

This "how to" manual contains information to assist groups or organizations in planning, implementing, and preparing a successful storm drain marking event. Readers will learn about nonpoint source pollution and what citizens can do to prevent or reduce pollution that enters Indiana's waterways through storm drains.



"Storm drain marking projects offer an excellent opportunity to educate the public about the link between the storm drain system and water quality."

The Environmental Protection Agency (EPA)

WWW.STORMDRAIN.IN.GOV

STORM DRAIN MARKING MANUAL



WWW.STORMDRAIN.IN.GOV

DNR
INDIANA DEPARTMENT OF
NATURAL RESOURCES

COMPANION VIDEO FOR ASSISTANCE

“**Before the Storm**”, is available as a companion to this publication to assist organizations in planning a successful storm drain marking event. In addition to information provided by the Indiana Department of Natural Resources, you may also be able to obtain local assistance from your county Soil & Water Conservation District and Purdue Cooperative Extension Service. Both of these agencies have been provided a DVD copy of the video. The video is also available on VHS at your county library and as a streaming video on the Indiana Department of Education website.



For more information visit:
www.stormdrain.IN.gov

SPONSORS

This publication was produced by the
Division of Soil Conservation,
Indiana Department of Natural Resources
through a grant from the
United States Environmental Protection
Agency
administered by the
Indiana Department of Environmental
Management.



March 2005

<http://www.in.gov/dnr/soilcons/>

Written by:

Lisa Bales
Greg Biberdorf
Randy Braun
Jan Hosier
Angie Tilton

TABLE OF CONTENTS

Chapter 1. Introduction	1
What is a Storm Drain?	1
Why Should We Be Concerned About What Enters a Storm Drain?	2
Storm Drain Marking Definition	3
Why Should We Mark Storm Drains?	4
Chapter 2. Marking Methods	5
How Do I Know Which Marking Method to Use?	5
Marking Methods for Volunteer Groups	6
Chapter 3. The Planning Process	7
Permission	7
Funding & Support	8
Media	8
Site Selection	9
Supplies	9
Safety	10
Chapter 4. Education	11
Educate Before, During, and After the Event.	11
Education and Outreach Tools	12
Chapter 5. Day of the Event	13,14
Instructions for Curb Markers	15,16
Instructions for Stenciling	17,18,19
Chapter 6. After the Event	20
Appendix A	21
Curb Marking Supplies for Each Group	21
Stenciling Supplies for Each Group	22
Appendix B	23
Cleaning the Stencils	23
Appendix C	24
What You Can Do?	24
References	25
Companion Video for Assistance	26

REFERENCES

- Center for Global Environmental Education and the WaterShed Partners. "Stencil Storm Drains." [<http://cgee.hamline.edu/watershed/action/projects/stencil.htm>] Accessed December, 2004.
- Clinton River Watershed Council. "Street Drain Stenciling Kit." [<http://www.crw.org/programs/programs.html#stewardship>] Accessed December, 2004.
- Earthwater Stencils. "How to Stencil Storm rains." [www.earthwater-stencils.com] Accessed December, 2004.
- Hunter, R. 1995. "Storm Drain Stenciling: The Street-River Connection." [<http://www.epa.gov/volunteer/fall95/urbwat10.htm>.] Accessed December, 2004.
- North Carolina Sea Grant. "Storm Drain Stenciling in North Carolina: A Local Government's Guide to Storm Drain Stenciling." [<http://www.bae.ncsu.edu/bae/programs/extension/wqg/smp-18/stormdrain/localgov.html>] Accessed December, 2004.
- Pierce, Nathan 2004. "Storm Drain Stenciling 101." [<http://www.surfridersantacruz.org/storm.htm>] Accessed December, 2004.
- River Network. "River Smart." bookmark 2002.
- South Carolina Water Watch Program, S.C. Department of Health and Environmental Control. "How to Conduct a Storm Drain Tagging Project." [<http://www.scdhec.net/eqc/water/html/wtrwatch.html#stormdrain>] Accessed December, 2004.
- United States Environmental Protection Agency. "Public Involvement/Participation: Storm Drain Marking." [http://cfpub.epa.gov/npdes/stormwater/menuofbmps/pub_inv.cfm] Accessed December, 2004.
- University of Wisconsin-Extension Water Resources Programs. "storm drain stenciling." [<http://clean-water.uwex.edu/wav/stormdrain/index.htm>] Accessed December, 2004.
- Werner, Nick. "Protecting Our Waterways. Children push residents to prevent storm-drain pollution." The Republic. July, 2004.
- Wilkerson, Ernest A. "Battle Ground Ecology Club makes its mark on the area." The Lafayette Ledger. April, 2004.

APPENDIX C

What You Can Do!

- 1. Sweep, instead of hosing off the driveway, street, or sidewalk.** Water run-off from driveways or sidewalks carries contaminants, such as dirt, motor oil, fertilizers, and animal waste, through storm drains and into waterways.
- 2. Lawn and garden chemicals.** Use pesticides and fertilizers sparingly and follow the directions recommended by the manufacture. Do not apply fertilizers or pesticides before a rain event.
- 3. Safely dispose of household cleaners and motor oil.** Many automotive and cleaning products found in homes or garages are too dangerous to be disposed of in the trash or down the drain. Products should be recycled or taken to a community hazardous waste center.
- 4. Compost or mulch yard waste.** Sweep (do not wash) leaves or grass clippings that accumulate on your driveway, sidewalk, or in the street.
- 5. Clean up after your pet.** Pick up pet wastes. Dispose of pet wastes properly, such as placing in a trash receptacle or flushing down the toilet.
- 6. Do not wash your car in the driveway.** Use a commercial car wash or wash your car on the lawn or other unpaved surface to minimize the amount of dirty, soapy water flowing through a storm drain and into waterways.
- 7. Act locally.** Organize a stream bank cleanup or storm drain marking project in your community.

CHAPTER 1: INTRODUCTION

What is a Storm Drain?

A storm drain is a network of underground pipes designed to control flooding by transporting stormwater from urban areas to a waterbody.

A storm drain may also be known as a curb, gutter, channel, ditch, pipe, or culvert.



Why Should We Be Concerned About What Enters a Storm Drain?

Nonpoint source pollution is pollution that originates from many diffuse and difficult to identify sources rather than a single, traceable source such as a pipe.

Everyone contributes to nonpoint source pollution!

Rainwater washes soil, street litter, oil, leaves, grass clippings, pet wastes, and fertilizers into storm drains. Material flowing into a storm drain does not get treated before emptying into streams, rivers, and lakes. This untreated material can pollute the waterways in your community. Although individual storm drains may contribute small amounts of pollutants, the combination of many storm drains can cause a negative impact on water quality.



APPENDIX B

Cleaning the Stencils

The stencils will last longer if paint is removed.

Once stenciling is complete, collect all the stencils, and place them between two pieces of cardboard or inside a plastic bag to dry. When they are dry, roll the stencil into a tube several times until all paint flakes off the stencil. The stencils are now ready for the next marking event!



Stenciling Supplies for Each Group

- stencils
- safety vests or bright t-shirts
- environmentally friendly spray paint
- wire brush or broom
- dust pan
- tape
- face mask
- garbage bags
- orange safety cones
- goggles (optional)
- gloves (optional)
- cardboard or newspaper
- door hangers or flyers
- camera (optional)
- first aid kit
- map that shows area storm drains to be marked
- letter of permission from local government
- photo releases and liability waivers



Storm Drain Marking Definition

Storm drain marking is labeling a storm drain inlet with a pre-printed marker, tile, sticker, or stencil that reads "*Dump No Waste - Drains to River*", "*Drains to Stream*", or a similar written message that specifies the waterbody to which the storm drain inlet drains.



Why Should We Mark Storm Drains?

- Storm drain marking informs others about the *street-to-river* connection.

- Many people may not realize that water flowing into storm drains is not cleaned before it empties into a river, stream, or lake.



- Polluted runoff can harm Indiana's waterways where we fish, swim, and obtain our drinking water.
- Storm drain marking can be an effective service learning or civic learning project for schools, scout groups, homeowner associations, 4-H clubs, municipalities, or any organization wanting to make a positive impact on their community.
- The Environmental Protection Agency (EPA) recommends storm drain marking for municipalities addressing the Clean Water Act's Storm Water Phase II Rule. For more information on this rule, visit the EPA's website at www.epa.gov.

APPENDIX A

Curb Marking Supplies for Each Group

- curb markers
- adhesive glue
- safety vests or bright t- shirts
- wire brush or broom
- dust pan
- face mask (optional)
- garbage bags
- orange safety cones
- goggles (optional)
- gloves (optional)
- door hangers or flyers
- camera (optional)
- first aid kit
- map that shows area storm drains to be marked
- letter of permission from local government
- photo releases and liability waivers



CHAPTER 6: AFTER THE EVENT

1. Notify the media

- If the media was not able to attend, consider submitting an article and pictures from the event to the local newspaper.

2. Register your event online

- Be sure to register your event in Indiana at: www.stormdrain.IN.gov

3. Thank your sponsors

- Write a letter or send a personalized card to your sponsors and anyone who helped make the day a success. You may wish to also include a picture.

4. Evaluate

- Identify parts of the process that were successful, parts that could be improved, and what could be done differently to ensure your next marking event is an even bigger success!

CHAPTER 2: MARKING METHODS

How Do I Know Which Marking Method to Use?



Paint Stencil - set the stencil on a clean, flat surface. Fill in the stencil letters with paint.



Vinyl Curb Marker - apply an adhesive to the back of the marker and twist marker onto a clean, flat surface.



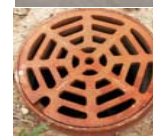
Pre-Glued Curb Marker - peel off wrapper and twist the marker onto a clean, flat surface.



Aluminum Curb Marker - apply a mounting adhesive or drill a two inch bolt and two nuts into the pavement. This method is not discussed in this manual.



Thermoplastic Pavement Marker - use a heated torch to apply marker onto the pavement. This method is not discussed in this manual.



Pre-Cast Inlet - manufactured with a written message engraved on the inlet. This method is not discussed in this manual.

- There are many commercial vendors* that sell storm drain marking materials. Several of these vendors are listed on our website at www.stormdrain.IN.gov.
- Inquire in your community to see if the markers or stencils can be made locally.

**Information on the products listed is not intended as an endorsement by the Department of Natural Resources. The user is ultimately responsible for determining the suitability of the products. Additional vendors and sources of information pertaining to storm drain marking may also be available through other sources.*

Marking Methods for Volunteer Groups

Using curb markers or stenciling are the most common ways for volunteer groups to mark storm drains. Your organization or group should choose the marking method that best fits your budget and needs.



Adhesive or pre-glued vinyl **curb markers** are attractive, quick to apply, last several years, and require little to no maintenance.

Stenciling reaches a large number of people because stenciled messages are not as permanent. This requires volunteers to come back in a year or two to re-stencil messages, thereby educating a new group of volunteers.



- Two light coats are better than one heavy coat. Allow the first coat of paint to dry before applying the second coat.
- Make sure all the stencil letters get filled with paint.
- Lift the wet stencil straight up and put it in a trash bag to prevent the paint from dripping.
- The same stencil can be used for other storm drains throughout the day.
- For instructions on cleaning stencils, see **Appendix B**.



HELPFUL TIPS:

1. Do not stencil a storm drain if vehicles are parked nearby.
2. Suggest that volunteers wear old clothing and shoes to avoid ruining them with paint.
3. If the message is unreadable, do not try to clean the paint off. Move on to another storm drain and learn from your mistakes.

2. Set

- Prepare the stencil for painting.
- Set the stencil flat and centered either on the street or sidewalk.
- Tape the stencil or have a volunteer hold the stencil in place.
- Frame the stencil with cardboard or newspaper to prevent overspray around the message.
- Use a cardboard shield to prevent paint from drifting onto nearby cars and objects.



3. Paint

- Shake the can vigorously to ensure the paint is mixed well.
- Holding the can 6 to 8 inches from the stencil, apply paint in a series of wide side to side sweeping motions, spraying one line at a time and spraying down wind of people and cars.



Permission

The first step to a successful storm drain marking event is to obtain written permission. Permission will typically reside with the local governmental entity that manages the storm sewer system within the community (e.g., Public Works Department). If you are marking on private property (e.g., business parking lots), you will need to contact the owner of the property and be prepared to provide:

- Name of your organization
- Name and contact information of the project coordinator
- Marking method and message you will be using
- Date of event and an alternative rain date
- Number of volunteers and ages
- List of neighborhood(s), street(s), or area(s) your group would like to mark.

It will be necessary to obtain forms and liability waivers for all youth volunteers. Example permission forms and liability waivers are available at:

www.stormdrain.IN.gov

Funding & Support

To promote or raise funds for your storm drain marking event, you may choose to approach local businesses, civic organizations, or neighborhood associations. Be sure to explain why you are marking storm drains in their community. Request their support through the donation of money, supplies, or even volunteers!

Media

Invite your local newspaper, radio, or television station to your event and enlist their support to publicize it. This may result in greater community support for the project and may help with volunteer recruitment.

Sample public service announcements are available at:

www.stormdrain.IN.gov



Instructions for Stenciling

- This method utilizes environmentally friendly paint that does not contain heavy metals and is low in volatile organic compounds.
- Instruct your volunteers to stencil storm drain messages on the sidewalk above the storm drains or on the street in front of the drain.
- Make sure that the placement of messages is consistent with one another.

Just remember three easy steps for stenciling:

CLEAN, SET, & PAINT

1. Clean

Make sure the surface where the marker will be placed is flat, dry, and free of any loose debris.

- Pick up any trash to prevent it from going into the storm drain and put it in a trash bag.
- Use a wire brush or broom to lightly scrub the surface where the stencil will be placed.
- Sweep loose debris away from the storm drain and onto a dust pan. Place debris into a trash bag.



2. Glue

- Apply adhesive to the back of the marker starting with 1/8 of an inch from the outside edge circling toward the center.
- For pre-glued markers, remove the protective cover.



3. Twist

- Press the marker firmly on a flat surface and twist.
- The adhesive should be visible around the entire edge of the marker.

Site Selection

Consider the area you have chosen to mark and the number of volunteers you hope to recruit before obtaining supplies. An important part of the planning process will be mapping the storm drains in the area. Divide the area into smaller work sections to which you can assign a group of volunteers. You can better plan for the amount of supplies you will need by having in mind the specifics of your project area.

Supplies

First, decide which type of marking method will be used for the storm drain marking event. Keep in mind that each work group will need their own set of supplies.

The following supplies will be necessary for any type of marking event:

- **Safety vests or brightly colored t-shirts**
- **Wire brush or broom**
- **Dust pan**
- **Garbage bags**
- **Safety cones**
- **Marking materials***

* For a more complete list of specific supplies for your marking event see **Appendix A**.

Safety

SAFETY IS THE MOST IMPORTANT ISSUE TO CONSIDER WHEN ORGANIZING YOUR EVENT.

- Volunteers should wear a safety vest or brightly colored t-shirt.
- Safety cones should be placed around the work area.
- At least one adult should be assigned to watch and divert traffic away from workers.
- The safest areas to mark are residential and low traffic areas.
- If events are planned for high traffic areas, you may consider requesting local law enforcement officers to direct traffic.
- To protect your volunteers' hands, consider providing gloves.

Never mark storm drains alone!



10



Instructions for Curb Markers

- Vinyl curb markers can be purchased pre-glued or volunteers will need to apply the glue to each marker.
- Markers should be placed on the sidewalk above the storm drain inlet or on the curb facing the street.
- Make sure the markers are consistently placed relative to one another.
- Avoid placing the curb markers directly on the street or on the edge of a manhole cover.

Just remember three easy steps for curb markers:

CLEAN, GLUE, & TWIST

1. Clean

Make sure the surface where the marker will be placed is flat, dry, and free of any loose debris.

- Use a wire brush or broom to lightly scrub the surface where the marker will be placed.
- Sweep any loose debris away from the storm drain and onto a dust pan. Place debris into a trash bag.
- Pick up any trash to prevent it from going into the storm drain and put it in a trash bag.



15

CHAPTER 4: EDUCATION

Every marking event should include education *before, during, and after the event.*

Before the Event:

Participating volunteers need to be informed about nonpoint source pollution and its effect on water quality. Informed participants will have a better understanding of the reasons for undertaking a storm drain marking project.



During the Event:

You can educate while you work by talking to local residents, businesses, and others. Share ideas about nonpoint source pollution and what citizens can do to prevent or reduce pollution that enters Indiana's waterways through storm drains. (For a list of "What You Can Do" to prevent water pollution see **Appendix C**).



After the Event:

Storm drain marking results in a visual reminder of the *storm drain-to-river* connection. Citizens gain a better understanding of the fate of urban runoff and its effect on water quality. Hopefully, they will think again before dumping anything into a storm drain.

5. Distribute supplies to each work group

6. Assign work sections to each group

- A map should be given to each work group.

7. Mark

- Curb marking instructions are on pages 15 and 16.
- Stenciling instructions are on pages 17, 18, and 19.

8. Check for missed storm drains

- Have one volunteer in each work group check that all storm drains in the group's area have been marked.

9. Clean up

- Clean up work site after the marking is completed. Specific clean up procedures for stenciling are included in **Appendix B**.

10. Celebrate

- Thank and congratulate your volunteers for a job well done!

Education and Outreach Tools

Public education and outreach is enhanced through the distribution of printed material. An important education component is the creation of flyers, door hangers, brochures, and pamphlets to assist with your group's education efforts. Materials should be created to educate volunteers **before** a marking event, or to inform the public **during** and **after** an event.

Suggested information to include in your printed materials:

- Details and facts about the community's watershed(s)
- Your group's name and sponsors
- Why your group is marking storm drains
- Local recycling sites where citizens can drop off household chemicals



Please see **Appendix C** for a list of things citizens can do to help prevent water pollution. These may also be useful in the creation of your educational materials.

Remember: Mailboxes are only to be used for mail bearing postage. It is illegal to put anything in the mailbox that has not been delivered by the U.S. Postal Service. Do **not** place any of your educational materials in a mailbox!

CHAPTER 5: DAY OF THE EVENT

1. Check the weather

- If unsuitable weather conditions exist, consider using an alternative rain date.
- Pavement should be dry.
- Temperatures should range between 50 and 80 degrees F.
- It is not recommended to spray paint on a windy day.

2. Collect all liability waivers and photo releases.

3. Review all safety procedures

4. Divide volunteers into work groups

The ideal work group will consist of six to eight volunteers. When using youth volunteers:

- One to two adults should be assigned to supervise each group
- One to two volunteers to distribute educational materials
- Four to six volunteers to apply the markers or to stencil

* Occasionally switching duties may help keep the volunteers focused on the task.