes left behind by Public Works. **Any other items that can be brought to the Recycling Center will not be picked up during Bulk Waste pick-up dates. (See Annual Schedule (Pg. 4) for list of recyclable items).**

THIS SECTION FOR BOROUGH USE ONLY

_____ _____
Resident Name Resident address

Quadrant • NW • SW • NE • SE Date Payment Received:_____

Initials: _____ Mail: • Date:_____ Amount: _____ Check # _____

Pick-Up: • Date::_____ Permit # _____

RESIDENTIAL GUIDELINES FOR PUBLIC WORKS SERVICES

SNOW REMOVAL GUIDELINES

Snow must be shoveled from sidewalks within 12 hours of daylight after the snow has fallen. Vehicles should be removed from the streets during snow storms to allow the Department to effectively plow the streets. Residents who live on a dead end street or cul-de- sac should not park in the street or we will be unable to plow. Shovel your driveway by the street to the right. The plows will then carry the snow away from your driveway and not into it. Do not shovel or blow snow into the center of the road as this will freeze and create unsafe ice conditions. It is recommended not to shovel the last 10 feet of your driveway until the storm is finished and Public Works has plowed your street from curb to curb.

Basketball hoops (portable or stationary) are NOT permitted within the Borough right-of-way, including grass area near curb, per ordinance 259-25.C. These items prohibit Public Works from effectively plowing the streets curb to curb. In addition, these units obstruct access to the brush and leaf piles during the annual pickup program(s).

SANITARY SEWER

The Borough operates the sanitary system. The Borough is only responsible for the maintenance of the main sewer line. The lateral service connection (between the home and the main sewer line in the street) is the responsibility of the resident. If a backup occurs in your home please call the Department of Public Works during the day, Monday thru Friday at 322-7404 or after hours please contact the Fanwood Police Department at 322-5000. Please contact us first so we can determine where the problem exists to avoid any unnecessary plumbing costs to you.

RODENT PREVENTION MEASURES FACT SHEET

The following measures can help you avoid rodent problems:

1. Clean your yard and driveway of all debris cut high grass and weeds. Eliminate possible rat harborage areas under porches, outside staircases and around shed foundations by using fencing or blocking openings where possible. Note a rat burrow is a hole approximately the size of a baseball.

2. Place all garbage in metal or plastic containers with tight-fitting lids. Use adequate sized garbage containers to prevent overloading and spillage.

3. Pile all wood or other material stored outside into closely packed units at least six (6) inches off the ground.

4. Bird feeders should be placed at least four feet from the ground and be constructed to eliminate spillage to the ground. Throwing pieces of bread, crackers, and food scraps directly on to the ground encourages rats to harbor on your property.

5. Gardens should be fenced with small meshed wire and maintained on a regular basis. Remove any fruit that has fallen from trees on a daily basis. 6. Animal feces must be cleaned up on a regular basis.

APPENDIX 5

MAINTENANCE OPERATIONS PROGRAM

STREET SWEEPING

STORMWATER FACILITY MAINTENANCE

BOROUGH OF FANWOOD

APPENDIX 5 – MAINTENANCE OPERATIONS

1. STREET SWEEPING

Statewide Basic Requirement:

Street Sweeping: Tier A Municipalities shall sweep, at a minimum of once per month (weather and street surface conditions permitting), all streets (including roads or highways) that meet all of the following criteria: (1) the street is owned or operated by the municipality; (2) the street is curbed and has storm drains; (3) the street has a posted speed limit of 35 miles per hour or less; (4) the street is not an entrance or exit ramp; an d (5) the street is in a predominantly commercial area.

Existing Street Sweeping Program:

A review of the Borough streets was conducted, and it was determined that there are no Borough owned streets that meet the NJDEP minimum requirements for monthly sweeping under the Tier A Stormwater General Permit. Therefore, the Borough will continue with their existing street sweeping program, which consists of the following:

- Weekly sweepings for the downtown area of the Borough between April 1st and October 31st of each year, weather and surface condition permitting.
- Semi-monthly sweepings for the north and south sections of the Borough between April 1st and October 31st of each year, weather and surface condition permitting.
- Records of sweepings collected are maintained by Public Works.
- All sweepings collected are offloaded and kept temporary onto an asphalt pad at the Borough's Recycling Center and disposed off at a certifed disposal facility as needed.

2. CATCH BASINS AND STORM DRAIN INLETS

Statewide Basic Requirement:

Catch Basin and Storm Drain Inlet Inspection and Cleaning: The Tier A Municipality shall inspect storm drain inlets and any associated catch basins that it owns or operates and remove sediment, trash, or debris when present. Each catch basin and inlet shall be inspected at least once every five years. The Tier A Municipality shall clean any municipally

owned or operated storm drain inlet or catch basin as frequently as necessary to eliminate recurring problems and restore proper function.

Existing Catch Basin and Storm Drain Inlet Program:

- The Borough conducts a annual inspection of all its inlets and catch basins.
- Cleaning of inlets and catch basins are done by Borough DPW personnel. Spoils from catch basins and storm drain inlets are collected and dumped into the Borough's street sweeping spoils container maintained at the Borough's River Street storage yard.
- Inspection records for each inlet/catch basin is maintained by the Borough's Public Works and includes visual observation on the condition of the inlet/catch basin.
- Repairs needed are noted and work orders are generated where necessary.

3. STORMWATER FACILITIES

Statewide Basic Requirement:

Stormwater Facility Maintenance - The Tier A Municipality shall develop, update and implement a program to ensure adequate long-term cleaning, operation and maintenance of all municipally owned or operated stormwater facilities

Inspection Program:

As part of the Borough's regular maintenance program, personnel from the Public Works Department shall inspect the Borough's stormwater facilities as follows:

- Inlets shall be inspected on an annual basis. Inlets found to require cleaning will be cleaned as needed. Record logs of the inspection and/or cleaning will be maintained by DPW personnel to document the number of inlets inspected and cleaned.
- Storm sewer pipes identified as problem areas shall be inspected after major storm events and on an as needed basis. Broken or collapsed storm sewer pipes shall be reported to the Director of Public Works and Borough Engineer.
- Outfalls shall be inspected once every 5 years for evidence of dry weather flow, scouring or erosion. Observations will be reported to the Director of Public Works and the Borough Engineer and necessary action will be taken if applicable.

Maintenance Program:

Based on field observations, the following routine maintenance will be performed as required:

- Removal of trash or litter from the storm sewer pump station screens, where applicable.
- Removal of trash or litter.
- Inlets with evidence of debris will be cleaned by the Borough's DPW personnel as needed.
- Inlet markers to be replaced as needed.
- Blocked storm sewer pipes shall be cleaned by DPW personnel or outside contractors as needed to remove blockages.

The DPW will note all inspections and maintenance/repair calls for the stormwater facilities in their internal maintenance log.

APPENDIX 6

MAINTENANCE YARD OPERATIONS

BMP's FOR MAINTENANCE YARDS AND OTHER ANCILLARY OPERATIONS

VEHICLE FUELING STANDARD OPERATING PROCEDURES

VEHICLE MAINTENANCE STANDARD OPERATING PROCEDURES

GOOD HOUSEKEEPING PRACTICES STANDARD OPERATING PROCEDURES

MAINTENANCE YARD INVENTORY

BOROUGH OF FANWOOD

APPENDIX 6 – MAINTENANCE YARD OPERATIONS

Statewide Basic Requirement:

The Tier A Municipality shall implement best management practices for municipal maintenance yards and other ancillary operations owned or operated by the Tier A Municipality. Ancillary operations include but are not limited to impound yards, permanent and mobile fueling locations, and yard trimmings and wood waste management sites. The Inventory of Material and Machinery, and Inspections and Good Housekeeping practices shall be conducted at all municipal maintenance yards and other ancillary operations. Best Management Practices shall be implemented for the following activities, whenever such activities occur:

- Fueling Operations;
- Discharge of Stormwater from Secondary Containment;
- Vehicle Maintenance;
- On-Site Equipment and Vehicle Washing and Wash Wastewater Containment; and
- Salt and De-icing Material Storage and Handling.

Implementation of best management practices for the following activities, if applicable, shall commence on January 1, 2019:

- Aggregate Material and Construction Debris Storage;
- Street Sweepings, Catch Basin Clean Out, and Other Material Storage;
- Yard Trimmings and Wood Waste Management Sites that are owned and operated by the Tier A Municipality; and
- Roadside Vegetation Management

Existing Maintenance Yard Conditions and Activities:

As noted in SPPP Form 16 of this report, the Borough does not conduct any onsite washing activities within their municipal DPW facilities. Vehicle washing is conducted at on offsite facility.

In order to comply with the permit renewal requirements, a copy of the Borough's standard operating procedures for "Vehicle Fueling", "Vehicle and Equipment Maintenance", and "Good Housekeeping Practices" are attached to this report, as well as, an inventory of the Borough's DPW facilities. Please note these facilities do not have existing floor drains or storm drains inlets/catch basins that may potentially result in a stormwater discharge.

Aggregate Material and Construction Debris Storage:

Any sand, gravel, stone, top soil, road millings, waste concrete, asphalt, brick, block and asphalt-based roofing scrap or processed aggregate shall be stored in such a manner as to minimize stormwater run-on and aggregate run-off. These may include but not be limited to use of sand bags, hay bales or curbing to regrade the surface and/or create dikes or berms. If feasible, storage bays may be considered as well.

Outdoor storage of aggregate material shall be considered only if a 50-foot setback from surface water bodies, storm drain inlets and/or stormwater ditches can be maintained.

Small stockpiles of aggregate material are stored outdoors at the DPW yard; however, no storm drain inlets or catch basins are located inside the property fence line. As a result, this area will be evaluated by the Borough and their representatives to determine if application of best management practices are necessary to comply with the requirement effective January 1, 2019.

Street Sweepings, Catch Basin Clean Out, and Other Material Storage:

Road cleanup material, which includes but is not limited to street sweepings, storm sewer clean out materials, stormwater basins clean out materials and other similar materials collected during road cleanup operations, that is placed into storage must:

- Stored in leak-proof containers or on an impervious surface that is contained (e.g. bermed) to control leachate and litter; and
- Be removed for disposal within six (6) months of placement into storage.

Spoils are collected and stored in a 10-CY container located at the Borough's former recycling yard. The spoils are disposed offsite at the landfill as needed. This will be evaluated further with Borough representatives and adjustments, if necessary, will be made for compliance with the new requirement to be initiated on January 1, 2019.

Borough Owned/Operated Yard Trimmings and Wood Waste Management Sites:

In accordance with permit renewal requirements, yard trimming storage areas will be located and/or constructed to limit discharge to State waterways, prevent stormwater run-on and leachate run-off, and not be located in areas susceptible to seasonal flooding.

Roadside Vegetation Management:

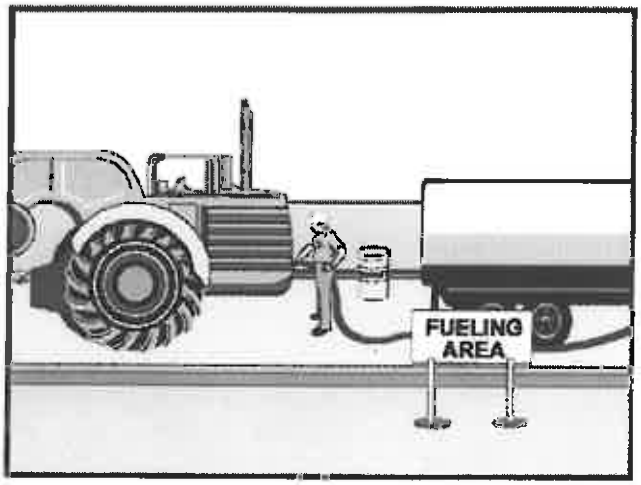
The Borough does not conduct any roadside vegetation maintenance. However, in the event application of herbicides is necessary after January 1, 2019, application of herbicides will be

prohibited on or adjacent to storm drain inlets, on steeply sloping grounds, along curb lines and unobstructed shoulders.

Application of herbicides will only be permitted within a 2-foot radius around structures where overgrowth presents a safety hazard and where it is unsafe to mow.

All applications of herbicides shall be done by a certified user.

Borough of Fanwood
Standard Operating Procedures
Vehicle and Equipment Fueling



Borough of Fanwood
Maintenance Yards
With Fueling Operations

Department of Public Works

Maintenance Yard

Introduction and Purpose

- Vehicle and equipment fueling procedures and practices are designed to minimize surface or ground waters. Understanding the procedures for delivering fuel into vehicles, mobile fuel tanks, and storage tanks is critical for this purpose. Safety is always the priority.

Scope

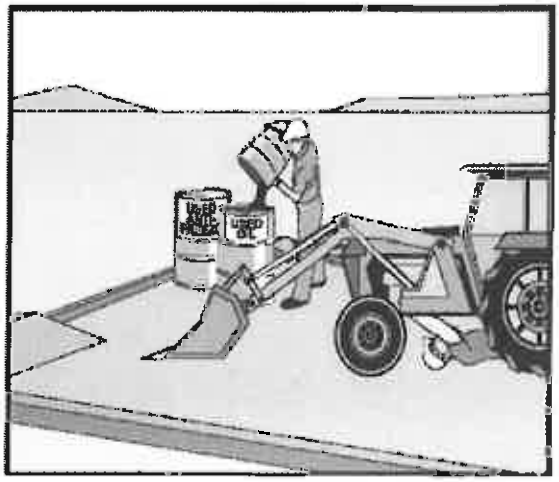
- These procedures are to be implemented at all maintenance yards with fueling. Including mobile fueling operations.

Standards and Specifications (for vehicle and equipment fueling)

- Shut the engine off
- Ensure that the fuel is the proper type of fuel.
- Absorbent spill clean-up materials and spill kits shall be available in fueling areas and on mobile fueling vehicles and shall be disposed of properly after use.
- Nozzles used in vehicle and equipment fueling shall be equipped with an automatic shut-off to prevent overfill.
- Fuel tanks shall not be "topped off".
- Mobile fueling shall be minimized. Whenever practical, vehicles and equipment shall be transported to the designated fueling area in the maintenance yard.
- Clearly post, in a prominent area of the facility, instructions for safe operation of fueling equipment, and appropriate contact information for the person(s) responsible for spill response.

Standards and Specifications (for bulk fueling)	• Drip pans or absorbent pads shall be used under all hose and pipe connections and other leak-prone areas during bulk fueling. • Block storm sewer inlets, or contain tank trucks used for bulk transfer, with temporary berms or temporary absorbent booms during the transfer process. If temporary berms are being used instead of blocking the storm sewer inlets, all hose connection points associated with the transfer of fuel must be within the temporary berms during the loading/unloading of bulk fuels. • Protect fueling areas with berms and/or dikes to prevent run-on, runoff, and to contain spills. • A trained employee must always be present to supervise during bulk transfer.
Spill Response	• Conduct cleanups of any fuel spills immediately after discovery. • Uncontained spills are to be cleaned using dry cleaning methods only. Spills shall be cleaned up with a dry, absorbent material (e.g., kitty litter, sawdust, etc.) and absorbent materials shall be swept up. • Collected waste is to be disposed of properly. • Contact the Borough of Fanwood Department of Public Works at 908-322-7404.
Maintenance and Inspection	• Fueling areas and storage tanks shall be inspected monthly. • Keep an ample supply of spill cleanup material on the site. • Any equipment, tanks, pumps, piping and fuel dispensing equipment found to be leaking or in disrepair must be repaired or replaced immediately.

Borough of Fanwood
Standard Operating Procedure
Vehicle Maintenance



Borough of Fanwood Maintenance Yards BMP Objectives

- Waste Management
- Spill Prevention, Containment and Countermeasures
- Pollution Control

Introduction and Purpose

This SOP contains the basic practices of vehicle maintenance to be implemented at all maintenance yards including maintenance activities at ancillary operations in the Borough of Fanwood. The purpose of this SOP is to provide a set of guidelines for the Borough of Fanwood vehicle maintenance yards including maintenance activities at ancillary operations.

Scope

This SOP applies to all maintenance yards including maintenance activities at ancillary operations within the Borough of Fanwood.

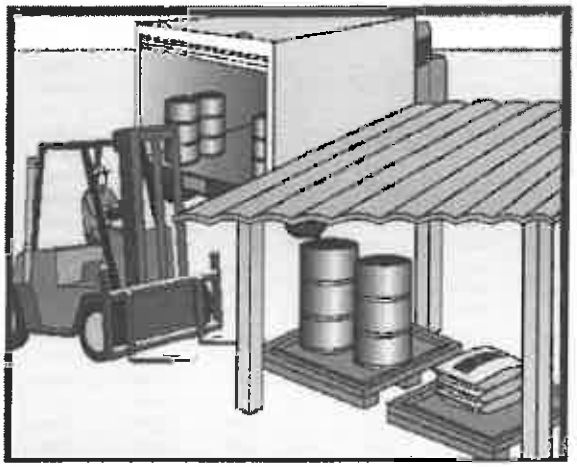
Standards and Specifications

- Conduct vehicle maintenance operation only in designated areas.
- When possible, perform all vehicle and equipment maintenance at an indoor location with a paved floor.
- Always use drip pans.
- Absorbent spill clean-up materials shall be available in maintenance areas and shall be disposed of properly after use.
- Maintenance areas shall be protected from stormwater run-on and runoff, and shall be located at least 50 feet downstream drainage facilities and watercourses.
- Use portable tents or construct a roofing-device over long-term maintenance areas and for projects that must be performed outdoors.
- Do not dump or dispose oils, grease, fluids, and lubricants onto the ground.
- Do not dump or dispose batteries, used oils, antifreeze and other toxic fluids into a storm drain or watercourse.
- Do not bury tires.

	• Collect waste fluids in properly labeled containers and dispose properly.
Spill Response and Reporting	• Provide spill containment dikes or secondary containment around stored oils and other fluid storage drum(s). • Conduct cleanups of any fuel spills immediately after discovery. • Spills are to be cleaned using dry cleaning methods only. Spills shall be cleaned up with a dry, absorbent material (e.g., kitty litter, sawdust, etc.) and the rest of the area is to be swept. • Collected waste is to be disposed of properly. • Contact the Borough of Fanwood Department of Public Works at 908-322-7404.
Maintenance and Inspection	• Periodically check for leaks and damaged equipment and make repairs as necessary.

Borough of Fanwood
Standard Operating Procedure

Good Housekeeping



Borough of Fanwood
Good Housekeeping
Goals

- Proper Recycling
- Proper Waste Disposal
- Pollution Prevention

Introduction and Purpose

This SOP contains the basic practices of good housekeeping to be implemented at maintenance yards including maintenance activities at ancillary operations in the Borough of Fanwood. The purpose of this SOP is to provide a set of guidelines for the employees of the Borough of Fanwood for Good Housekeeping Practices at their maintenance yards including maintenance yards at ancillary operations.

Scope

- This SOP applies to all maintenance yards including maintenance activities at ancillary operations in the Borough of Fanwood.

Standards and Specifications (General)

- All containers should be properly labeled and marked, and the labels must remain clean and visible.
- All containers must be kept in good condition and tightly closed when not in use.
- When practical, chemicals, fluids and supplies should be kept indoors.
- If containers are stored outside, they must be covered and placed on spill platforms.
- Keep storage areas clean and well organized.
- Spill kits and drip pans must be kept near any liquid transfer areas, protected from rainfall.
- Absorbent spill clean-up materials must be available in maintenance areas and shall be disposed of properly after use.
- Place trash, dirt and other debris in the dumpster.

- Collect waste fluids in properly labeled containers and dispose of them properly.

- Establish and maintain a recycling program by disposing, papers, cans, bottles and trash in designated bins.

Standards and Specifications (Salt and De-icing Material Handling)

- During loading and unloading of salt and de-icing materials, prevent and/or minimize spills. If salt or de-icing materials are spilled, remove the materials using dry cleaning methods. All collected materials shall be either reused or properly discarded.
- Sweeping should be conducted once a week to get rid of dirt and other debris. Sweeping should also be conducted immediately following loading/unloading activities, when practical.

- Minimize the tracking of materials from storage and loading/unloading areas
- Minimize the distance that salt and de-icing materials are transported during loading/unloading activities.
- Any materials that are stored outside must be tarped when not actively being used.
- If interim seasonal tarping is being implemented, de-icing materials may be stored outdoors only between October 15th through April 30th.

Spill Response and Reporting

- Conduct clean up of any spill(s) immediately after discovery.
- Spills are to be cleaned using dry cleaning methods only.
- Contact the Borough of Fanwood Department of Public Works at 908-322-7404.

Maintenance and Inspection

- Periodically check for leaks and damaged equipment and make repairs as necessary.
- Perform monthly inspections of all (indoor and outdoor if applicable) storage locations.

Stormwater Pollution Prevention Plan
Maintenance Yard Inventory
Borough of Fanwood, Union County, New Jersey

Facility Name: Borough Fanwood Department of Public Works Facilities
Inspector: Antonios Panagopoulos, P.E., Group Manager, T&M Associates
Accompanied by: Clinton Dicksen, Director of Public Works

Vehicle Maintenance Workshop (1 Fanwood Way, NJ)

- Covered Material Stockpile: (Inside DPW Building) — 10- gal container for Waste Oil
- Dumpster: — Regular Trash
- Exposed Equipment: — Plows
Loader Attachments
2 Trucks

Recycling Center, North Avenue

- Exposed Material Stockpile: — Container for waste (regular trash)
1 - 30 CY Dumpsters (white goods/scrap metal)
Asphalt pad for street sweeping storage

Note: There were no floor drains in either DPW facility. An inlet is located in the recycling yard that discharges onto Transit Property. The inlet is consistently monitored to ensure no materials are washing into it.

APPENDIX 7

2005 SPPP FORMS

Tier A Municipal Stormwater Regulation Program

Stormwater Pollution Prevention Team Members

Number of team members may vary.

Completed by: *Joseph B. Pryor*
Title: *Borough of Fanwood Engineer*
Date: 03/29/05
Municipality: *Borough of Fanwood*
County: *Union County*
NJPDES #: NJ0141852
PI ID #: 50577

Stormwater Program Coordinator: *Joseph B. Pryor*
Title: *Borough of Fanwood Engineer*
Office Phone #: *732-752-5600*
Emergency Phone #:908/454-4417

Public Notice Coordinator: *Eleanor McGovern*
Title: *Borough of Fanwood Municipal Clerk/Administrator*
Office Phone #: *908-322-8236*
Emergency Phone #:

Post-Construction Stormwater Management Coordinator: *Joseph B. Pryor, P.E.*
Title: *Planning Board Engineer*
Office Phone #: 732/752-5600
Emergency Phone #: 908/454-4417

Local Public Education Coordinator: *Gary Szelc*
Title: *Borough of Fanwood Environmental Commission Chairperson*
Office Phone #: *908/889-7791*
Emergency Phone #:

Ordinance Coordinator: *Dennis Estis, Esq.*
Title: *Borough of Fanwood Attorney*
Office Phone #: *732-549-5600 x 4400*
Emergency Phone #:

Public Works Coordinator: *Clinton Dicksen*
Title: *Public Works Director*
Office Phone #: *908-322-7404*
Emergency Phone #:

Employee Training Coordinator: *Clinton Dicksen*
Title: *Public Works Director*
Office Phone #: 908/322-7404
Emergency Phone #:

Other: *Nancy Koederitz*
Title: *Code Enforcement Officer*
Office Phone #: 908/322-5244
Emergency Phone #:

SPPP Form 2 - Public Notice

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES # : NJ0141852 PI ID #: 50577

Team Member/Title: *Eleanor McGovern, Borough of Fanwood Municipal Clerk*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

Briefly outline the principal ways in which you comply with applicable State and local public notice requirements when providing for public participation in the development and implementation of your stormwater program.

For meetings where public notice is required under the Open Public Meetings Act ("Sunshine Law," N.J.S.A. 10: 4-6 et seq.), the Borough of Fanwood provides public notice in a manner that complies with the requirements of that Act. Also, in regard to the passage of ordinances, the Borough of Fanwood provides public notice in a manner that complies with the requirements of N.J.S.A. 40: 49-1 et seq. In addition, for municipal actions (e.g., adoption of the municipal stormwater management plan) subject to public notice requirements in the Municipal Land Use Law (N.J.S.A. 40: 55D-1 et seq.), the Borough of Fanwood complies with those requirements.

SPPP Form 3 – New Development and Redevelopment Program

Municipality Information	
	Municipality: *Borough of Fanwood* County: *Union County*
	NJPDES #: NJ0141852 PI ID #: 50577
	Team Member/Title: *Joseph B. Pryor, Planning Board Engineer*
	Effective Date of Permit Authorization (EDPA): *April 1, 2004*
	Date of Completion: 03/31/05 Date of most recent update: 12/2005

Describe in general terms your post-construction stormwater management in new development and redevelopment program (post-construction program), and how it complies with the Tier A Permit minimum standard. This description must address compliance with the Residential Site Improvement Standards for stormwater management; ensuring adequate long-term operation and maintenance of BMPs (including BMPs on property that you own or operate); design of storm drain inlets (including inlets that you install); and preparation, adoption, approval, and implementation of a municipal stormwater management plan and municipal stormwater control ordinance(s). Attach additional pages as necessary. Some additional specific information (mainly about that plan and ordinance(s)) will be provided in your annual reports.

To control stormwater from new development and redevelopment projects throughout the Borough of Fanwood (including projects we operate) we will do the following:

We are already ensuring that all new residential development and redevelopment projects that are subject to the Residential Site Improvement Standards for stormwater management (including the NJDEP Stormwater Management rules, N.J.A. C. 7: 8, referenced in those standards) are in compliance with those standards. Our combined planning/zoning board ensures such compliance before issuing preliminary or final subdivision or site plan approvals under the Municipal Land Use Law.

Since the EDPA, the Borough of Fanwood has not constructed any new development or redevelopment projects on Borough property. If we decide to construct such a project before our municipal stormwater control ordinance takes effect, we will ensure adequate long-term operation and maintenance of BMPs for that project by requiring a project maintenance plan similar to the maintenance plan described in our draft of that ordinance, and by requiring and funding the implementation of that plan. We will also require any storm drain inlets that we install to comply with the design standard in Attachment C of our permit. Once that ordinance takes effect, we will ensure such operation and maintenance for any new development or redevelopment projects on our property by complying with the maintenance requirements in that ordinance. In addition, any storm drain inlets we install for such projects will comply with that ordinance 's standard for such inlets.

Our Borough Engineer has reviewed the Sample Municipal Stormwater Management Plan and has drafted a municipal stormwater management plan similar to that sample. We also intend on meeting with the county planning agency staff to discuss the draft plan. The plan will be adopted by our Planning Board. An updated Stormwater Control Ordinance is under development and will be adopted by the Borough Council by the deadline specified in the permit.

Once approved, the ordinance, which will be administered by our planning and zoning boards and code enforcement officer, will control stormwater from non-residential development and redevelopment projects. Where it is necessary to implement the municipal stormwater management plan, the approved ordinance will also control aspects of residential development and redevelopment projects that are not subject to the Residential Site Improvement Standards.

For any BMP that is installed in order to comply with the requirements of our post-construction program, the Borough of Fanwood will ensure adequate long-term operation as well as preventative and corrective maintenance (including replacement) of BMPs. For BMPs on private property that we do not own or operate, the Borough of Fanwood intends to do this by adopting and enforcing a provision in the municipal stormwater control ordinance that requires the private entity to perform the operation and maintenance, with penalties if the private entity does not comply. If, for example, the private entity does not perform the required maintenance, the Borough can perform the maintenance and charge the private entity.

The Borough of Fanwood will also enforce, through the municipal stormwater control ordinance, compliance with the design standard in Attachment C of our permit to control passage of solid and floatable materials through storm drain inlets. The Borough of Fanwood expects that for most projects, such compliance will be achieved either by conveying flows through a trash rack as described in the "Alternative Device Exemptions, " or (for flows not conveyed through such a trash rack), by installation of the NJDOT bicycle safe grate and (if needed) a curb opening with a clear space no bigger than two inches across the smallest dimension.

SPPP Form 4 - Local Public Education Program

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES # : NJ0141852 PI ID #: 50577

Team Member/Title: *Gary Szelc, Borough of Fanwood Environmental Commission Chairperson*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

Local Public Education Program

Describe your Local Public Education Program. Be specific on how you will distribute your educational information, and how you will conduct your annual event. Attach additional pages with the date(s) of your annual mailing and the date and location of your annual event.

For our annual distribution, we will mail the DEP brochure available on the ANJEC CD to our residents and businesses. The brochure will be distributed in January with our Borough newsletter, the Fanwoodian. Extra copies will be available at our county library and at our municipal building. Press releases to local newspapers, letters to the Editor of local papers and public presentations are also planned.

Our annual event will be held each year in coordination with the annual Clean Community Day held on the Saturday closest to Earth Day. We will make the DEP brochure and other educational materials available at our table. We will also distribute brochures with environmental messages related to the required BMP topics attached to tree seedlings that are available at that time.

Materials and information will also be made available at the town festival known as Fannie Wood Day held in June and the end of September/October.

SPPP Form 5 – Storm Drain Inlet Labeling

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES # : NJ0141852 PI ID #: 50577

Team Member/Title: *Gary Szelc, Borough of Fanwood Environmental Commission Chairperson*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

Storm Drain Inlet Labeling

Describe your storm drain inlet labeling program, including your labeling schedule, the details of your long-term maintenance plan, and plans on coordinating with watershed groups or other volunteer organizations.

For our storm drain inlet labeling program we plan on coordinating with our local eagle scout and other service organizational groups.

Where it is practical, they will do the labeling for us. In areas where it is not safe for the volunteer groups, our Public Works department will be doing the labeling. We will label all storm drain inlets that are along municipal streets with sidewalks, and all storm drain inlets within plazas, parking areas, or maintenance yards that are operated by the Borough of Fanwood.

We will use plastic, sequentially numbered labels that will be applied using adhesive. The labels will read, "No Dumping – Drains to Waterway" with a picture of a fish on it. These curb markers are easy to use, stick permanently to almost any surface, and are perfect for volunteers.

The attached map divides the Borough of Fanwood into four quadrants. The northwest and northeast quadrants are north of the Central Railroad of New Jersey, and the southwest and southeast quadrants are south of the Central Railroad of New Jersey. Labeling of the northwest and northeast quadrants will be completed by April 2007, and the southwest and southeast quadrants will be completed by April 2009.

During our annual catch basin cleaning program, we will be checking these labels to ensure that they are still visible, and if they are not, we will ensure that the labels are replaced immediately.

SPPP Form 6 – MS4 Outfall Pipe Mapping

Municipality Information		
	Municipality: *Borough of Fanwood*	County: *Union County*
	NJPDES # : NJ0141852	PI ID #: 50577
	Team Member/Title: *Clinton Dicksen, Public Works Director*	
	Effective Date of Permit Authorization (EDPA): *April 1, 2004*	
	Date of Completion:	Date of most recent update:

Explain how you will prepare your map (include its type and scale, and the schedule for the mapping process). Who will prepare your map (e.g., municipal employees, a consultant, etc.)?

The Borough of Fanwood has current mapping of the Storm Sewer System at a scale of 1" = 100 feet, prepared by JEM Engineering, which shows the location of the end of all outfall pipes operated by the Borough of Fanwood. The public works department will identify, locate and investigate (see Illicit Connection Elimination Program and Outfall Pipe Stream Scouring Remediation Program) each outfall pipe that is shown on the mapping and operated by the Borough of Fanwood.

Once all outfall pipe locations are verified, they will be assigned an alphanumeric identifier, which will be shown on the existing 1 inch = 100 feet Storm Sewer Mapping.

There are four (4) outfalls currently shown on the Storm Sewer Mapping that fall within the jurisdiction of NJ Transit. One outfall is also shown in the jurisdiction of Public Service Electric and Gas Company. Only two outfalls (one west of Paterson Road and one south of the PSE&G right-of-way and east of Brohm Place) are in the jurisdictional boundaries of the Borough of Fanwood as shown in the existing Storm Sewer Mapping.

During the initial inspection of the outfall pipes, the Department of Public Works was only located one of the two outfall pipes shown on the Storm Sewer Mapping. The Map indicates an outfall just west of Paterson Road however upon performing an inspection it was determined that the outfall was connected into the storm sewer system sometime in the past. In addition, the retired foreman for the Department of Public Works was contacted and he indicated that the outfall was indeed connected however since the pipe discharged into a residential back yard, the pipe was not removed for disturbance purposes.

The Department of Public Works has identified the Brohm Place outfall as "BP1" for reporting purposes.

SPPP Form 7 – Illicit Connection Elimination Program

Municipality Information		
	Municipality: *Borough of Fanwood*	County: *Union County*
	NJPDES # :NJ0141852	PI ID #: 50577
	Team Member/Title: *Clinton Dicksen, Public Works Director*	
	Effective Date of Permit Authorization (EDPA): *April 1, 2004*	
	Date of Completion:	Date of most recent update:

Describe your Illicit Connection Elimination Program, and explain how you plan on responding to complaints and/or reports of illicit connections (e.g., hotlines, etc.). Attach additional pages as necessary.

We will conduct an initial physical inspection of all of our outfall pipes during verification of the mapping. We will use the DEP Illicit Connection Inspection Report Form to conduct these inspections, and each of these forms will be kept with our SPPP records. Outfall pipes that are found to have a dry weather flow or evidence of an intermittent non-stormwater flow will be rechecked again to locate the illicit connection. If we are able to locate the illicit connection (and the connection is within the Borough of Fanwood) we will cite the responsible party for being in violation of our Illicit Connection Ordinance, and we will have the collection eliminated immediately. If, after the appropriate amount of investigation, we are unable to locate the source of the illicit connection, we will submit the Closeout Investigation Form with our Annual Inspection and Recertification. If an illicit connection is found to originate from another public entity, the Borough of Fanwood will report the illicit connection to the Department.

The Borough of Fanwood, Department of Public Works can be contacted for reporting spills and illegal dumping. This contact will also be made available for reporting illicit connections

See attached inspection report forms for illicit connection inspections.

SAMPLE FORM

Illicit Connection Inspection Report Form

Municipality Information

Municipality:____ County ____

NJPDES # :____PI ID #: ____

Team Member: ____

Date ____Effective Date of Permit Authorization (EDPA):____

Outfall #: ____Location: ____

Receiving Waterbody: ____

1. Is there a dry weather flow? Y (☐) N (☐)
2. If "YES", what is the outfall flow estimate? ____ gpm
   (flow sample should be kept for further testing, and this form will need to be submitted with the Annual Report and Certification)
3. Are there any indications of an intermittent flow? Y (☐) N (☐)
4. If you answered "**NO**" to BOTH questions #1 and #3, there is probably not an illicit connection and you can skip to question #7.
   (NOTE: This form **does not** need to be submitted to the Department, but should be kept with your SPPP.)

   If you answered "**YES**" to either question, please continue on to question #5.
   (NOTE: This form will need to be submitted to the Department with the Annual Report and Certification.)

5. **PHYSICAL OBSERVATIONS:**

(a) **ODOR**: none ____

(b) **COLOR**: none ____

(c) **TURBIDITY**: none

(d) **FLOATABLES**: none ____

(e) **DEPOSITS/STAINS**: none ____

(f) **VEGETATION CONDITIONS**: normal

(g) **DAMAGE TO OUTFALL STRUCTURES:**

IDENTIFY STRUCTURE: ____

DAMAGE: none ____

6. **ANALYSES OF OUTFALL FLOW SAMPLE:**
   * field calibrate instruments in accordance with manufacturer's instructions prior to testing.

(a) **DETERGENTS**: ____mg/L

(if sample is greater than 0.06 mg/L, the sample is contaminated with detergents [which may be from sanitary wastewater or other sources]. Further testing is required and this outfall should be given the highest priority.)

(if the sample is not greater than 0.06 mg/L and it does not show physical characteristics of sanitary wastewater [e.g., odor, floatables, and/or color] it is unlikely that it is from sanitary wastewater sources, yet there may still be an illicit connection of industrial wastewater, rinse water, backwash or cooling water. Skip to question #6c.)

(b) **AMMONIA (as N) TO POTASSIUM RATIO:** _____

(if the Ammonia to Potassium Ratio is greater than 0.6:1, then it is likely that the pollutant is sanitary sewage)

(if the Ammonia to Potassium Ratio is less than or equal to 0.6:1, then the pollutant is from another washwater source.)

(c) **FLUORIDE:** _____mg/L

(if the fluoride levels are between 1.0 and 2.5 mg/L, then the flow is most likely from fluoride treated potable water.)

(if the sample tests below a detection limit of 0.1 mg/L for fluoride, it is likely to be from groundwater infiltration, springs or streams. In some cases, however, it is possible that the discharge could originate from an onsite well used for industrial cooling water, which will test non-detect for both detergents and fluoride. To differentiate between these cooling water discharges and groundwater infiltration, you will have to rely on temperature.)

(d) **TEMPERATURE:** _____°F

(if the temperature of the sample is over 70°F, it is most likely cooling water)

(if the temperature of the sample is under 70°F, it is most likely from ground water infiltration)

7. Is there a suspected illicit connection? Y (☐) N (☐)

   If "**YES**", what is the suspected source? _____

   If "**NO**", skip to signature block on the bottom of this form.

8. Has the investigation of the suspected illicit connection been completed?
   Y (☐) N (☐)

   If "**YES**", proceed to question #9.
   If "**NO**", skip to signature block on the bottom of this form.

9. Was the source of the illicit connection found? Y (☐) N (☐)

   If "**YES**", identify the source. _____

   What plan of action will follow to eliminate the illicit connection?

   Resolution:

   If "**NO**", complete the Closeout Investigation Form and attach it to this Illicit Connection Inspection Report Form.

Inspector's Name: _____

Title: _____

Signature: _____

Date: _____

If there is a dry weather flow or evidence of an intermittent flow, be sure to include this form with your Annual Report and Certification.

If there is not a dry weather flow or evidence of an intermittent flow, this form should be retained with your SPPP.

SPPP Form 8 – Illicit Connection Records

Municipality Information	
	Municipality: *Borough of Fanwood* County: *Union County*
	NJPDES #: NJ0141852 PI ID #: 50577
	Team Member/Title: *Clinton Dicksen, Public Works Director*
	Effective Date of Permit Authorization (EDPA): *April 1, 2004*
	Date of Completion: Date of most recent update:

Prior to May 2, 2006 Note: *Attach a copy of each illicit connection report form for outfalls found to have a dry weather flow.*
Total number of inspections performed this year? *Program implementation will begin by October 2005*
Number of outfalls found to have dry weather flow? **0**
Number of outfalls to have an illicit connection? **0**
How many illicit connections were eliminated? **NA**
Of the illicit connections found, how many remain? **NA**
May 2, 2006 – May 1, 2007 Note: *Attach a copy of each illicit connection report form for outfalls found to have a dry weather flow.*
Total number of inspections performed this year?
Number of outfalls found to have dry weather flow?
Number of outfalls to have an illicit connection?
How many illicit connections were eliminated?
Of the illicit connections found, how many remain?
May 2, 2007 – May 1, 2008 Note: *Attach a copy of each illicit connection report form for outfalls found to have a dry weather flow.*
Total number of inspections performed this year?
Number of outfalls found to have dry weather flow?
Number of outfalls to have an illicit connection?
How many illicit connections were eliminated?
Of the illicit connections found, how many remain?
May 2, 2008 – May 1, 2009 Note: *Attach a copy of each illicit connection report form for outfalls found to have a dry weather flow.*
Total number of inspections performed this year?
Number of outfalls found to have dry weather flow?
Number of outfalls to have an illicit connection?
How many illicit connections were eliminated?
Of the illicit connections found, how many remain?

SPPP Form 9 – Yard Waste Ordinance/Collection Program

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141852 PI ID #: 50577

Team Member/Title: *Clinton Dicksen, Public Works Director*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

Please describe your yard waste ordinance/collection program. Be sure to include the collection schedule and how you will notify the residents and businesses of this schedule. Attach additional pages as necessary.

Fanwood has a yard waste collection and disposal program.

We conduct monthly collections of leaves during the months of October, November, and December, plus one collection in the spring. During the remainder of the year, The Borough of Fanwood may hold additional yard waste collections, but no schedule has been determined for these. Grass clipping pickup is a resident paid service for which arrangements must be made between the resident and the scavenger servicing the property. During the months when we are having collections, we will post our collection schedule and our ordinance requirements in our monthly newsletter, which will be mailed to all residents and businesses the first of each month.

To develop a collection schedule we have divided the Borough of Fanwood into four quadrants, giving ourselves a week to do the collections in two quadrants. The northwest and northeast quadrants are north of the Central Railroad of New Jersey, and the southwest and southeast quadrants are south of the Central Railroad of New Jersey. (See attached map.)

The Borough of Fanwood will also be adopting and enforcing a yard waste ordinance (see SPPP Form 10) that will prohibit all yard wastes from being placed at the curb or along the street more than seven days prior to our scheduled collections. The ordinance will also prohibit the placing of yard waste closer than 10 feet from any storm sewer inlet along the street.

Effective September 2005, the Department of Public Works has begun to notify residents who place leaves, brush and yard waste in the street more than 7 days before or after the scheduled pickups (see attached sample).

SPPP Form 10 – Ordinances

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141852 PI ID #: 50577

Team Member/Title: *Dennis Estis, Municipal Attorney & Nancy Koederitz, Code Enforcement Officer*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

For each ordinance, give the date of adoption. If not yet adopted, explain the development status:

Pet Waste: _____ *(existing)*

Are information sheets regarding pet waste distributed with pet licenses? Y (X) N ( )

Litter: _____ *(existing)*

Improper Waste Disposal: *pending attorney review of the NJDEP model ordinance*

Wildlife Feeding: *pending attorney review of the NJDEP model ordinance*

Yard Waste: *pending attorney review of the NJDEP model ordinance*

Illicit Connections: *pending attorney review of the NJDEP model ordinance*

How will these ordinances be enforced?

Our code enforcement officers and local police officers will enforce these ordinances. If someone is found to be in violation of an ordinance, they will be issued a written warning for first time offenses, and penalties will be issued for subsequent offenses.

SPPP Form 11 – Storm Drain Inlet Retrofitting

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141852 PI ID #: 50577

Team Member/Title: *Clint Dicksen, Public Works Director & Joseph Pryor, Municipal Engineer*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

What type of storm drain inlet design will generally be used for retrofitting?

*For most projects **the Borough of Fanwood** will use the NJDOT bicycle safe grate style and (if needed) a curb opening with a clear space no bigger than two inches across the smallest dimension.*

Repaving, repairing, reconstruction or alteration project name	Projected start date	Start date	Date of completion	# of storm drain inlets	# of storm drains w/ hydraulic exemptions
Reconstruction of Second Street, Coriell Avenue, and Old South Avenue West		***8/23/04***	***10/25/05***	*16*	*0*
Reconstruction of North Avenue III		***8/27/04***	***07/20/05***	*10*	*0*
Reconstruction of Woodland Avenue		***10/11/04***	***06/06/05***	*12*	*0*
Resurfacing and Reconstruction of Portions of Watson and Russell Roads		***07/05/06***	***Substantially Complete***	***17***	***0***

Are you claiming any alternative device exemptions or historic place exemptions for any of the above projects? Please explain:

The Borough of Fanwood does not operate any alternative devices within the municipality. At this time we do not plan on installing any such devices for repaving, repairing, reconstruction or alteration projects. We also do not plan on claiming any historic place exemptions.

SPPP Form 12 – Street Sweeping and Road Erosion Control Maintenance

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141862 PI ID #: 5077

Team Member/Title: *Clinton Dicksen, Public Works Director*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

Street Sweeping

Please describe the street sweeping schedule that you will maintain.
(NOTE: Attach a street sweeping log containing the following information: date and area swept, # of miles swept and the total amount of materials collected.)

***The Borough of Fanwood** has evaluated all of its streets to determine which areas will need to be swept monthly. These areas have been grouped together in to four separate groups, and each group will be assigned a different week each month.*

***The Borough of Fanwood** intends on maintaining its existing street sweeping program for all other streets (that are not required by the permit), which includes sweeping all streets once a year.*

Our street sweeping log and summary is attached.

Road Erosion Control Maintenance

Describe your Road Erosion Control Maintenance Program, including inspection schedules. A list of all sites of roadside erosion and the repair technique(s) you will be using for each site should be attached to this form.
(NOTE: Attach a road erosion control maintenance log containing the following information: location, repairs, date)

The Borough of Fanwood will use the Public Works Department to monitor all their roads and streets for erosion problems during normal patrols. All identified road erosion problems will be reported to Clinton Dicksen, the Public Works Department Director. During quarterly SPPP Team meetings, identified areas of erosion will be discussed and repairs prioritized. All maintenance personnel will then be assigned to the areas of concern, and the areas identified to have road erosion problems will be repaired in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey. All maintenance personnel will maintain an inspection log, and Clinton Dicksen will maintain a list of all repairs and the dates completed. The status of the Road Erosion Control Maintenance Program will be included in the Annual Report and Recertification.

During sweeping operations within the Borough, the sweeper operator inspects along the streets for any erosion and records the information into the street sweeping log. Since most of the streets in the Borough are curbed with adequate drainage, there has not been the need for any erosion repairs in 2005 – 2006.

SPPP Form 13 – Stormwater Facility Maintenance

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141852 PI ID #: 50577

Team Member/Title: *Clinton Dicksen, Public Works Director*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

Please describe your annual catch basin cleaning program and schedule. Attach a map/diagram or additional pages as necessary.

The Borough of Fanwood has an ongoing catch basin cleaning program to maintain catch basin function and efficiency. All catch basins are inspected once each year. If, at the time of inspection, no sediment, trash or debris is observed in the catch basin, then that catch basin will not be cleaned. All catch basins are inspected yearly, even if they were found to be "clean" the previous year. At the time of cleaning, the catch basins are also inspected for proper function. Maintenance will be scheduled for those catch basins that are in disrepair.

See attached cleaning log for 2006

Please describe your stormwater facility maintenance program for cleaning and maintenance of all stormwater facilities operated by the municipality. Attach additional pages as necessary. (NOTE: Attach a maintenance log containing information on any repairs/maintenance performed on stormwater facilities to ensure their proper function and operation.)

The Borough of Fanwood will implement a stormwater facility maintenance program to ensure that all stormwater facilities operated by the Borough function properly. At this time The Borough of Fanwood operates catch basins and storm sewers.

SPPP Form 14 - Outfall Pipe Stream Scouring Remediation

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141852 PI ID#: 5077

Team Member/Title: *Clinton Dicksen, Public Works Director & Joseph Pryor, Municipal Engineer*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

Describe your stormwater outfall pipe scouring detection, remediation and maintenance program to detect and control active, localized stream and stream bank scouring. Attach additional pages as necessary.

(NOTE: Attach a prioritized list of sites observed to have outfall pipe stream and stream bank scouring, date of anticipated repair, method of repair and date of completion.)

When we are doing the illicit connection part of this program, we will be checking all of our outfall pipes for signs of scouring. All sites will be placed on a prioritized list and repairs will be made in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey. In addition, repairs that do not need NJDEP permits for those repairs may be done first.

We will follow each repair up with an annual inspection of the site to ensure that scouring has not resumed.

The Borough of Fanwood has jurisdiction over two outfalls (one west of Paterson Road and one south of the PSE&G Co. Right-of-Way and east of Brohm Place) as shown on the existing Storm Sewer Mapping. The Paterson Road outfall discharges to a pool area and the Brohm Place outfall discharges to a ditch. No scouring issues have been observed at either location.

See Illicit Connection Inspection log.

SPPP Form 15 – De-icing Material and Sand Storage

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141852 PI ID #: 50577

Team Member/Title: *Clinton Dicksen, Public Works Director*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

De-icing Material and Sand Storage

Describe how you currently store your municipality's de-icing materials, and describe your inspection schedule for the storage area. If your current storage practices do not meet the de-icing material storage SBR describe your construction schedule and your seasonal tarping interim measures. If you plan on sharing a storage structure, please include its location, as well as a complete list of all concerned public entities. If you store sand outdoors, describe how it meets the minimum standard.

The Borough of Fanwood currently stores its de-icing salt and sand in stockpiles on concrete pads in the Public Works maintenance yard. A double storage structure to store de-icing materials has been designed and is in the Fanwood budget to be implemented in a year. Construction plans have been submitted to New Jersey Transit and an easement is in process of being obtained. The Borough of Fanwood will implement the interim seasonal tarping procedures at these sites until a permanent structure is built. From October 15th through April 30th we will inspect each tarp weekly to ensure that it is covering the salt pile. In addition, at the completion of loading and unloading activities we shall inspect for spilled salt.

The Borough of Fanwood will construct a double storage structure to store de-icing materials in the Public Works Maintenance yard. The following tentative schedule is set for the construction.

Bid Construction Contract..... 5/05
NJ Transit Easement 5/05
Apply for Required Permits.....8/05
Begin Construction..... ..... 3/06
Complete Construction..... ...5/06

A seven-month buffer is built into the tentative schedule for potential delays in bidding of the project, procuring permits or delays due to weather. However, the storage structure should be complete within 36 months of EDPA (4/07).

In addition, the Borough of Fanwood stores sand for use in our baseball fields, playgrounds etc. This sand is stored at Public Works maintenance yard. At the completion of loading and unloading activities we shall inspect for spilled sand.

As of January 2006, a salt shed has been constructed and is in use.

SPPP Form 16 – Standard Operating Procedures

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141852 PI ID #: 50577

Team Member/Title: *Clinton Dicksen, Public Works Director*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

BMP	Date SOP went into effect	Describe your inspection schedule
Fueling Operations (including the required practices listed in Attachment D of the permit)		*Monthly inspections will be held to ensure that the SOP is being met.*
Vehicle Maintenance (including the required practices listed in Attachment D of the permit)		*Monthly inspections will be held to ensure that the SOP is being met.*
Good Housekeeping Practices (including the required practices listed in Attachment D of the permit) **Attach inventory list required by Attachment D of the permit.**		*Monthly inspections of all municipal maintenance yards and ancillary operations will be held.*

SPPP Form 17 – Employee Training

Municipality Information

Municipality: *Borough of Fanwood* County: *Union County*

NJPDES #: NJ0141852 PI ID #: 50577

Team Member/Title: *OSHA Training Representative*

Effective Date of Permit Authorization (EDPA): *April 1, 2004*

Date of Completion: 03/31/05 Date of most recent update: 12/2005

Describe your employee training program. For each required topic, list the employees that will receive training on that topic, and the date the training will be held. Attach additional pages as necessary.

The following topics will be covered by a computer generated training program:

Course:	*Who will attend*
Waste Disposal Education	*hotline operators and Environmental Commission members*
Municipal Ordinances	*code enforcement and local police departments, public works employees*
Yard Waste Collection Program	*public works employees*
Street Sweeping	*public works employees*
Stormwater Facility Maintenance	*public works employees*
Road Erosion Control	*public works employees*
Outfall Pipe Stream Scouring Remediation	*public works employees*
Construction Activity/Post Construction Stormwater Management in New Development and Redevelopment (for municipally owned projects)	*public works employees*

The following topics will be part computer training, and part practical field training:

Course:	***Who will attend***
Illicit Connection Elimination and Outfall Pipe Mapping (field training will include procedures to properly conduct illicit connection detection's, investigations, and elimination's)	*public works employees, hotline operator*
Maintenance Yard Operations (including Ancillary Operations) (field training will include the SOPs for fueling, vehicle and equipment maintenance, general good housekeeping, and good housekeeping for de-icing materials storage)	*public works employees*

Training was completed for the Department of Public Works employees on January 5, 2007 as part of shared services through the Borough of Roselle (see attached sheet). In addition all Public Works employees have received a copy of Fanwood's SPP which was reviewed in detail by the Director. In the future, training and updates will be given through the Director during the monthly staff meetings.