

What are these called?



STORM DRAINS!



- Many storm drains lead into our rivers and lakes, where most people get their drinking water
- The water flowing through the drains is not filtered or processed




Storm Drains and Pollution

- ▶ Oil, pesticides, trash, fertilizers and many other commonly used items are often dumped in storm drains.
- ▶ All the dumped waste can flow directly into water sources that will eventually lead to the ocean as well.
- ▶ Only rainwater should enter into a storm drain.



What are the Consequences?

- ▶ The products of storm drain pollution can vary.
 - ▶ Harm to marine life, such as fish kills, are a common result.
 - ▶ Large amounts of fertilizers and yard waste can be introduced bringing in excess nutrients and harmful bacteria.
 - ▶ The pollution can also cause water to become harmful to humans, eliminating any usefulness.
- 

Types of pollution that impact waterways through storm drains



Almost everything humans do, from growing food to manufacturing products to generating electricity, has the potential to release pollution into our waterways. People who are responsible for protecting the environment identify two main categories of pollution: point-source and nonpoint-source pollution.

Point-source pollution is easy to identify, it comes from a single place.

Nonpoint-source pollution is harder to identify and harder to address. It is pollution that comes from many places, all at once.

Point Source Pollution

- ▶ This type of pollution can be traced to a source such as sewage treatment plants; oil refineries; paper and pulp mills; chemical, golf courses, automobiles, electronics manufacturers, farms and factories.
- ▶ The type of pollutants can include wastes, soils, rocks, chemicals, bacteria, suspended solids, heavy metals, pesticides, and more.

Nonpoint Source Pollution

- ▶ This type of pollution can't be traced to a specific place or activity. It is produced from many sources and more difficult to stop.
- The type of pollutants can include:
 - Fertilizers, herbicides and insecticides from agricultural lands and residential areas.
 - Oil, grease and toxic chemicals from urban runoff and energy production.
 - Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks.

What We Can Do: Storm Drain Stenciling

- ▶ Storm drain stenciling is a great way to inform people of the dangers of dumping waste.
- ▶ By painting phrases such as “No Dumping,” or “Water Drains Directly To River,” on storm drains, we can identify inappropriate places to dump waste.



How to mark a storm drain



Step 1: Determine the location where you will paint the stenciled message. Public Works wants the stenciling to be on the storm drain structure and visible, similar to where the blue box is in the image to the right.



Step 2: Use the wire brush to remove any dirt or scum from the desired stenciling spot by scrubbing briskly.

How to mark a storm drain - continued

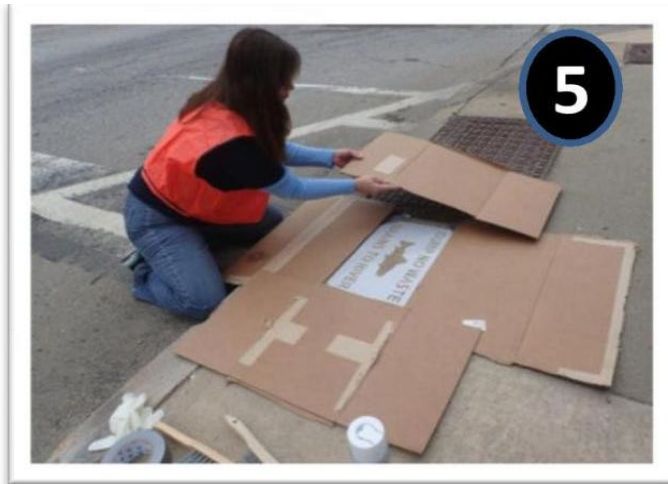


Step 3: Use the whisk broom to sweep away any other loose dirt or debris.



Step 4: Place the stencil on the prepared area. Secure the stencil in place using the duct tape provided. Be careful not to move the stencil once in place.

How to mark a storm drain - continued



Step 5: Using the cardboard provided by your group, create a barrier around the stencil to prevent over-spray.



Step 6: Wear disposable gloves provided. Shake the spray paint can for at least one minute after rattle is heard (and occasionally during use). Invert can and hold approximately 5 inches above surface to be marked, pressing sprayhead to the side to begin marking. In a series of wide sweeping motions, spray one line at a time using a side to side motion until letters are uniformly covered. Do not spray too much—paint will run under stencil, making the works unreadable.

How to mark a storm drain - continued



Step 7: When finished, carefully remove the duct tape and lift the stencil up off the street. Do not leave or remove the traffic cones until the paint is completely dry. Use the cloth rag provided to wipe the wet paint off of the stencil, or wait for paint to dry and gently roll the stencils to chip off the paint. Make sure all stenciling kit materials are accounted for and back in the kit.



Other things to remember!

- ▶ Wear your safety vest the entire time you are at the event
- ▶ Make sure you have all the right tools
- ▶ **DO NOT** stencil near parked cars or other private property that may be damaged by the paint.
- ▶ Remember, each stenciling group should include a minimum of 3 people. One person to watch traffic and at least two people to stencil.
- ▶ Once finished, make sure all stenciling kit materials are accounted for and back in the kit.

**Have fun and
thank you for
helping to keep
our rivers and
streams healthy
and clean.**



SCHOOLYARD ASSESSMENT

How is your schoolyard doing? Is it helping the Dan River basin or is it contributing to poor water quality? Follow this Assessment and find out...

Runoff/ Erosion:

1. After looking at your overall school campus describe where in this range it falls.

1 2 3 4 5 6 7 8 9 10

(1=Entirely made of concrete)

(10=Totally Forested)

2. Your school roof drains rainwater into mostly:

- a) well vegetated trees and shrubs or un-mowed grass (10 pts)
- b) mowed grass (5 pts)
- c) bare soil or impervious surface (4 pts)
- d) directly into storm drain (0 pts)
- e) even mix of all (5pts)

3. Look for patches of bare soil and signs of erosion such as areas where rainwater has carved out ditches or washed out vegetation. The schoolyard has:

- a) very little erosion and few patches of bare soil (10 pts)
- b) several patches of bare soil or areas where soil is eroding (7 pts)
- c) mostly bare, exposed soil or impervious surfaces (0 pts)

4. Does your school have any of these run-off control systems:

- Rain Garden.....2 pts
- Rain Barrel..... 2 pts
- Meadow.....2 pts
- Wetland.....2 pts
- Forested buffer zone (More than 50 feet wide).....2 pts

Helpful and fun solutions:

- Install a **Rain Barrel**
- Plant your own **Rain Garden**
- Stencil** your storm drains
- Plant a **Buffer** of trees next to your stream

Your Score
1. _____
2. _____
3. _____
4. _____
Runoff/ Erosion Total <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>

Transportation:

1. Determine the number of people employed at your school (teachers, maintenance staff, food service staff, administrators, etc.) by asking office staff. Look at the school parking lot and determine the number of vehicles relative to the number of employees.
 - a) there are 50% fewer cars in the parking lot than employees (10 pts)
 - b) there are 25% fewer cars in the parking lot than employees (7 pts)
 - c) there is about one car per employee in the parking lot (5 pts)

2. Are there bicycle racks at your school and do people use them?
 - a) the bike rack is full of bikes (10 pts)
 - b) the school has a bike rack but there are only a few bikes in it (7 pts)
 - c) the school has no bike rack and no bikes on the property (0 pts)

3. Is there any reward or encouragement for teachers or students who walk to school, ride their bikes, carpool or take public transit?
 - a) Yes (10 pts)
 - b) No (2 pts)

4. Where does rain water drain after hitting the parking lot?
 - a) highly vegetated area (10 pts)
 - b) mowed or slightly vegetated drainage ditch (7 pts)
 - c) unmarked storm drain (0 pts)

Your Score
1. <hr/>
2. <hr/>
3. <hr/>
4. <hr/>
Trans. Total
<div style="border: 1px solid black; width: 60px; height: 30px; margin: 0 auto;"></div>

Low Score? Try these solutions:

- Incentives to **carpool**, use public transportation or ride a bicycle to school
- Install and use **Bike** racks
- Letter writing** to county for bike lanes
- Vegetated** run-off control for parking lot and roads

Vegetation:

1. Describe the vegetation on your schoolyard:
 - a) Trees and bushes cover a significant part of the schoolyard (10 pts)
 - b) Trees and bushes dot the landscape of the schoolyard (6 pts)
 - c) There are few or no trees on the schoolyard (0 pts)

2. How much of the grass and vegetated areas in your school are being mowed?
 - a) less than 50 % (10 pts)
 - b) between 50% and 80% (6 pts)
 - c) over 80% (4 pts)

3. Ask your school's lawn service or school maintenance staff how the mowed grass on the school grounds is fertilized.
 - a) Grass clippings are left on the grounds as natural fertilizer (10 pts)
 - b) Lawn fertilizer is used according to a formula after doing soil tests (8pts)
 - c) Lawn fertilizer is used according to instructions (6 pts)
 - d) Lawn fertilizer is applied randomly (5 pts)

4. Describe the vegetation in the lowest lying part of your schoolyard.
 - a) well vegetated with trees and shrubs (10 pts)
 - b) vegetated with unmowed grass (8 pts)
 - c) mowed grass (7 pts)
 - d) bare soil, pavement, or concrete (0 pts)

Any of these projects can add colorful habitat:

- Plant a wild **Meadow** with a native wildflower mix
- Build a **Rain Garden**
- Attract wild colorful butterflies and birds by planting a **Butterfly Garden**

Your Score
1. _____
2. _____
3. _____
4. _____
Veg. Total
<input type="text"/>

Biodiversity:

1. By counting the different types of leaves or bark, how many different types of trees are there on your schoolyard?

- a) 10 or more (10 pts)
- b) 7-9 (8 pts)
- c) 4-6 (5 pts)
- d) less than 4 (4 pts)

2. By counting the different types of leaves and berries, how many different types of shrubs are there on your schoolyard?

- a) 7 or more (10 Pts)
- b) 4-6 (7 pts)
- c) less than 4 (4 pts)

3. Below are examples of habitats for animals. Which of the following apply to your schoolyard? (4 pts. for each)

- a) woodlands with many layers of plants and trees
- b) tall grassy fields/meadow
- c) thick brush and brambles or a brush pile
- d) dead standing trees or rotting logs on the ground
- e) streams with forested buffers

Your
Score

1.

2.

3.

Biodiv.
Total

To bring more **LIFE** to your schoolyard:

- Plant native** shrubs and flowers that attract wildlife
- Install **bird feeders** and **bird houses** around campus
- Plant **trees**

*****BONUS*****

Awareness:

1. Does your school have an environmental club, offer environmental science classes or a bay unit in science class? (1 point for each yes)
2. Is there a stream on your schoolyard? Is there access? (1 point for each yes)
3. Are there energy saving devices? (1 point for each yes)
 - compact fluorescent
 - skylights
 - signs reminding you to turn off lights
4. Test your principal/administrator/science teacher: (2 points for each correct answer)
 - a. Is there a body of water or stream attached to your schoolyard?
 - b. What is the closest sewage treatment plant?
 - c. Where is the closest landfill?
 - d. Is there incentive for the staff to use public transit? (2 pt. for yes)
 - e. Does your school recycle? (2 pt. for yes)
 - f. Do you want to improve your schoolyard? (2 pt. for yes)
5. How many storm drains are on your school campus? Take a walk and count them if you don't know. (2pts)

Your Score
1. _____
2. _____
3. _____
4. _____
5. _____
Bonus Points
<div style="border: 1px solid black; width: 50px; height: 30px; margin: 0 auto;"></div>

How to find out more:

- ❑ Go on a Dan River Basin Association **field trip experience**
- ❑ **Get trained** on water quality monitoring methods to test your stream on school campus

Now it's time to add your scores together to find out the health of your schoolyard...

Runoff/Erosion	_____
Transportation	_____
Vegetation	_____
Biodiversity	_____
Total	_____
Total + bonus points	<div style="border: 1px solid black; width: 50px; height: 20px;"></div>

If you scored:

100-80 A-B: Your school is **excellent** habitat for many plants and animals and is a very healthy part of the watershed!

79-60 C-D: You are on the right track but there is more work to do if we want to save the rivers!

59 or less: Poor habitat. Many schools fall in this category so please help us in making your schoolyard a better place by partnering with DRBA and seeing what can be done to improve your school campus.

Contact Krista Hodges, Education Manager, at khodges@danriver.org for questions about improving your schoolyard. Visit our website at danriver.org to learn more about our environmental education programs.

Schoolyard Assessment is designed based on the Chesapeake Bay Foundation Schoolyard Report Card.

Storm Drain Marking Checklist



- Contact DRBA to assist with identification and location of storm drains in your community:
In Virginia: By phone: (276) 634-2545 OR by email: drba.va@danriver.org
In North Carolina: By phone: (336) 627-6270 OR By email: drba.nc@danriver.org
- Determine date and time for your storm drain marking event.
- It is recommended that you have 1 adult per 5 youth at the event. Recruit adult supervisors to attend event.
- Prepare for your event by showing the Storm Drain powerpoint presentation and providing the Q&A post presentation to students.
- Schedule your pick-up for supplies at a DRBA office, see contact information above.
- Review the Storm Drain Step-by-Step video and/or fact sheet prior to the event.
- On the day of your event, ensure all youth are wearing safety vests and understand the step-by-step process for storm drain marking.
- Take pictures and/or video at your event.
- After storm drains are marked, make sure to dispose of garbage and return supplies to a DRBA office.
- Share event pictures and summaries with DRBA.

Materials Checklist

Supplied by DRBA:

- Stencil
- Spray Paint
- Duct Tape
- Cloth Rags
- Disposable Gloves
- Whisk Broom & Wire Brush
- Traffic Cones (at least 2-3)
- Safety Vests
- Trash Bags (1 for trash, 1 for recyclables)

You will need to supply:

- Cardboard (see step #3)
- Water/refreshments if desired



Storm Drain Stenciling Application

Applicant/Contact: _____

Organization/Group: _____

Address: _____

City: _____ State: _____ Zip Code _____

Phone Number: _____

Email: _____

1. Describe the purpose and benefit of the proposed project.

2. Describe stencil group:

a. Number of participants expected: _____

b. Ages of participants: _____

c. Who will be supervising the work? (There must be at least 1 adult for every 4 students/children): _____

3. List the area (streets, neighborhoods or businesses) or specific storm drain(s) your group plans to stencil. _____

The storm drain we plan to stencil is on **city/public property**. By checking this box, I am confirming that I have contacted Public Works and received permission to mark the aforementioned storm drain(s). I understand this is my responsibility as group leader/applicant.

The storm drain we plan to stencil is on **private property**. By checking this box, I am confirming that I have contacted the land owner or business and received permission to

mark the aforementioned storm drain(s). I understand this is my responsibility as group leader/applicant.

4. Day and Time of Event: _____

Rain Date (*Projects cannot be completed in the rain; in order for the paint to dry properly, it must be 50 degrees Fahrenheit and dry outside*): _____

5. Will this project have an educational component? Who is the target population? Please describe in detail (a presentation or discussion prior to the event to discuss the importance of storm drains and their connectivity to the Dan River, for example): _____

6. Are members of your group participating to fulfill volunteer hours? Yes No

Will you need DRBA to sign off on any related paperwork? Yes No

7. Please include any other notes or special requests for your project: _____

Applicant Agreement

I, the undersigned, have filled out the application thoroughly and honestly. By signing below, I am indicating that I have sought and received the proper permissions for this project (see #3) and followed all other project directions and requirements as laid out by this document and on danriver.org.

Printed Name: _____ Date: _____

Signature: _____

NEXT STEPS

- Email your completed and signed application to DRBA at drba.nc@danriver.org.
- Once you have received the go ahead from DRBA, you will need to print out and review the following paperwork before your project date:

[Waivers of Liability](#) (print enough for all participants; must be returned prior to event)

[Storm Drain Data Sheet & Location Form](#)

[Volunteer Safety Guidelines](#) (If you are working with children/youth or in a high traffic area, please review these safety guidelines well in advance to ensure you are prepared).

- If you haven't already, please consider incorporating an educational component to your project. Either print off the educational resources found at danriver.org/stormdrains or create your own to pass out businesses and landowners in the area you are stenciling. You may also want to consider presenting to your group, organization, or classroom about the importance of storm drains and their connectivity to our local waterways before embarking on the project.

For more information and steps to successfully completing a storm drain stenciling project, please visit www.danriver.org/stormdrains or contact **DRBA in North Carolina** at drba.nc@danriver.org or (336) 627-6270 or **DRBA in Virginia** at drba.va@danriver.org or (276) 634-2545.



Storm Drain Marking Q&A

Your Name: Click or tap here to enter text.

Date: Click or tap to enter a date.

- 1) Why is important that only water go down a storm drain?
 - The storm drain is not filtered and drains directly into the waterway
 - Rivers are the source of drinking water for humans and wildlife
 - Anything other than water in a storm drain can pollute a river and stream
 - All of the above

- 2) A car leaking oil onto the street is what type of pollution?
 - Nonpoint Source
 - Point Source
 - Litter
 - None of the above

- 3) Litter in a stream is what type of pollution?
 - Nonpoint Source
 - Point Source
 - Algae
 - None of the above

- 4) While you are marking a storm drain, it is important to:
 - Hold the paint can far from the stencil and spray in a circular shape
 - Have only 1 person at the storm drain at a time
 - Wear your safety vest at all times
 - All of the above

- 5) Why is protecting water important to you? Check all that apply.
 - I want to have clean drinking water
 - I want wildlife to be protected
 - I like fishing, boating and/or swimming in a clean lake or river
 - Other:
Click or tap here to enter text.

Stormwater runoff is precipitation from rain or snowmelt that flows over the ground. As it flows, it can pick up debris, chemicals, dirt, and other pollutants and deposit them into a storm drain. Anything that enters a storm drain is discharged into rivers and streams that we use for fishing, swimming, and providing drinking water.

Remember: Only Rain Down the Drain

To keep stormwater leaving your home clean, follow these simple guidelines:

- ◆ Use pesticides and fertilizers sparingly.
- ◆ Clean up after your pet.
- ◆ Repair auto leaks.
- ◆ Place trash in garbage container or recycle.
- ◆ Clean paint brushes in a sink, not outdoors.
- ◆ Dispose of household hazardous waste, used auto fluids, and batteries at designated collection or recycling facilities.
- ◆ Use commercial car wash or wash your car only when necessary.



To learn more about marking storm drains with your family, friends, church, or clubs, visit www.danriver.org/programs/stewardship/storm-drain-project.

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I marked the storm drain at _____
to help protect drinking water for my family
and for my favorite animal that lives in the woods.
Draw a picture of your favorite animal.

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