TOWN OF SANDWICH
THE OLDEST TOWN ON CAPE COD

OFFICE OF THE TOWN ENGINEER
PETER J. TANCREDI, P.E.
TEL: 508-833-8000
FAX: 508-833-8005

April 26, 2005

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MAY 10 2005

United States Environmental Protection Agency
Water Technical Unit
PO Box 8127
Boston, Massachusetts 02114

Massachusetts Department of Environmental Protection
Division of Watershed Management
627 Main Street
Worcester, Massachusetts 01608

Subject: Annual Update - NPDES Phase II General Permit
Town of Sandwich Stormwater Management Plan: Year 2 Update

Dear U.S. EPA and MaDEP:

As required under the NPDES Stormwater General Permit, the Town of Sandwich hereby submits this annual update of the Town's the Stormwater Management Plan.

Year 2 Update
The Town of Sandwich has been very active implementing its Stormwater Management Plan (SMP). While staffing shortages and lack of funding have hampered some efforts, the Town has managed to exceed many of its goals scheduled for the first two years of implementation. Additionally, new opportunities have arisen to enhance the Towns SMP.

This Annual Update provides a look at major accomplishments, new programs and goals and the status of goals that have not been met as scheduled. Below is a summary of Year 2 implementation:

Major Second Year Accomplishments (Spring 2004 - Winter 2005)
Below is a list of some of the significant accomplishments conducted over the past year:

• Drainage System Identification & Mapping – This task consumed most of the staff time during the Year 2 implementation period. The Town, with assistance from Americorps Cape Cod, continues to collect field data on the Towns drainage system. To date, over 2,500 catch basins have been recorded using GPS. This field data is being transferred onto the Towns new GIS maps. Staff is also researching all subdivision and roadway

16 JAN SEBASTIAN DRIVE
SANDWICH, MASSACHUSETTS 02563

plans to confirm the field data and to provide additional details such as pipe connections, drainage easements and type of facilities. This work will continue during Year 3 implementation.

• Water Festival – With assistance from Americorps Cape Cod, the Town held a daylong Water Festival at the Forestdale Elementary School to educate young students about stormwater impacts and active roles they can take to alleviate these impacts. Educational information was also distributed at the Festival.

• The Cape Cod Commission and representatives from Phase II regulated towns on Cape Cod have formed a committee called Project Storm. Project Storm meets regularly to discuss regional stormwater issues and how Stormwater Management Plans can address these issues. The committee has purchased educational information, organized Water Festivals, submitted grant applications, reviewed local regulations and provided a network that allows towns to communicate stormwater ideas to each other.

Through the Project Storm committee, the Town of Sandwich has handed out over 500 educational brochures and has purchased additional material to continue its education goals as part of its SMP.

• The Engineering Department continues to make stormwater presentations to the Senior High School Environmental Science classes. In addition, the Department interacted with students, assisted them with their current projects and involved them in data collection for the Town's SMP. This effort culminates in and end-of-the-school-year Environmental Expo, which town staff participates in as review team members.

New Programs/Goals

Below is a list of new goals that have been added to the Town's SMP (i.e., goals not on the original General Permit NOI):

• Due to the "Blizzard of 2005", the Town was forced to find locations to dispose excess snow. In accordance with the Bureau of Resource Protection, the Town identified environmentally safe locations to dispose of the snow based on the DEP's Priority Resource Map. As needed, the Town will continue to identify disposal locations based on these guidelines.

• A standard Roadway and Drainage Maintenance Plan was developed to ensure that new home owner associations maintain and repair all drainage systems. An example of this plan is shown in the Appendix.

• Town staff has attended several stormwater seminars to obtain knowledge of new BMP technologies and learn of successes achieved by other municipalities related to stormwater management. The Town will continue to send staff to these seminars.

Status of Goals for Year 2
Similar to the original table submitted for the NPDES General Permit, the attached table shows goals proposed for all Six Control Measures. This updated table reflects new goals and the status of Year 1 and 2 goals. The yellow highlighted blocks represent goals scheduled in each season of respective years. Words highlighted in red represent goals that have not yet been reached. New goals mentioned earlier have also been included in the table.

The Appendix attached with this submittal shows several of the actions performed by the Town to meet the Year 2 goals listed in the table.

Conclusion
The Town of Sandwich's accomplishments over the past two years meet or exceed most of the scheduled goals. Also, new goals have been created to further enhance the Towns Stormwater Management Plan. We trust that these accomplishments will satisfy the Massachusetts Department of Environmental Protection and the United States Environmental Protection Agency requirements. Please contact Paul Tilton of the Engineering Department if you have any questions or require further information related to the Year 2 Annual Update.

Sincerely,

Paul S. Tilton
Assistant Town Engineer

Attachments: Year 2 Status Table
Town Actions in Year 2

Cc: Peter J. Tancredi, PE, DPW Director/Town Engineer

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Watershed Management

BRP WM 08A NPDES Stormwater General Permit Notice of Intent
for Discharges from Small Municipal Separate Stormwater Sewer Systems (MS4's)
F. Storm Water Management Program TIME FRAMES

Transmittal Number: W035665

Facility ID (if known): _____

BMP ID #	PERMIT YEAR ONE Spring 03	Summer 03	Fall 03	Winter 03-04	PERMIT YEAR TWO Spring 04	Summer 04	Fall 04	Winter 04-05	STATUS Goals	Comments
5.1: Public Education & Outreach										
1a									Current Educational Brochures	Brochures available at Town buildings and distributed at Water Festival and Sa
1b									Development Review	Continue to enforce stormwater and erosion regulations during development re
1c									Public Display of Stormwater Mgmt Plan	SMP is nearly complete. Will display once final maps are complete.
1d									Public Meeting	Will schedule once SMP is complete to allow public a chance to review.
1e									Proposed Educational Brochure	Distributed over 200 bookmarks and 250 door hangers.
1f									Outfall & Catch Basin ID & Mapping	Continued identifying and mapping drainage system w/ assistance from Ameri
1g									Web Site Information	Will complete when Town hires IT employee.
1h									Educational Festival	Held Water Festivals at Elementary School w/ County and AmeriCorps.
1i									Educate DPW Employees	Educated DPW employees about disposal and containment of hazardous wast
1j									Educational Video	Not complete. Under consideration by Americorps as part of Project Storm Te
1k									Catch Basin Stencils	Developed and purchased 1,000 storm drain markers. Will glue to CB's w/ Am
1l									Stormwater Posters	Displayed 4 stormwater posters in several Town offices.
1m									Student Involvement	Made Stormwater Presentation at Environmental Science Classes at High Sch
1n									Stormwater Committee	Project Storm team continues to meet to discuss stormwater and implement Ph
1o									Environmental Expo Review Team	Member of Environmental Expo Review Team for Sandwich High School
5.2: Public Involvement & Participation										
2a									Development Review	Continue to enforce stormwater and erosion regulations during development re
2b									Public Meeting	Will schedule once SMP is complete to allow public a chance to review.
2c									Public Display of Stormwater Mgmt Plan	Stormwater Management Plan (SMP) is nearly complete. Will display when ma
2d									Proposed Educational Brochure	Distributed over 200 bookmarks and 250 door hangers.
2e									Illicit Discharge Identification	Performed inspections during CB and outfall data collection. Continue inspect
2f									Outfall & Catch Basin ID & Mapping	W/ AmeriCorps, identified over 2,500 CB's and outfalls w/ GPS. Report is avail
2g									Water Monitoring Program	Health Dept performs annual sampling.
2h									Educational Video	Not complete. Under consideration by Americorps as part of Project Storm Te
2i									Educational Festival	Organized Water Festivals at Elementary School w/ County and AmeriCorps.
2j									Student Involvement	Taught HS class, interacted w/ students on projects & involved them with data
2k									Stormwater Committee	Formed Cape-wide group w/ CCC to develop & distribute educational info relat
5.3: Illicit Discharge Detection & Elimination										
3a									Household Hazardous Waste Program	Continue to distribute info and schedule household hazardous waste collectior
3b									Sandwich Village Stormwater Assessment	Continue to sample water quality and apply for grants to minimize stormwater i
3c									Illicit Discharge & Dumping Identification	Began inspections of illicit discharges. Will develop form & database to record
3d									Catch Basin Cleaning	Continue to clean & monitor CB conditions. Currently mapping all town-owned
3e									Outfall & Catch Basin ID & Mapping	W/ AmeriCorps, identified over 2,500 CB's and outfalls w/ GPS. Report is avail
3f									Educational Information	Displayed posters & distributed brochures to public & developers. On WEB sit
3g									Allowable Non-Stormwater Discharges	Will continue to search for non-stormwater discharges that may be significant p
3h									Town Bylaw - Illegal Disposal	Town By-law includes illegal disposal law and fines. Will identify all town regs
3i									Water Sampling	Town sampled Mill Creek in Village for future BMP grants in an effort to restore
-										

Note: Many of the BMP's above will continue beyond the 5-year permit period.

[ ] = Goals anticipated to be completed in the season & year shown above. Words in Red = goals not yet accomplished under year shown above.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Watershed Management

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BMP ID #	PERMIT YEAR ONE Spring 03	Summer 03	Fall 03	Winter 03-04	PERMIT YEAR TWO Spring 04	Summer 04	Fall 04	Winter 04-05	Goals	STATUS / Comments
5.4: Const. Stormwater Runoff Control										
4a									Town Bylaw - Driveway Regulation	Continue to enforce driveway regulations to minimize stormwater impacts.
4b									Existing Laws & Regulations	Continue to enforce stormwater and erosion regulations and will evaluate nee
4c									Educational Info & Public Participation	Distributed & displayed educational information & will obtain public input once
4d									Development Review	Continue to enforce stormwater and erosion regulations during development r
4e									Consideration of Public Information	Town will solicit input from the public once SMP and WEB info is complete.
4f									Site Inspections	Town officials continue to inspect & enforce regulations related to stormwater
4g									Recommended BMP's	Have required use of BMP's thru development review. Will develop list of rec
4h									Zoning Bylaw - Erosion Control	Erosion control law in place and being enforced by site visits. Will update w/ E
4i									Erosion Control Guidelines	Will update current guidelines with BMP focus
4j									Subdivision Rules & Regulations	Made changes to stormwater regs in the Subdivision Rules & Regulations. Up
4k									Water Sampling	Town sampled Mill Creek in Village for future BMP grants.
4l									Stormwater Posters	Displayed 4 Stormwater posters in Town buildings.
5.5: Post-Construction Stormwater Management										
5a									Growth Incentive Zones - Stormwater Plans	Working with CCC on Growth Centers and Local Comprehensive Plan to add
5b									Existing Laws and Regulations	Continue to enforce stormwater and erosion regulations and will evaluate nee
5c									Educational Info & Public Participation	Distributed & displayed educational information & will obtain public input once
5d									Development Review	Continue to enforce stormwater and erosion regulations during development r
5e									Catch Basin Cleaning	Continue to clean & monitor CB conditions. Currently mapping all town-owne
5f									Recommended BMP's	Have required use of BMP's thru development review. Will develop list of rec
5g									Zoning Bylaw - Erosion Control	Erosion control law in place and being enforced by site visits. Will update w/ E
5h									Erosion Control Guidelines	Will update current guidelines with BMP focus
5i									Subdivision Rules & Regulations	Made changes to stormwater regs in the Subdivision Rules & Regulations. Up
5j									Water Sampling	Town sampled Mill Creek in Village for future BMP grants.
5k									Stormwater Posters	Displayed 4 Stormwater posters in Town buildings.
5.6: Pollution Prevention & Good Housekeeping in Municipal Operations										
6a									Stormwater Mitigation w/ BMP's	The Town continues to apply for grants for Stormwater Mitigation using BMP's
6b									Pollution Control & Mitigation Measures	Built salt shed and developed a plan for snow removal based on DEP's Priorit
6c									BMP Projects on Town-Owned Land	The Town continues to apply BMP's to townwide projects.
6d									DPW: On-Site Stormwater Containment	Town recently inspected DPW stormwater system and will continue to do so.
6e									DPW Environmental Audit - EPA Program	Constructed Salt Shed and Interior washing area in DPW Garage.
6f									DPW Maintenance Program	GIS mapping w/ attributes for monitoring DPW operations is being developed
6g									DPW Training	Employees are trained about stormwater impacts. DPW attends stormwater s
6h									Tree Planting Program	Town has completed a Tree Inventory and Management Plan for Sandwich Vi
6i									DPW Brochures	Not completed

Note: Many of the BMP's above will continue beyond the 5-year permit period.
[ ] = Goals anticipated to be completed in the season & year shown above. Words in Red = goals not yet accomplished under this year.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Watershed Management

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BMP ID #	PERMIT YEAR ONE Spring 03	Summer 03	Fall 03	Winter 03-04	PERMIT YEAR TWO Spring 04	Summer 04	Fall 04	Winter 04-05	STATUS Goals	Comments
5.7: BMP's for Meeting TMDL										
7a									Identification & Mapping of Outfalls & CB's	W/ AmeriCorps, identified over 2,500 CB's and outfalls w/ GPS. Report is avail
7b									Water Sampling	Town sampled Mill Creek in Village for future BMP grants in effort to restore sh
7c									BMP Mitigation	The Town continues to apply for grants for Stormwater Mitigation projects usin
7d									Public Education & Participation	Distributed & displayed educational information & will obtain public input once
7e									DPW Maintenance, Cleanup &	DPW inspects, maintains and records any information related to stormwater im
									Identification of Illegal Disposals	

Note: Many of the BMP's above will continue beyond the 5-year permit period.
[ ] = Goals anticipated to be completed in the season & year shown above. Words in Red = goals not yet accomplished under this year.

APPENDIX

SAMPLE OF TOWN ACTIONS – YEAR 2

CAPE COD COMMISSION

3225 MAIN STREET
P.O. BOX 226
BARNSTABLE, MA 02630
(508) 362-3828
FAX (508) 362-3136
E-mail: frontdesk@capecodcommission.org

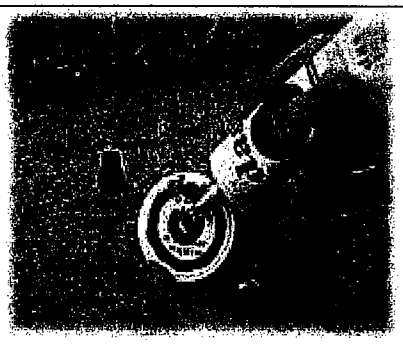
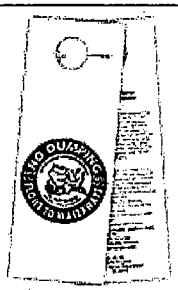
To: Project STORM members
From: Erin Linsky, AmeriCorps-Cape Cod
Date: March 17, 2005
RE: Order forms for stormwater education materials
CC: interested parties

The Cape Cod Commission, in cooperation with Project STORM, is offering the chance to re-order stormwater education materials! The same products are being offered as last year, including curb markers, adhesive, and Cape Cod custom door hangers. New additions this year are drink coasters so people no longer steal the curb markers for desk accessories.

These materials can be used to further community awareness of stormwater issues for the upcoming spring season. All orders can be placed through the Cape Cod Commission by April 15, 2005. We will notify you once we have received all the orders as to the final price. At that time, we will prepare an invoice for your order. All funds must be received from the towns before an order can be placed.

Cape Cod Commission (508) 362-2828 fax: (508) 362-3136 E-mail: frontdesk@capecodcommission.org
P.O. Box 226
Barnstable MA 02630

STORMWATER MATERIALS ORDER FORM

PRODUCT	DESCRIPTION	QUANTITY
	Curb Markers **$2.10 each with the Duracast Seal** **$0.28 each for Cardboard Drink Coasters!** **Orders may be combined.** **Size 4" diameter**	____ **Duracast Seals** **at $ 2.10 each** **Subtotal:** _____ 400 [redacted] **Drink Coasters** **at $0.28 each** 112 **Subtotal:** [redacted]
	**Adhesive** **Small tube (5 oz.) - enough for 15 markers $4.46** **Large tube (10.5 oz.) - enough for 25-30 markers $8.00**	____ **Small tubes** **at $ 4.46 each** **Subtotal:** _____ ____ **Large tubes** **at $ 8.00 each** **Subtotal:** _____
	**Cape Cod Custom Door Hanger** **4 x11 inches with perforated top** **only $0.18 each**	____ **Door hangers** **at $ 0.18 each** **Subtotal:** _____

TOTAL: $ [redacted] 112.00

Prices may be lower depending on the final order numbers

WHEN IT RAINS IT DRAINS!

A HOMEOWNER'S GUIDE TO UNDERSTANDING STORMWATER POLLUTION

Did you know your neighborhood drains to Cape Cod waters? A little effort on everyone's part goes a long way toward keeping our waters clean!

For more information:

Why should I care about stormwater pollution?

Stormwater is rain that falls on driveways, roads, and lawns. As stormwater travels over the land, it picks up contaminants not naturally found in our waterways. This water is carried away by stormwater pipes and drains. It eventually ends up in our groundwater, rivers, ponds, estuaries and the ocean. Pollution of our waterways can kill plants and animals that live in the water and make it unpleasant or even unsafe to boat, swim or fish.

What is in stormwater pollution?

Animal and yard waste	Septic system overflow
Oil and grease	Motor vehicle fluids
Sediments	Fertilizers and pesticides
Litter	Car washing detergents

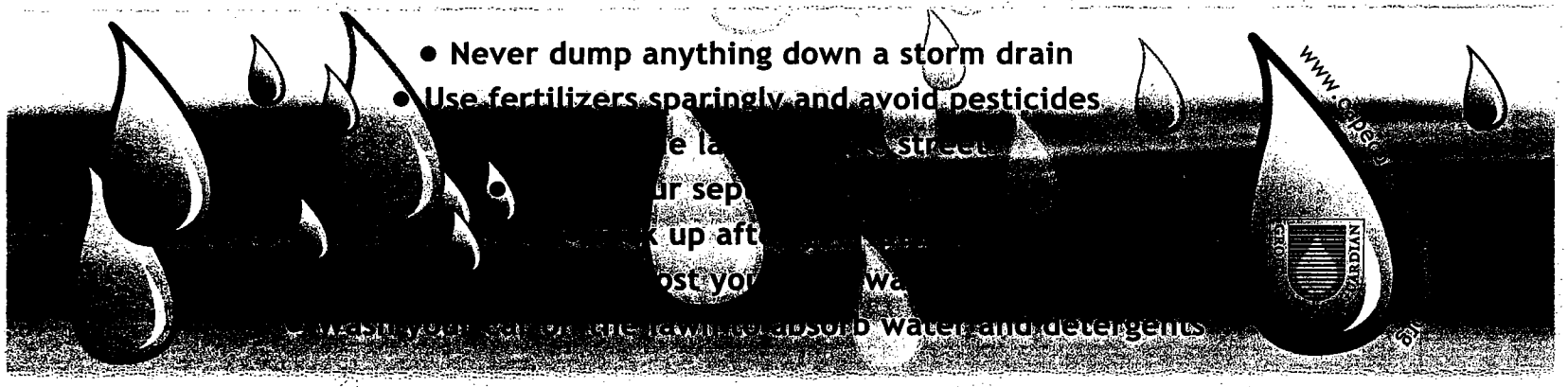
What can I do to keep Cape Cod waters clean?

- Never dump anything into or near storm drains.
- Use fertilizers sparingly and avoid pesticides.
- Sweep up driveways, sidewalks and roads.
- Compost your yard waste.
- Water the lawn, not driveways or streets.
- Instead of washing the car in the driveway - wash it on the lawn or, better yet, go to a carwash that recycles.
- Check your car for oil, antifreeze and transmission leaks and make immediate repairs if needed.
- Never dump oil or antifreeze on the ground; recycle it instead at a designated recycling center.
- Pick up after your pet.
- Pump and inspect your septic tank regularly.

Helpful Websites:

www.epa.gov/npdes/stormwater
www.state.ma.us/dep/brp/stormwtr/stormpub.htm
www.capecodgroundwater.org

Only ra
PROJECT STORM
Only Rain Down the Drain
Protect Cape Cod Waters
Cape Cod waters


• Never dump anything down a storm drain
• Use fertilizers sparingly and avoid pesticides
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street
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wa
wash your car on the lawn to absorb water and detergents
www.capec
GRO
ARDIAN

Minutes from the March 10th Project STORM meeting are as follows:
(Handouts from the meeting will also be included
if you did not attend the meeting)

March 10th Project STORM meeting attendees:

Gabrielle Belfit, Cape Cod Commission
Erin Linsky, Cape Cod Commission
Paul Tilton, Sandwich DPW
Rick deMello, Yarmouth DPW
Mark Budnick, Orleans Highway
Joe Rodricks, Dennis Engineering
Allan Tkaezyk, Brewster DPW
Catherine Laurent, Mashpee DPW

PROJECT STORM MEETING MINUTES- DRAFT

Stormwater Bylaw Matrix

- Bylaw matrix was sent to all project STORM members and was presented to the town planners with a request to review and fill in additional information
    - STORM members are encouraged to contact town planners to make sure the review is completed.
- If possible, we will link bylaws to existing town regulations on website
- Barnstable questioned whether the regulatory agency should be included on the matrix as well
- Yarmouth suggested that construction projects be reviewed through the Conservation Commission to approve stormwater plans because it is easy for Conservation Commission to pass regulations.
- There was a question of what if a project is not under their jurisdiction. Towns agreed it would apply to any project clearing more than one acre of land
- Discussion of reporting process for bylaws, regulation and enforcement – often too involved and complicated
- Towns agreed on trying to minimize anything new
- Yarmouth or Dennis ? suggested trying a new small bylaw – town-wide, concerning silt control and the superintendent will have the ability to enforce it
- Brewster commented their town has permits so they know the project is going on, but no one has time for more inspections. Reporting is therefore a waste of time
- Sandwich agreed, stated they have an erosion control bylaw but no one knows it is there, there is no enforcement
- However, towns also pointed out that EPA and DEP both encourage specific bylaws written out for stormwater control
- Yarmouth commented that the Conservation Commission jurisdiction only extends 150 feet, but any land clearing permits greater than one acre must

have a permit. Conservation Commission should extend jurisdiction to projects greater than 150 feet and within sensitive resource areas, including stormwater discharge (piping) areas. Each town will provide a map of sensitive areas

- Brewster argued that the Conservation Commission currently has jurisdiction, but is just opting not to use it
- Sandwich commented they prefer to state all runoff must be contained on site and then refer to state standard about how to do it
- People are supposed to be submitting application for more than one acre, but most towns agreed that it is not being done. The Commission sent all Phase II people the link for online filing of the NOI for this permit: http://cfpub.epa.gov/npdes/stormwater/enoi.cfm
- Brewster didn't think the EPA had a right to do this in the first place
- Yarmouth said the EPA is already submitting fines, so they do mean business
- On matrix, towns agreed to add a column on site plan review process, Erin will contact town planners, will cc: project STORM

BMP List

Pretreatment devices

- Water Quality Inlets (catchbasins w/oil/water separators)
- Water Quality Swales (grassed swales and channels)
- Sediment Traps (forebays)

Infiltration devices

-Dry wells, trenches, and chambers

Porous pavement – should include on the BMP list as experimental for Cape Cod, potentially causes its own sedimentation problems

- Porous pavement is better for minor roads, not as much for large projects as it is not strong enough
- Can be high maintenance, needs to be swept often
- Only good in appropriate places, such as emergency access, overflow parking, etc
- grass-crete or geo-grid is potentially a good alternative to porous pavement

- Yarmouth commented that **bioretention devices**, such as grassed infiltration basins, tree boxes and rain gardens, should also be included on list
- Towns agreed that BMP list should emphasize systems, using multiple BMP in conjunction with one another
- Towns also agreed to create a new category called additional BMPs- New Technologies, including the latest proprietary designs, such as centrifugal devices, and gate valves, which are good for high risk areas

Webpage

- Handed out outline, anticipate it will be online soon

Annual Reporting and By-law requirements

- Gabrielle will write a summary of Stormwater accomplishments to use in the Annual report. Will include one page outline of project STORM, which towns participate, what is accomplished, and a quantification of activities
- Possibly use Marina Brock to inspect and report on housekeeping on her normal water inspections, Commission will contact her

Update on Mass Bays Stormwater Initiatives

- "Think Blue," Massachusetts Initiatives were described, everyone voted on preferred logo and several tag lines
- Preferences were sent back to Massachusetts Base office following the meeting

APCC Environmental Broacasting on WQRC

One minute radio broadcastings will start later this month. Spots will be aired at 8:00 each week day on a variety of topics. We will assist with stormwater topics to be addressed:

- General basic education
- Don't dump in stormdrains
- Did you know your drains go to the water?
- Make a Cape Cod link
- Pet Waste
- Fertilizer runoff
- Make sure to share website addresses, such as Groundwater Guardian website or suggest town websites

- Yarmouth is working on smart carwashes, they fond that carwashes are usually held in the wrong places

EPA stormwater conference request for local speakers

- Gabrielle requested speakers, no interest, suggested to call people who weren't in attendance

Other Business

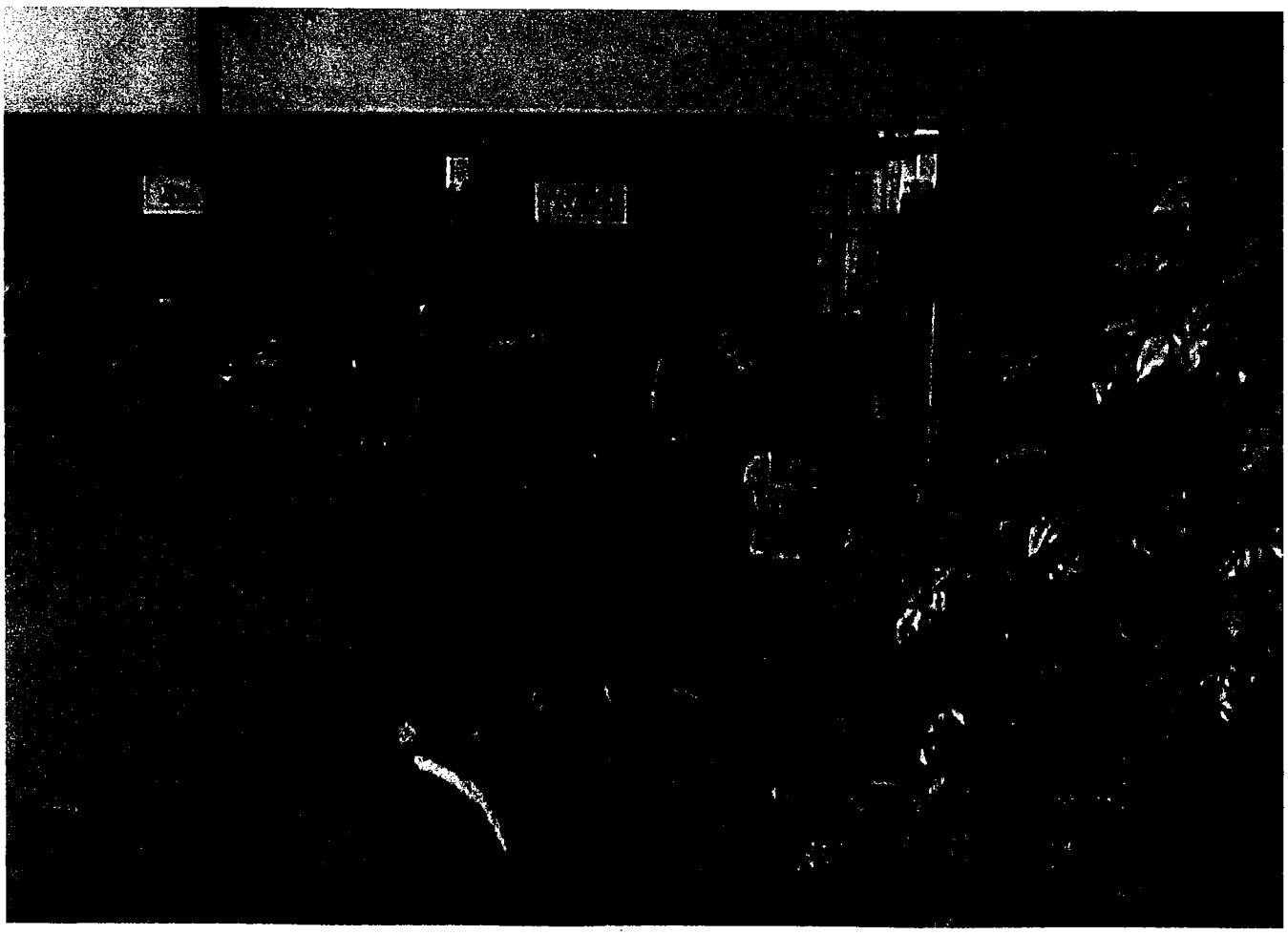
- Poll towns for reordering stormwater materials – Erin will get new price quote, and send out order forms via email and regular email to Phase II committees, Conservation Commissions and other interested groups

Welcome to:

WET & WILD

FUNdamentals of Water

Presented by Americorps Cape Cod
and the
Cape Cod Groundwater Guardian Team



FORESTDALE ELEMENTARY SCHOOL WATER FESTIVAL - MARCH 2005

Dispose of Hazardous Materials at Scheduled Town Collection Days

Some household products contain ingredients that may be hazardous to human health and the environment. Cape Cod groundwater supplies are at risk of being contaminated by hazardous household products we dispose of in our trash, on the ground or down drains. Surface waters are also at risk.

Every town on Cape Cod provides access to free household hazardous products collections for residents to dispose of unwanted toxic materials. Contact Barnstable County Hazardous Materials Program or town Health, Fire and Public Works Departments for collection dates and information. Or check www.capecodextension.org and town websites.

Petroleum-based Products: Insecticides, herbicides, fungicides; furniture, metal and floor polish; spot removers.

Gasoline, brake and power steering fluids; radiator flush, white wall cleaner, bug and tar remover.

Oil and alkyd paints, stains, wood finishes, marine and auto paints; paint thinners and strippers, turpentine, mineral spirits, acetone; varnish, shellac, lacquer, wood preservatives.

Miscellaneous Products: Drain and cesspool cleaners; chemistry sets; moth balls; photo and pool chemicals; thermostats, switches, thermometers containing mercury.

Check the recycling chart inside to see what items your town accepts

Reducing Waste Paint

More than 50% of waste brought to town Household Hazardous Products collections is paint. You can save your town disposal costs by following these suggestions to reduce the volume of waste paint.

Use Up or Share: Leftover paint can be used for touch-ups or smaller projects. Donate usable leftover paint to theater groups, community organizations and recreation programs in need of good paint.

Dry: Small amounts of latex, acrylic, oil and alkyd paint, stains and wood finishes – less than two inches in the bottom of the can – are easily dried by leaving the lid off the can. Recycle open, dry cans and lids at town recycling centers.

Absorb: Larger quantities of latex and acrylic paints, stains and wood finishes can be dried in a box or bucket with kitty litter or shredded paper. Dispose of the dried out paint in your household trash and recycle open, dry cans and lids at town recycling centers.

Buy Less: Pick up good quality recycled paints and stains from town paint recycling centers at no cost. When purchasing new paint, measure the area to be painted so you do not purchase more paint than needed.

Barnstable County
Hazardous Materials Program
800 319-2783 • 508 375-6699

Cape Cod
Cooperative
Extension
PO Box 367, Barnstable,
MA 02630-0367
508 375-6690
www.capecodextension.org

Funds for designing and printing this brochure provided by American Ref-fuel Company of SEMASS and Barnstable County. Printed on 60% recycled paper.

THINK TWICE

Cape Cod Extension • Barnstable County

REDUCE

Reduce the amount of waste we generate.

REUSE

Reuse materials instead of throwing them away.

RECYCLE

Recycle to provide resources to make new products for the marketplace.

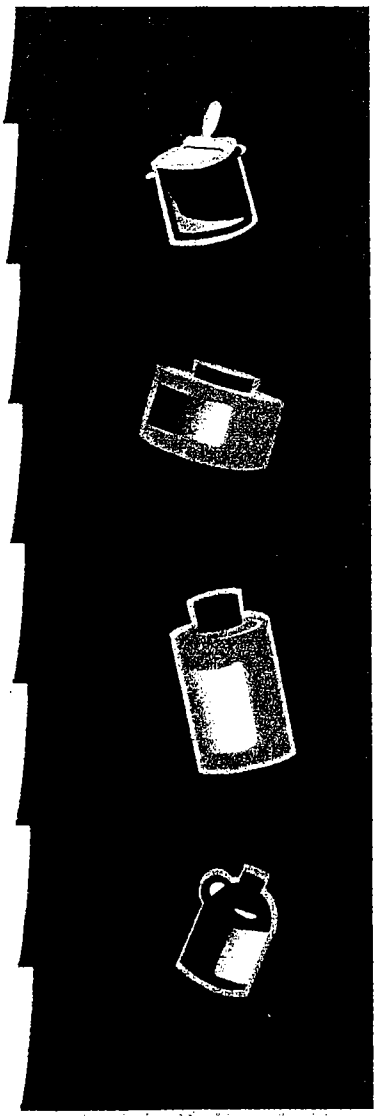
Household Hazardous Products Collections

for Bourne, Falmouth, Mashpee, Sandwich and CG Air Station Cape Cod residents

4 Saturdays 9 am–1 pm

April 16	June 18	August 20	October 15
Sandwich	**Falmouth**	**Bourne**	**Mashpee**

at Town High Schools



Bring to Collection:

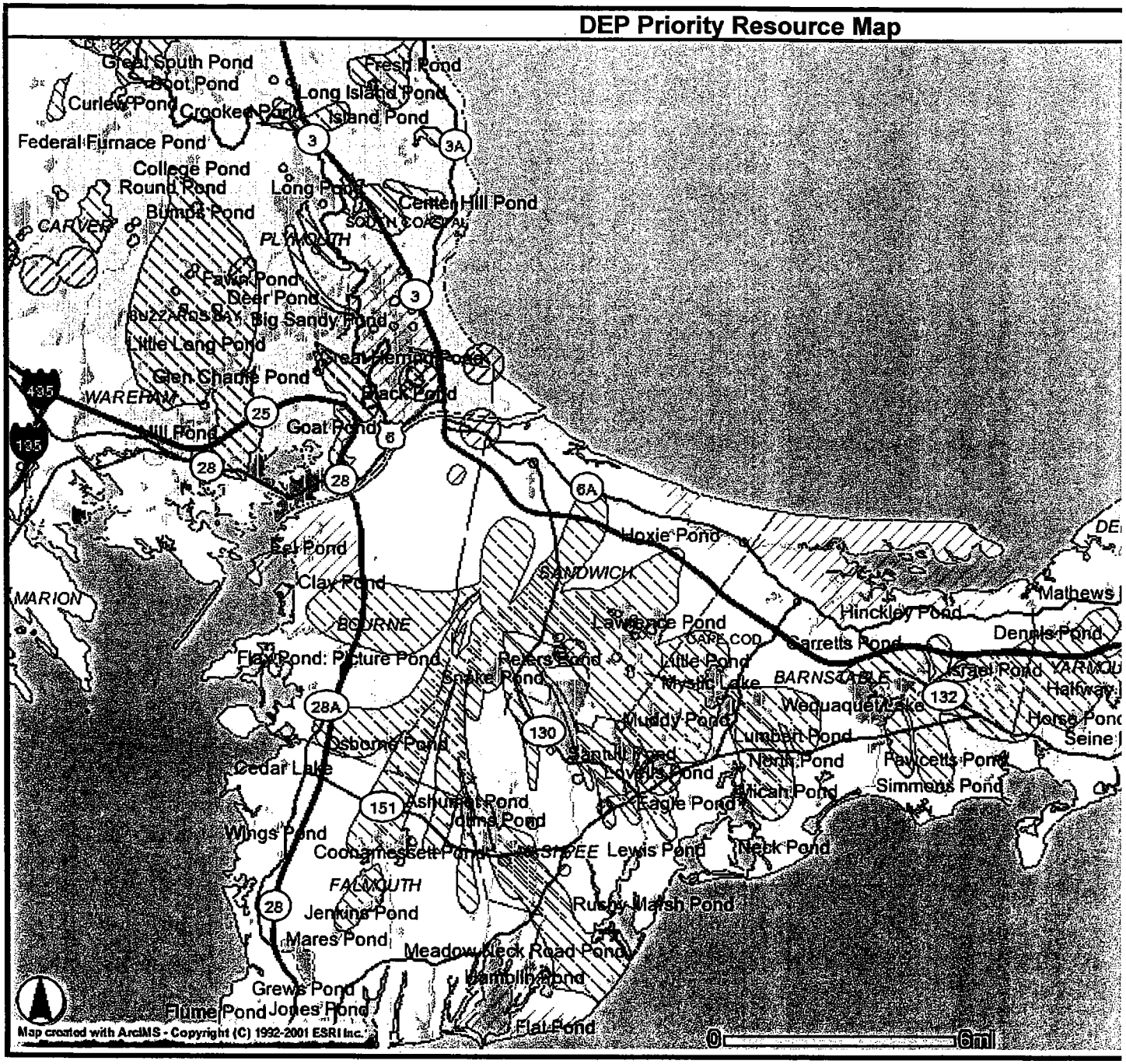
- Pesticides, Wood Preservatives, Acids
- Gasoline, Brake and Power Steering Fluids
- Photo and Pool Chemicals, Chemistry Sets
- Wood Finishes and Preservatives, Acids
- Oil, Alkyd, Lead, Marine and Auto Paints
- Solvents, Thinners, Strippers and Finishes

MERCURY COLLECTION
Bring mercury-containing thermostats, switches, thermometers, and jars of mercury. Receive a free digital thermometer in exchange from American Ref-fuel Company of SEMASS.

For information and directions, call
Barnstable County Hazardous Materials Program
508-375-6699 or 800-319-2783

Proof of residence required.

Businesses: call to arrange to participate at cost.


DEP Priority Resource Map
Great South Pond
Boot Pond
Curlew Pond
Crooked Pond
Long Island Pond
Island Pond
Fresh Pond
Federal Furnace Pond
College Pond
Round Pond
Long Pond
Center Hill Pond
Bumps Pond
CARVER
PLYMOUTH
SOUTH COASTAL
Fawn Pond
Deer Pond
BUZZARDS BAY
Big Sandy Pond
Little Long Pond
Great Herring Pond
Glen Charlie Pond
Black Pond
WAREHAM
Mill Pond
Goat Pond
Eel Pond
Clay Pond
MARION
BOURNE
SANDWICH
Hoxie Pond
Lawrence Pond
CAPE COD
Little Pond
Mystic Lake
BARNSTABLE
Hinckley Pond
Sarretts Pond
Mathews
Dennis Pond
Israel Pond
YARMOUTH
Halfway
Horse Pond
Seine
Flax Pond: Picture Pond
Snake Pond
Wequaquet Lake
Muddy Pond
Lumbert Pond
Osborne Pond
Cedar Lake
Santuit Pond
Lovells Pond
North Pond
Pawcetts Pond
Micah Pond
Simmons Pond
Eagle Pond
Ashumet Pond
Johns Pond
Wings Pond
Coonamessett Pond
MASHPEE
Lewis Pond
Neck Pond
FALMOUTH
Jenkins Pond
Rushy Marsh Pond
Mares Pond
Meadow Neck Road Pond
Bamboo Pond
Grews Pond
Jones Pond
Flume Pond
Flat Pond
Map created with ArcIMS - Copyright (C) 1992-2001 ESRI Inc.
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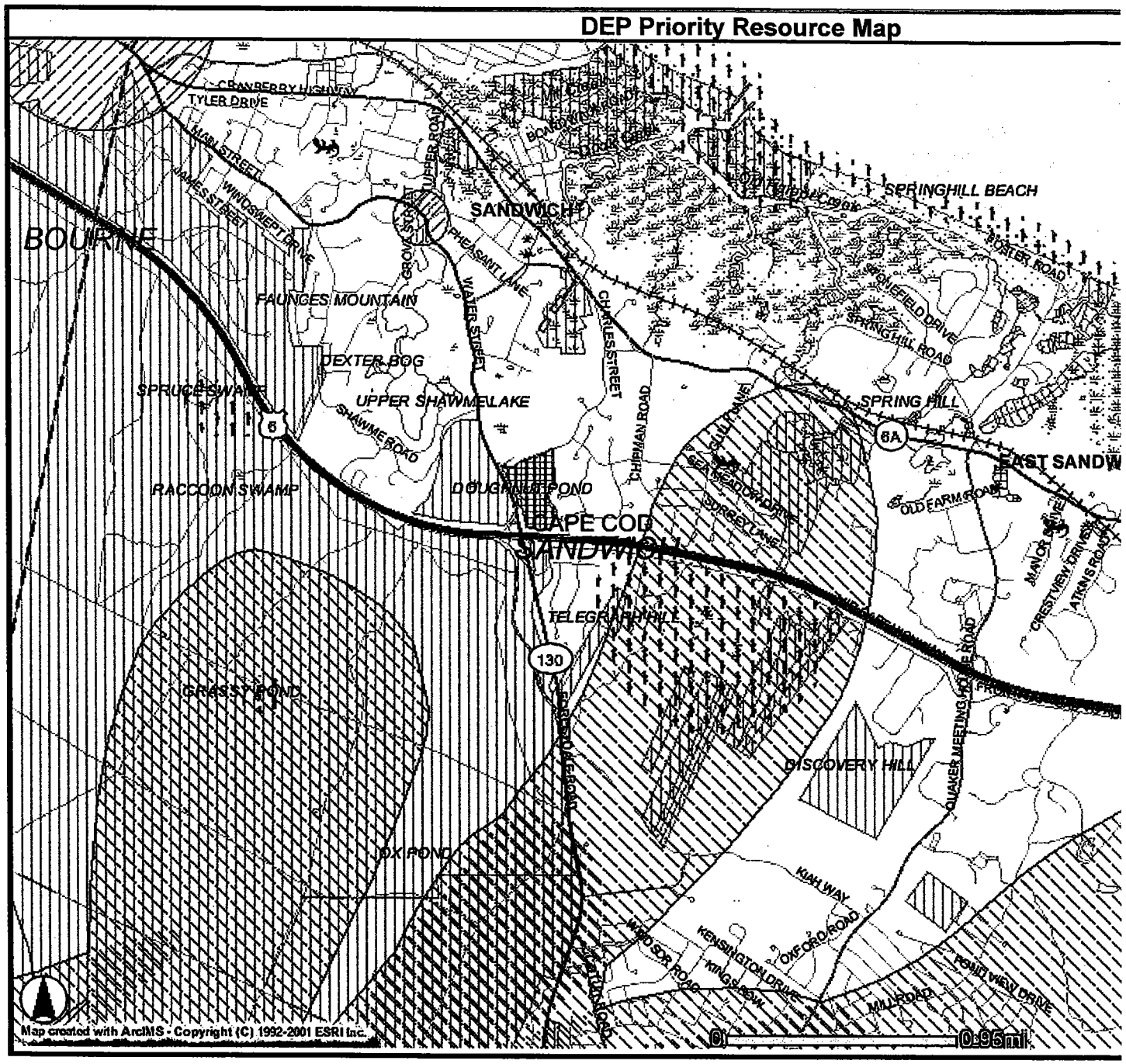
DEP Priority Resource Map
CRANBERRY HIGHWAY
TYLER DRIVE
MAIN STREET
JAMES STREET
WINOSKEPT DRIVE
BOURNE
SANDWICH
GROVE STREET
UPPER ROAD
PHEASANT LANE
WATER STREET
CHARLES STREET
CHIPMAN ROAD
SPRINGHILL BEACH
BOSLER ROAD
SPRINGFIELD DRIVE
SPRING HILL ROAD
SPRING HILL
6A
EAST SANDW
OLD FARM ROAD
MANOR DRIVE
CRESTVIEW DRIVE
ATKINS ROAD
FAUNCES MOUNTAIN
DEXTER BOG
SPRUCE SWAMP
UPPER SHAWME LAKE
SHAWME ROAD
6
RACCOON SWAMP
DOUGHNUT POND
CAPE COD
SANDWICH
SEAMEADOW DRIVE
SORREL LANE
TELEGRAPH HILL
130
GRASS POND
DISCOVERY HILL
QUAKER MEETING HOUSE ROAD
DX POND
KIAH WAY
OXFORD ROAD
WENSINGTON DRIVE
KINGS ASH
MILL ROAD
POND VIEW DRIVE
Map created with ArcIMS - Copyright (C) 1992-2001 ESRI Inc.
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DEP MCP 21e Map Legend

- Zone IIs
- IWPAs
- Zone A
- Sole Source Aquifers
- Solid Waste Sites
- Protected Openspace
- ACECs
- NHESP Estimated Habitat of Rare Wildlife in Wetland Areas
- Certified Vernal Pools 2003 NHESP
- Subbasins
- Mass Major Basins
- DEP Region
- Town Arcs
- County Boundaries

Public Water Supplies

- COMMUNITY PUBLIC WATER SUPPLY - GROUNDWATER
- COMMUNITY PUBLIC WATER SUPPLY - SURFACE WATER
- NON COMMUNITY PUBLIC WATER SUPPLY

Aquifers, By Yield

- HIGH YIELD
- MEDIUM YIELD

Non Potential Drinking Water Source Area

- HIGH YIELD
- MEDIUM YIELD

FEMA Floodplains

- 100 YEAR FLOODPLAIN

Hydrography

- WATER
- RESERVOIR
- WETLANDS
- SALTWATER WETLANDS
- FLATS,SHOALS

Rivers and Streams

- PERENNIAL
- INTERMITTENT
- SHORELINE
- MAN MADE SHORE
- DAM
- AQUEDUCT

MHD Roads

- LIMITED ACCESS HIGHWAY
- MULTILANE HWY, NOT LIMITED ACCESS
- OTHER NUMBERED HWY
- MAJOR ROAD - COLLECTOR
- MINOR STREET OR ROAD, RAMP

Tracks and Trails MHD

- TRACK
- TRAIL

Transmission Lines

- PIPELINE
- POWERLINE
- TRAIN

Officers

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Fax (508) 841-8497
perreau@th.ci.shrewsbury.ma.us

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swinthrop@ci.norwood.ma.us

MMEA Feburary 2005 Meeting Notice

Date: Wednesday, February 16, 2005

Time: 11:30 Sign in
12:00 Meeting (Promptly)

Place: Isaac's Restaurant (On the Waterfront)
114 Water Street
Plymouth, MA 02360
(508) 830-0001

Directions:
From the west take the Mass Pike (Route 90) east to Route 495 head south to Exit 6, take Route 44 east to Route 3A.
Continue easterly to a small rotary bear right heading southerly on Water Street, past the rotary is a public parking area, Isaac's Restaurant is a large gray building about 400' to the south. There is additional parking off Water Street behind the restaurant.

From Route 95 (F.K.A. Route 128) head south, take Route 3 south to Exit 6A, take Route 44 East to Route 3A.
Continue easterly to a small rotary bear right heading southerly on Water Street, past the rotary is a public parking area, Isaac's Restaurant is a large gray building about 400' to the south. There is additional parking off Water Street behind the restaurant

Program: <u>Thelma Murphy, Stormwater Coordinator, EPA New England Region</u>

- *Where should municipalities be on their Phase II implementation?*
- *Summarization of first (1st) year reports from municipalities.*
- *Discussion of information required in this year's annual report.*
- *Summarization of comments received by the EPA on NOIs when they were on public notice.*
- *Question & answer period*

Stormwater Bylaws: Coming Soon to a Community Near You?

A free presentation brought to you by the South Coastal Watershed Network

Guest Speakers: Rich Claytor, P.E. of Horsley Witten Group
John Rockwell, Buzzards Bay Project

January 13, 2005 9:00 to 11:30 am
South Shore Natural Science Center in Norwell

Better management of stormwater helps protect the quality and integrity of a community's beaches, shellfish habitat, and other water resources. At the site level, better stormwater management can also mean improved aesthetics and lower development costs. Three South Shore communities -- Plymouth, Duxbury, and Marshfield -- have drafted a model stormwater management bylaw, which may be soon adopted by these towns and is intended to serve as a model for the state. In this workshop, project partners will introduce the criteria, procedures, and detailed components of the model bylaw, so the development community will be prepared for potential changes to local regulations.

AGENDA:

9:10 -- 9:15	Welcome	Wendy Garpow, NSRWA/Mass. Bays Program
9:15 -- 9:20	Introduction to the Project	Julie Conroy, MA Office Coastal Zone Mgmt.
9:20 -- 9:35	Stormwater and You	John Rockwell, Buzzards Bay Project
9:35 -- 10:30	The Model Bylaw	Rich Claytor, P.E., Horsley Witten Group
10:30 – 11:00	Drafting a Successful Application	John Rockwell, Buzzards Bay Project
11:00 -- 11:30	Questions/Discussion	Facilitated by Julie Conroy

This presentation is brought to you by the South Coastal Watershed Network. The South Coastal Watershed Network is an informal group of municipal officials, developers, environmentalists and government agencies that work together to protect our region's water resources. The Network is coordinated by the Massachusetts Bays National Estuary Program, the North & South Rivers Watershed Association, and the MA Office of Coastal Zone Management. To join our email discussion list and learn about upcoming programs, send an email to SouthCoastal-subscribe@listslnsrwa.org. For more information, please contact Wendy Garpow (# 781-659-8168 or wendy@nsrwa.org).

This project is funded through the Coastal Nonpoint Pollution Grant Program made possible by NOAA and administered by the Massachusetts Office of Coastal Zone Management. Views expressed herein are those of the workshop organizers and do not necessarily reflect the views of NOAA or any of its sub-agencies.

Woodside Village Association
Roadway Maintenance Schedule

The Woodside Village Owner's Association is responsible for the maintenance of the Woodside Circle roadway. The following is a general maintenance schedule for the paved surfaces:

Plowing: The Town of Sandwich will be responsible for plowing the roadway during snow events, once the neighborhood association becomes signatory to the Town's private road plowing guidelines. The Town will plow the road for emergency access and general public safety purposes. If a more thorough and detailed plowing service is desired, the Association may elect to hire a private plowing contractor.

Annual Inspection of the Paved Surface: The complete paved area of the road should be inspected every year in the late spring. This inspection should cover the following areas at a minimum:

- Evidence of surface spalling
- Large cracks / settlement
- Curbing stability
- Heaving
- Erosion

Any deficiencies encountered, as part of this inspection shall be brought to the attention of a professional seal coating or paving maintenance firm for immediate estimate and repair.

Annual Inspection of Drainage Structures: Catch basins and other drainage structures must be inspected annually and cleaned every other year to ensure proper functioning. Each basin shall undergo a visual inspection annually looking for debris, clogged pipes, and proper function. A firm specializing in catch basin cleaning shall be hired to remove the grates, inspect and clean the basins thoroughly. Any deficiencies of the drainage system identified during inspection shall be repaired and/or replaced.

Roadway Maintenance Budget: The homeowner's association annual dues must include a $50 fee per year per house designated for roadway maintenance. This should be sufficient to cover bi-annual catch basin cleaning and inspections, and will leave a reserve for future repairs, i.e. crack sealing, pot hole patching, etc. A well-maintained roadway surface should provide 20 years of service.

TOWN OF SANDWICH
THE OLDEST TOWN ON CAPE COD

OFFICE OF THE TOWN ENGINEER
PETER J. TANCREDI, P.E.
TEL: 508-833-8000
FAX: 508-833-8005

Ms. Julie Conroy
Coastal NPS Grants Coordinator
Massachusetts Office of Coastal Zone Management
25 Causeway Street, Suite 800
Boston, MA 02114

November 12, 2004

Dear Ms. Conroy:

The Town of Sandwich would like to offer its support for a proposal recently submitted by the Cape Cod Commission entitled "Project STORM: A Cape Cod Initiative." The project has been developed over the past year to help address stormwater impacts resulting from a dramatic increase in impervious surfaces across Cape Cod. Stormwater is recognized a major contributing factor to water quality degradation on Cape Cod. These impacts on surface waters have been identified through a number of surface water assessment efforts including the EOEA Cape Cod Basin Watershed Assessment- 5-year plan, the DEP Estuaries Project, the Cape Cod Pond and Lake Stewardship Program and many individual town comprehensive plans.

The Town of Sandwich is excited to provide in-kind support as an active member of the Project STORM (Stormwater Outreach for Regional Municipalities) working group. We can commit to spending 25 hours to assist with this grant effort.

The Project deliverables including a "Cape Cod style" BMP guidance document, an innovative design workshop for municipal officials and public outreach campaign will dramatically increase public awareness of the problem while promoting cost effective solutions for municipalities and individual homeowners. The regional approach of Project STORM can serve a model for other communities that need to develop a collaborative approach for storm water education and outreach.

I appreciate your support of this important and timely grant project, and I am certain that you will find it as useful to other communities as we will here on Cape Cod.

Sincerely,

Paul S. Tilton
Project Storm Member
Assistant Town Engineer
Town of Sandwich

16 JAN SEBASTIAN DRIVE
SANDWICH, MASSACHUSETTS 02563

CAPE COD COMMISSION
REPORTER

Cape Towns and County Launch Education Campaign about Stormwater Pollution

The Town of Barnstable has enlisted the help of the Cape Cod Commission's water resources and transportation departments and Barnstable County's AmeriCorps Cape Cod members to launch a new campaign that spreads the word about preventing pollution from stormwater runoff.

Last week, Dale Saad, coastal specialist with the Town of Barnstable Health Department, and Gabrielle Belfit, hydrologist with the Cape Cod Commission, held training sessions for a band of town and regional staff and volunteers who are installing high-impact plastic markers (see the illustration above) on storm drains around Barnstable. A similar effort will be made in several other Cape towns over the summer to install a total of 5,700 markers across the region.

According to Belfit, the goal of the stormwater pollution prevention initiative is to increase awareness of the sources of pollutants and to inform homeowners, residents, and visitors about ways to prevent household contaminants from reaching the groundwater through stormwater runoff. The campaign, part of the federal permitting process for towns to comply with Phase II of the National Pollutant Discharge Elimination System, is undertaken by a group that has dubbed itself "Project STORM," which stands for STormwater Outreach for Regional Municipalities.

"Not only are interested Cape towns installing the colorful markers on storm drains," Belfit explains, "but we are also distributing educational literature to homeowners, posting educational posters in town offices, and offering information online through the Cape Cod Groundwater Guardian Team's web site, www.capecodgroundwater.org."

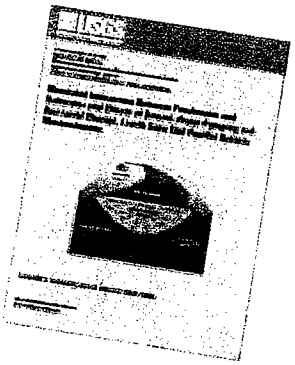
Saad elaborates on the initiative: "This wonderful collaboration among Cape towns provides a regionally consistent message about stormwater protection. We have begun to understand the importance of stormwater

Cape Cod Commission Hydrologist Gabrielle Belfit (left) and Town of Barnstable Health Department Coastal Specialist Dale Saad (right) install an educational marker like the one shown at left near a storm drain in Barnstable.

• INSIDE •

Report Published on Outer Cape Groundwater Model 2
New CCC Officers for FY05 4
DRI Threshold for Wireless 4
Alternative Transportation 4

Report on Lower Cape Groundwater Modeling



One tangible product of a multi-year, $700,000 project initiated in May 2000 and funded by the United States Geological Survey (USGS), the National Park Service, the Massachusetts Executive Office of Environmental Affairs, the towns of Provincetown, Truro, Wellfleet, and Eastham, and the Cape Cod Commission is now available from the USGS Massachusetts/Rhode Island District.

Published as a 72-page, full-color report prepared by USGS Project Manager John P. Masterson and titled *Simulated Interaction between Freshwater and Saltwater and Effects of Groundwater Pumping and Sea-level Change, Lower Cape Cod Aquifer System, Massachusetts*, the report is part of the USGS Scientific Investigations Report series. It can be obtained in print from the USGS District Office (10 Bearfoot Road, Northborough, MA 01532) and on the Web at **water.usgs.gov/pubs/sir/2004/5014.**

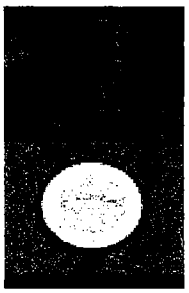
The watershed-based study characterized the aquifer, evaluated the source of water to supply wells, and examined saltwater intrusion, the sensitivity of surface waters to water withdrawals, and the recharge areas to ponds, rivers, and coastal embayments. Other components of the project, such as the installation of 42 observation and test wells and preparation of water-table maps by the Cape Cod Commission for all participants, were completed by late February 2004. The report describes the hydrogeology of the four freshwater lenses of the Lower Cape Cod aquifer system. Using a numerical groundwater-flow model of the lenses, the USGS calculated water budgets, determined the position and movement of the freshwater/saltwater interface, and analyzed freshwater and saltwater flow for current and changing pumping and recharge conditions.

According to the study, approximately 68 million gallons per day of fresh water recharge the aquifer system. About 68 percent of the water moves through the aquifer and discharges directly to the coast; 31 percent flows through the aquifer, discharges to streams, and then reaches the coast as surface-water discharge; and the remaining one percent discharges to public-supply wells. The depth to the freshwater/saltwater interface varies throughout the study area and is directly proportional to the height of the water table above sea level. Simulated increases in sea level appear to increase water levels and stream flows throughout the Lower Cape Cod aquifer system, and yet decrease the depth to the freshwater/saltwater interface. Surface-water bodies, such as kettle-hole ponds and coastal streams, are affected by simulated pumping from large-capacity municipal supply wells and by wastewater disposal practices.

The model will be used by the towns and county in further study of wastewater, water supply, and coastal water quality issues.

pollution and its contribution to the quality of our coastal resources, and I am pleased so many people have volunteered their help."

Other Cape towns installing the storm-drain markers in their communities this summer include:



- **Chatham** – contact Health and Environment Director Robert Duncanson, (508) 945-5188;
- **Orleans** – contact Highway Department Manager Robert Bersin, (508) 240-3790;
- **Sandwich** – contact Assistant Town Engineer Paul Tilton, (508) 833-8000; and
- **Yarmouth** – contact Town Engineer Rick deMello, (508) 398-2231 extension 250.

For more information about stormwater initiatives in Barnstable, contact Dale Saad (508-862-4644). Capewide, contact Gabrielle Belfit (508-362-3828).

STORMWATER MANAGEMENT

- What is Stormwater Runoff ?
- Stormwater Impacts
- The Stormwater Journey
- Stormwater Mitigation & Education

Paul S. Tilton
Town of Sandwich
Engineering Department

ENVIRONMENTAL TECHNOLOGY EXPO

MAY 10 2010

Spectacular Nonvascular: -Kara Milliken -Rachel Ramos

Migratory Patterns of Periwinkles and a Survey of Two Cape Beaches: -Julie Sears -Carly Smith -McKenzie Barton

Three Pond District: -Kylie Millbern -Angela Tunney -Kiley O'Neil -Lauren Graves

Recycling: -Rachel Silverman -Alex Fitch -Courtney Lima

Garden Transformation: -Molly Carroll -Joe Davis -Devin O'Malley

Peters Pond Project: -Dan Smith -Dave Coffey -Nate Furey -Mike Clancy

Got Beaches? & Project Life: -Meg Kennedy -Shannon Hickey -Kelly Varney -Christopher Byron

Sandwich Bird Survey: -Ashleigh Bennett -Stacey Berry

Erosion at Scorton Creek: -Stephanie Hill -Nick Lambros -Aidan Bokanovich

Talbot's Point: -Mike McGlynn -Mike Reilly -Matt Robbins -Paul Holmgren

A Seasonal Report on Spectacle Pond and Turtle Cove: -Nicholas Gasse -John Vreeland -Benjamin Avery -Christopher Meyer -Alicia Persico

Landscaping Project: -Nicole Gill -Bryan Cox -Sarah Glynn -Brendon Flood -Nate Chalke

Pond Comparison: -Alden Furgalack -Mike Powers -Peter Genettis -Alan Medeiros

Hoxiecology: -Michael St. James -Corey Perez -Matthew Susko -Josh Giampietro

Shawme Pond- Is it Polluted?: -Matt Bourque -Peter Creedon -Matt Rumul

Baseline Study of Shawme Pond: -Sean Costelio – Erik Anderson, Julien Collins

Forestdale Ponds Project: -Samantha Grant – Kaitlyn McCabe

Water Systems in Sandwich: -Bob Girard -Justin Purdy -Shane Manning

The Tale of Two Conservation Lands-Maple Swamp and Murkwood: -Joe Bulmer

Marine Debris: -Lauren Boyd -Alyse Garner -Elizabeth Kennan – Catherine Nickolaow

Town Neck Beach-Coastal Zone Management Plan: -Sean Devin -Laura Harrington -Chelsea McLean -John Olson

A Study of Phragmites: -Caitlin Cook -Sara McCarthy -Kyle McCulloch -Brittany Oheim

Succession and the Edge Effect at Boyden Farm: -Dan Costin -Dane Hitchins

Mill Creek Erosion Project: -Allison O'Connell -Kelly Cosgrove -John Dillon -Sarah Harrington -Victoria Yorke

Environmental Portfolio – Sarah Cote

Shawme Pond Project: -Erin McDonagh -Kara Milliken -Katherine Nicoletti -Amanda Shuffield -Kaitilin St. James

Raising and Releasing Endangered Redbelly Turtles: -Jill Varkas

Baseline Study of Maple Swamp and Murkwood Conservation: -Ryan Conway -Matt Dubee -Alex Kern – Matt Urban

Regional Wetland Assessment 2003/2004: -Kit Carlyle -Ben Deptula -Joe Sullivan

Boiling Springs: -Rich Lerner -Chris Pothier

Mill Creek Erosion: -Kevin Ducie –John Dillon –Andy Viall

What Is Dock Creek? – Heidi Burridge – Erin Nuss – Caitlin McCann – Kathleen Woods

Human Impact on Spectacle Pond – Eric Coughlan – Joel Wisentaner

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