



April 27, 2018

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U.S. Environmental Protection Agency - Region 1
5 Post Office Square – OEP06-01
Boston, MA 02109-3912

Fred Civian
Massachusetts Department of Environmental Protection
One Winter Street - 5th Floor
Boston, MA 02108

**Subject: Annual Update - NPDES Phase II General Permit
Town of Sandwich Stormwater Management Plan: Year 15 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 Stormwater Management Plan (SMP). This report is a continuation of the original 5-year permit issued for the Town of Sandwich. During this year, the Town continued many efforts implemented in the initial permit and strove to meet goals that were planned but not met within the first five years. An update of Year 15 accomplishments are listed below and shown in the attached tables.

Year 15 Update

The Town of Sandwich continues to be very proactive in the field of stormwater management. It has satisfied the MS4 permit requirements and substantially completed all the goals laid out in the Stormwater Management Plan. This Annual Update provides a look at major accomplishments, new programs and goals. Below is a summary of Year 15 implementation.

Significant Accomplishments (Spring 2017 - Winter 2018)

Below is a list of some of the significant goals accomplished over the past year. Further details and illustrations of these accomplishments are shown in the attached appendix.

Sandwich Harbor Stormwater Mitigation

The Town, in partnership with the United States Department of Agriculture's Natural Resource Conservation Service, has begun a multi-year phased effort to mitigate the effects of nonpoint storm water pollution in Sandwich Harbor. This work will help restore water quality at Sandwich's largest and most vital shellfish growing area. Construction funding has been made available through the USDA NRCS Cape Cod Water Resources Restoration Program, and the work will build on design efforts completed in previous years. So far, construction plans and specifications have been developed for the first phase, planned to be constructed in and adjacent to the Town Neck Beach parking lot. Bidding and construction are planned for the coming months.

Arbor Day Educational Outreach

The Town of Sandwich is committed to educating the public on the value of trees in the environment, and their vital role in the ecosystem. The Tree Warden meets with students at the Oak Ridge Elementary School each Arbor Day to discuss the role that trees play in improving water quality, reducing soil erosion, and absorbing carbon dioxide from the atmosphere. The Tree Warden also assists the students with planting a tree, commemorating Arbor Day.

Sandwich Marina Parking Improvements

The Town of Sandwich is focused on making storm water improvements to existing parking facilities and infrastructure. The Town of Sandwich recently made improvements at the Sandwich Marina to create additional boat storage & parking, with the goal of improving drainage facilities to minimize storm water impacts to the marina and adjacent resource areas.

Sandwich Library Parking Improvements

The Town of Sandwich recently made improvements to the parking areas at the Public Library, which included the construction of bioretention storm water facilities. In an effort to maximize the function of these facilities, the Department of Public Works has enlisted the help of a local Environmental Consulting Group (Horsley Witten) to assist with maintenance of plantings and landscaping in these areas.

Subdivision Rules & Regulations Update

The Engineering Department assisted the Planning Board with updates to their Subdivision Rules and Regulations. The updates included revisions to sections governing drainage and stormwater management. This incorporated current design references to enhance management techniques and comply with current practices.

Stormwater Mapping

In anticipation of new requirements expected to be part of the NPDES Stormwater General Permit reissuance, the Town's Engineering Department has continued efforts to refine and improve mapping of catchment and subcatchment areas. This work is being incorporated into the Town's Geographic Information System and will help future stormwater mitigation planning.

Stormwater Mitigation of Inland Ponds

The Town of Sandwich has continued efforts to mitigate stormwater pollution affecting the Town's valuable freshwater ponds. The ponds provide valuable wildlife habitat, fishing, swimming, and recreation opportunities for the Town and its visitors. The Town's engineering consultant conducted a study in which they updated the work of previous efforts with recent water quality sampling results and evaluation of BMP mitigation options. The Town is evaluating options to implement the recommendations of the study.

Household Hazardous Products Collection

The Town collaborates annually with four other neighboring communities to provide opportunities for residents to properly dispose of household hazardous products. This reduces the amount of hazardous material released to the environment, including water resources.

Municipal Solid Waste Disposal Enhancements

Town recently implemented a Pay-As-You-Throw program at the Solid Waste Transfer Station. This program requires users to pay for each bag of general trash disposed of. This, together with improvements to the recycling center has reduced the Town's municipal solid waste stream and increased recycling. The Department of Public Works also distributed compost bins for home composting and aired "Home Composting - Turning Your Spoils to Soil" on local TV (a MassDEP DVD). The Town gave away recycling and compost bins at this event.

Community Pride Day

The Town of Sandwich continues the annual Community Pride Day where residents participate in the cleanup of the Town. The DPW distributes equipment to assist in the cleanup of trash and identifies locations where residents can focus their efforts, such as at walking trails, roadsides, beaches, marshes and along shorelines. This event helps prevent trash from entering our valuable water bodies.

Stormwater Inspections and Monitoring

The Town continues to monitor erosion control at developments and inspect illicit connections throughout town as part of its SMP. The Town's enforcement of this program has effectively cleaned up many sites, minimizing impacts to the Town's drainage system and water bodies.

Stormwater Management Plan on Display

The Stormwater Management Plan is on display on the Town's web site for public viewing. Additionally, the Town's GIS allows the public to pinpoint specific stormwater problems and relay this information via e-mail to the Department of Public Works. The e-mail shows a map and ID number of the drainage facility so the DPW can quickly respond to any drainage issues. This process also allows accurate record keeping by the DPW.

Water Quality Groups

The Town of Sandwich is proactive in matters related to water quality in Sandwich and on Cape Cod. A consortium of Cape Cod Towns, Barnstable County, and local environmental non-profits has formed to support the Town's efforts to address stormwater impacts. The Town has many public officials and volunteers actively involved with water quality committees including but not limited to the Sandwich Water Quality Advisory Board, Mass Estuaries Program, Popponesset Bay State DEP Pilot Intra-municipal Work Group and 3 Bays Initiative.

Status of Goals for Year 15

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 through 15 goals. The yellow highlighted cells represent goals scheduled and met in each season of respective years. New goals mentioned earlier have also been included in the table.

The attached appendix shows several of the actions performed by the Town to meet the Year 15 goals listed in the table.

Overall Status of 15-Year Permit Term

As can be seen in the attached table, the goals in the Town's SMP have been substantially met over the permit period. It's important to note that several new goals were added to the Six Control Measures as the SMP evolved. Note: Some of the goals overlap in the Six Control Measures.

Recently completed/In Progress Goals of Six Control Measures

5.4 Construction Stormwater Runoff Control

4g. Recommended BMP's

The Town requires developers to design drainage facilities using BMP's. The Town had anticipated the Cape Cod Commission obtaining a grant to create a list of "Cape Cod BMP's" to distribute to developers. The grant was not awarded, so the Town has prepared its own Stormwater BMP guidance document that draws on recognized standards tailored to suit conditions in the Town.

4i. Erosion Control Guidelines

The Town has prepared updated Erosion Control Guidelines to reflect current BMP practices and design. This guideline is available for developers and homeowners. The guideline will also complement enforcement letters for non-compliance.

5.5 Post Construction Stormwater Management

5f. Recommended BMP's – See Goal 5.2, 4g above.

5h. Erosion Control Guidelines – See Goal 5.2, 4.i above.

Future Stormwater Management Plan & Permit

The Town is reviewing the recently reissued MS4 permit. The Town's SMP will be updated as necessary to comply with the new permit requirements.

Conclusion

The Town of Sandwich's accomplishments over the permit period meet or exceed nearly all of the scheduled goals. Additionally, new goals have been created to further enhance the Town's Stormwater Management Plan. We trust that these accomplishments will satisfy the Massachusetts Department of Environmental Protection and the United States Environmental Protection Agency requirements for this permit. Please contact Sam Jensen of the Sandwich Engineering Department if you have any questions or require further information regarding this Annual Update.

Sincerely,



Samuel J. Jensen, P.E.
Assistant Town Engineer


Encl.

cc: G. Dunham, Town Manager
P. Tilton, DPW Director, Town Engineer

APPENDIX

YEAR 15 UPDATE

- Sandwich Harbor Stormwater Mitigation Plans – Phase 1, 2018
- Community Pride Day Flyer
- Hazardous Materials Program Flyers
- Town of Sandwich DPW Pay-As-You-Throw Brochure
- Sandwich DPW How to Recycle Flyer
- Stormwater BMP Guidance
- Erosion Control Guidance

Massachusetts Department of Environmental Protection Bureau of Resource Protection - Watershed Management																				Transmittal Number: <u>W035665</u>										
<div><div>VM 08A NPDES Stormwater General Permit Notice of Intent arges from Small Municipal Separate Stormwater Sewer Systems (MS4's) Water Management Program TIME FRAMES</div></div>																				Facility ID (if known): _____										
																				Page: <u>1</u> of <u>3</u>										
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	Fall 03	Winter 03-04	Spring 04	Summer 04	Fall 04	Winter 04-05	Spring 05	Summer 05	Fall 05	Winter 05-06	Spring 06	Summer 06	Fall 06	Winter 06-07	Spring 07	Summer 07	Fall 07	Winter 07-08	ACHIEVEMENTS	ACHIEVEMENTS	ACHIEVEMENTS	ACHIEVEMENTS	ACHIEVEMENTS	ACHIEVEMENTS	ACHIEVEMENTS	ACHIEVEMENTS	ACHIEVEMENTS			
5.1: Public Education & Outreach																														
1a																												Current Educational Brochures	Brochures available at Town buildings and distributed at Stormwater events. Earth Day Events.	
1b																												Development Review	Continue to enforce stormwater and erosion regulations during development review.	
1c																												Public Display of Stormwater Mgmt Plan	Displayed on Town web site and at Public Library.	
1d																												Public Meeting	Held Public Meeting. Updated Board of Selectmen on SMP - BoS endorsed continuation.	
1e																												Proposed Educational Brochure	Continue to distribute brochures and educational information.	
1f																												Outfall & Catch Basin ID & Mapping	GIS Drainage Layer is complete. Continue drainage updates.	
1g																												Web Site Information	SMP is displayed on web site. Future Stormwater information to be displayed on web.	
1h																												Educational Festival	Participated in Water Festivals at Elementary Schools w/ County and AmeriCorps.	
1i																												Educate DPW Employees	Educated DPW employees about disposal and containment of hazardous wastes	
1j																												Educational Video	AmeriCorps Cape Cod w/ Stormwater video in Sandwich complete	
1k																												Catch Basin Stencils	Placing approx 100 CB markers & 500 door hangers in Town Neck area during summer.	
1l																												Stormwater Posters	Displayed 4 stormwater posters in several Town offices.	
1m																												Student Involvement	Assisted Environmental Science Classes at High School.	
1n																												Stormwater Committee	County-wide stormwater managers group resumed meeting regarding stormwater and Phase II.	
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 review.	
2b																												Public Meeting	Held Public Meeting. Updated Board of Selectmen on SMP - BoS endorsed continuation.	
2c																												Public Display of Stormwater Mgmt Plan	Displayed on Town web site and at Public Library.	
2d																												Proposed Educational Brochure	Continue to distribute brochures and educational information.	
2e																												Illicit Discharge Identification	Continued inspection of potential illicit connections.	
2f																												Outfall & Catch Basin ID & Mapping	W/ AmeriCorps, identified over 2,500 CB's and outfalls w/ GPS. Report is available. GIS complete.	
2g																												Water Monitoring Program	Health Dept performs annual sampling.	
2h																												Educational Video	AmeriCorps Cape Cod w/ Stormwater video in Sandwich complete	
2i																												Educational Festival	Participated in Water Festivals at Elementary Schools w/ County and AmeriCorps.	
2j																												Student Involvement	Taught class, interacted w/ students on projects & involved them with data collection.	
2k																												Stormwater Committee	Formed Cape-wide group w/ CCC to develop & distribute educational info related to stormwater	
5.3: Illicit Discharge Detection & Elimination																														
3a																												Household Hazardous Waste Program	Continue to distribute info and schedule household hazardous waste collection days w/ County.	
3b																												Sandwich Village Stormwater Assessment	Cont'd using Town funds/grants to mitigate stormwater. Completed construction of 319 grant.	
3c																												Illicit Discharge & Dumping Identification	Continued inspections of illicit discharges. Inspected and issued notices to sump pump owners.	
3d																												Catch Basin Cleaning	Continue to clean & monitor CB conditions. GIS drainage layer complete.	
3e																												Outfall & Catch Basin ID & Mapping	W/ AmeriCorps, identified over 2,500 CB's and outfalls w/ GPS. Report is available. GIS complete.	
3f																												Educational Information	Displayed posters & distributed brochures to public & developers. Earth Day Activities.	
3g																												Allowable Non-Stormwater Discharges	Will continue to search for non-stormwater discharges that may be significant polluters.	
3h																												Town Bylaw - Illegal Disposal	Town By-law includes illegal disposal law and fines. Will continue to update regs as necessary	
3i																												Water Sampling	Town continues sampling to monitor water quality improvements and to use for stormwater grants.	
Note: Many of the BMP's above will continue beyond the initial 5-year permit period.																														
= Goals completed in the season & year shown above. Words in Red = goals not accomplished under the five year permit.																														



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

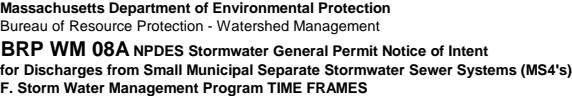
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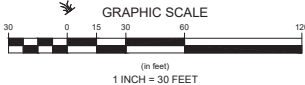
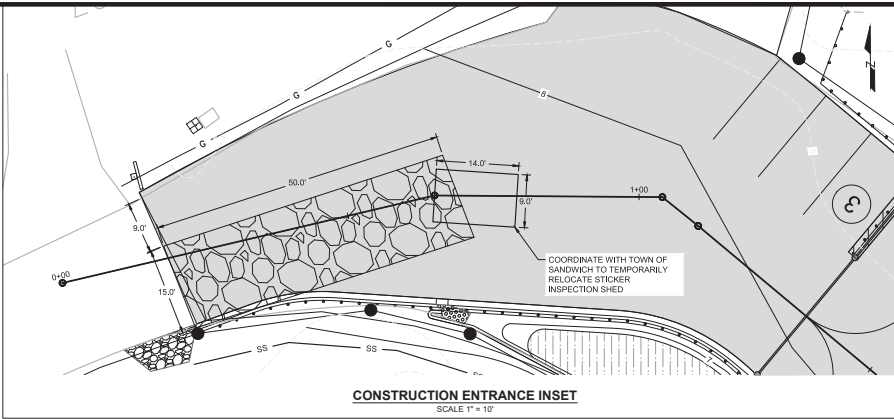
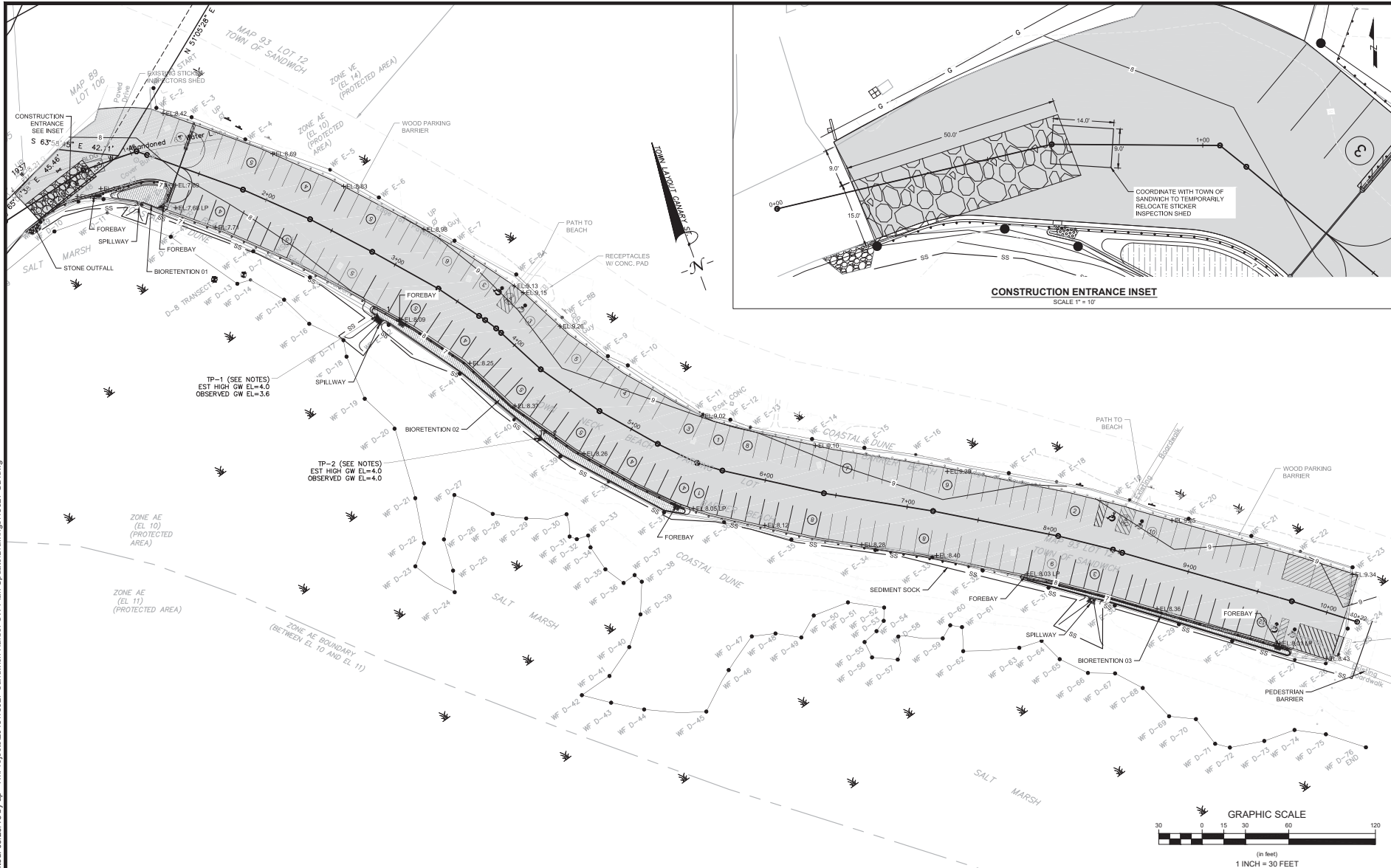
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Note: Many of the BMP's above will continue beyond the initial 5-year permit period.

 = Goals completed in the season & year shown above. Words in Red = goals not accomplished under the five year permit.

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



BIORETENTION SCHEDULE											
No.	Bottom Surface Area (sf)	Top Elevation (ft)	Design Freeboard (ft)	Lowest OVT Rate (ft)	Ponding Depth (ft)	Bottom Elevation (ft)	OVT Type	Depth Sand Bed (ft)	Bottom Sand Bed (ft)	Estimated Ground Water Elev. (ft)	Notes
1.00	313	7.50	0.50	7.00	0.50	7.00	SPILLWAY	0.50	6.00	4.00	
2.00	1230	8.00	0.50	7.50	0.50	7.00	SPILLWAY	1.00	6.00	4.00	
3.00	400	8.00	0.50	7.50	0.50	7.00	SPILLWAY	1.00	6.00	4.00	
Abbreviations: SA Bottom Surface Area OVT Orifice											

Revisions

No.	Description	By	Date
1	Issue for Review	AP	03/26/18
2	Issue for Review	AP	03/26/18
3	Issue for Review	AP	03/26/18
4	Issue for Review	AP	03/26/18
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6	Issue for Review	AP	03/26/18
7	Issue for Review	AP	03/26/18
8	Issue for Review	AP	03/26/18
9	Issue for Review	AP	03/26/18
10	Issue for Review	AP	03/26/18

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
Sandwich, MA 02563
Phone: 508-335-8000 Fax: 508-335-8000

Town of Sandwich
Sandwich Harbor Stormwater
Sandwich, MA
Phone: 508-885-1000
Fax: 508-885-1000

Project Number: 18027
Sheet: 5 of 9

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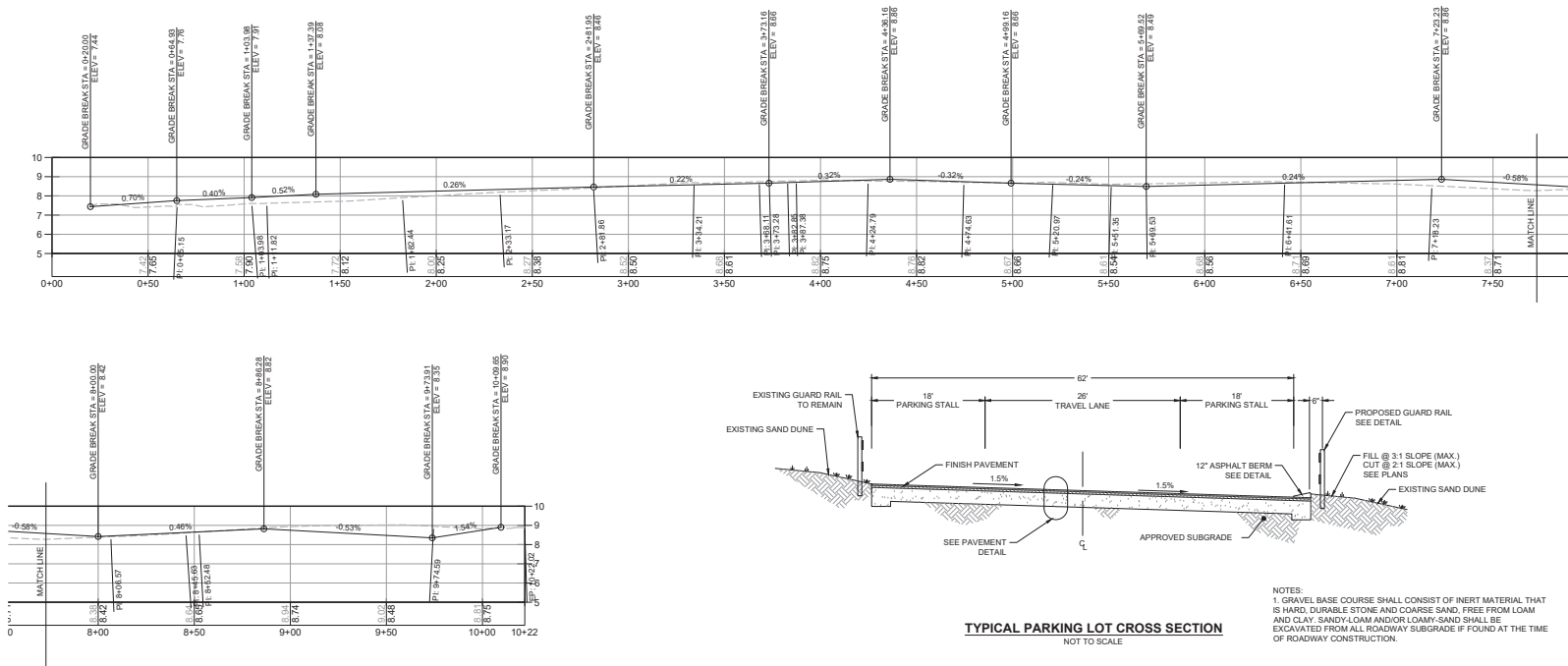
SANDWICH HARBOR STORMWATER TOWN NECK
SANDWICH, MASSACHUSETTS
GRADING & DRAINAGE

Scale: 1" = 30'

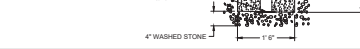
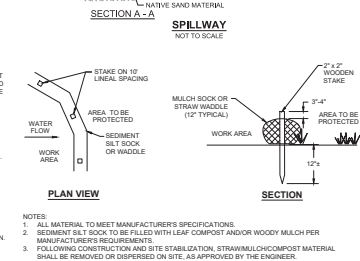
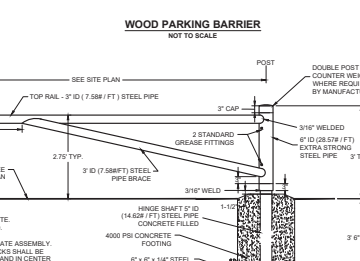
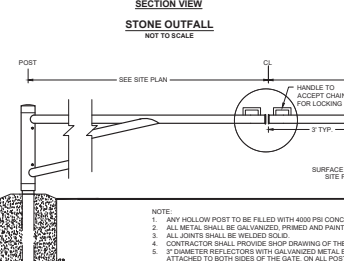
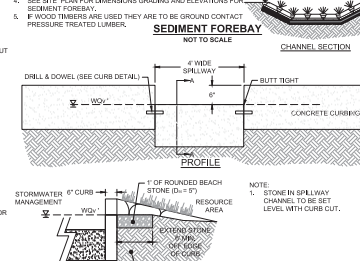
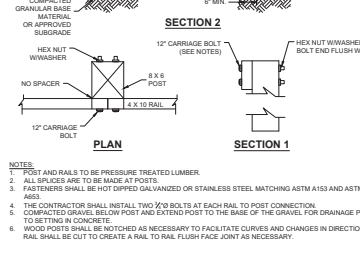
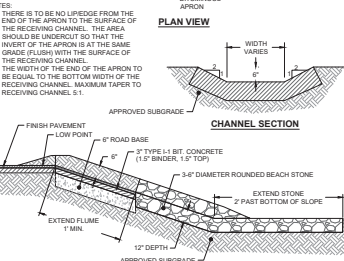
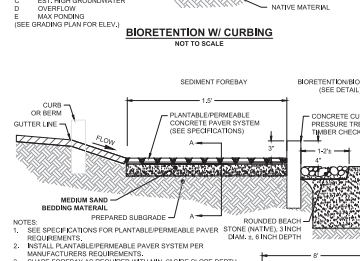
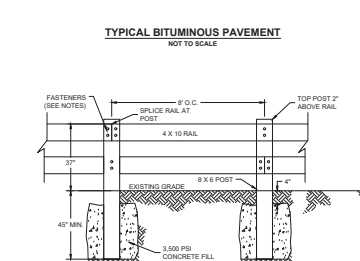
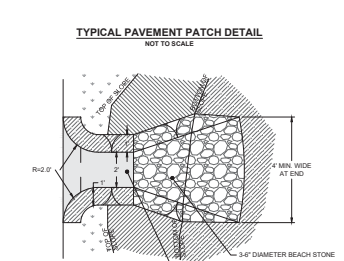
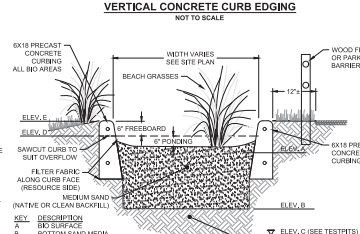
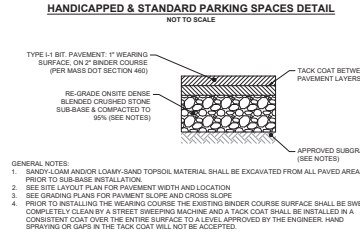
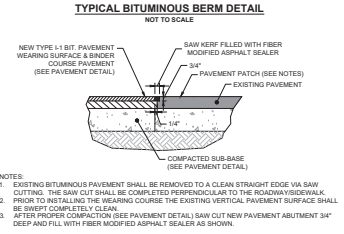
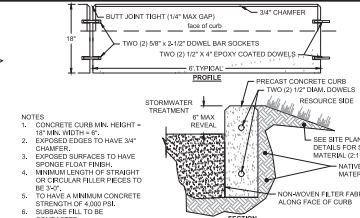
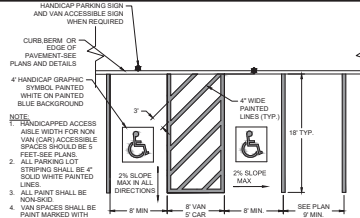
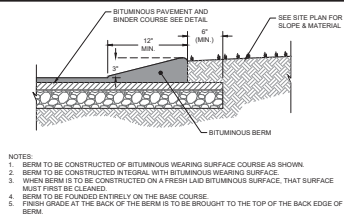
North Arrow

Project Number: 18027
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Horsley Witten Group, Inc. Sustainable Environmental Solutions www.horsleywitten.com Sandwich, MA 02563 508-333-5500 Fax	
SANDWICH HARBOR STORMWATER TOWN NECK SANDWICH, MASSACHUSETTS	
PROFILE & SECTIONS	
Prepared For: Town of Sandwich 100 Main Street Sandwich, MA Phone: 508-885-1000 Fax: ---	Drawn By: John A. Bond 100 Main Street Sandwich, MA 02563 Phone: 508-885-1000 Fax: --- Date: FEBRUARY 2011
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Revisions

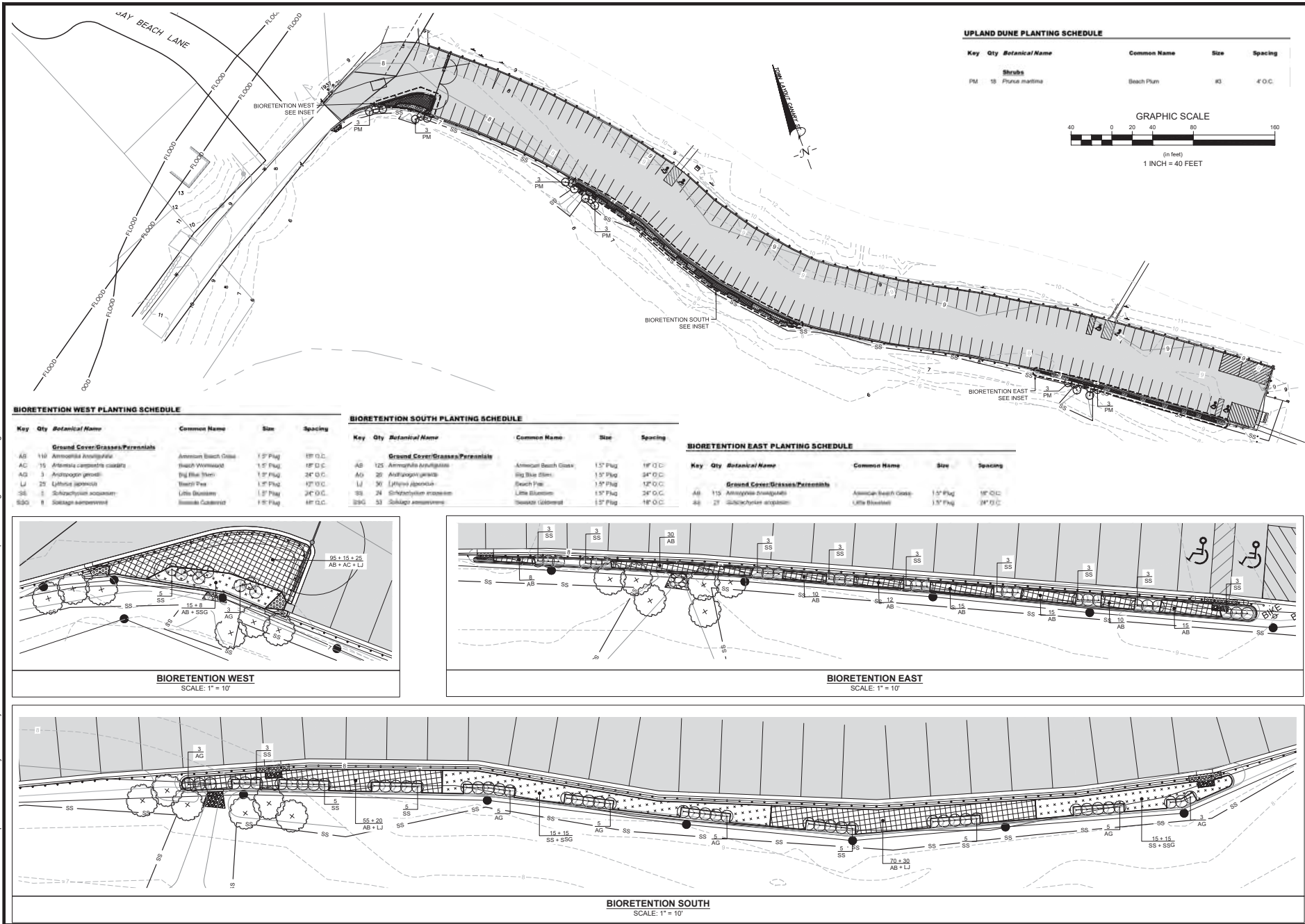
NO.	DATE	DESCRIPTION
1	03/22/18	ISSUED FOR PERMIT
2	03/26/18	REVISIONS

Horizontal Witten Group, Inc.
Sustainable Environmental Solutions
www.horizontale.com
Sandwich, MA 02563
Phone: 508-335-1800
Fax: 508-335-1800

SANDWICH HARBOR STORMWATER TOWN NECK SANDWICH, MASSACHUSETTS

Details

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Revisions

No.	Description	By	Date
1	Issue for Review	BL	03/27/18
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71	Issue for Review	BL	03/27/18
72	Issue for Review	BL	03/27/18
73	Issue for Review	BL	03/27/18
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98	Issue for Review	BL	03/27/18
99	Issue for Review	BL	03/27/18
100	Issue for Review	BL	03/27/18

Prepared For: Town of Sandwich
Sandwich, MA
Phone: 508-548-1000
Fax: 508-548-1000
Date: FEBRUARY 2011

Drawn By: Tighe & Bond
300 Main Street
Sandwich, MA 01903
Phone: 508-548-1000
Fax: 508-548-1000
Date: FEBRUARY 2011

Project Number: 18027
Sheet: 8 of 9
LA - 8

21. TRIM BROKEN AND DEAD BRANCHES FROM TREES AND SHRUBS AFTER PLANTING. NEVER CUT A LEADER.

3. PLANTED AREAS SHOULD BE WATERED 2-3 TIMES A WEEK ONLY DURING DROUGHT CONDITIONS THROUGHOUT THE ESTABLISHMENT PERIOD. SPECIAL CARE SHOULD BE TAKEN TO ENSURE PLANTS ARE NOT OVER SATURATED DURING WATERING. HANDHELD GARDEN HOSE SHALL BE USED FOR WATERING PLANTING AREAS. ADDITIONAL WATERING WILL BE REQUIRED IF PLANTING AND SEEDING OCCUR OUTSIDE OF THE RECOMMENDED PLANTING SEASONS.

FOR IMMEDIATE RELEASE

CONTACTS: Paul Tilton
Sandwich Department of Public Works
508.833.8002

Jonathan Finn
sandwichspringclean@gmail.com

**SANDWICH RESIDENTS TEAM UP TO CLEAN UP
ROADSIDE LITTER ON MAY 19TH**

Neighborhoods Partner With Town on Community Pride Clean Up Day

(SANDWICH, MA - APRIL 12, 2018) As May sunshine replaces April showers, Sandwich residents look forward to Rhododendrons blooming, perennial flowers emerging and the smell of freshly cut grass. Unfortunately, they also discover a winters worth of nip bottles, soda cans, coffee cups and other carelessly tossed litter on their streets and roadsides. This year, Sandwich neighborhoods are teaming up to clean up litter on **Community Pride Clean Up Day**, a town-wide event on Saturday, May 19, 2018.

Powered by volunteers, **Community Pride Clean Up Day** is a grassroots event held in partnership with the Sandwich Department of Public Works and the Town of Sandwich. "Litter is an ongoing environmental issue on Cape Cod and throughout Massachusetts," said Paul Tilton, Sandwich's Director of Public Works. "It's a challenge to keep up with the volume of trash illegally discarded out of passing cars. Community Pride Clean Up Day will give Sandwich neighborhoods needed assistance after a long winter and ahead of the summer season."

To assist volunteers, the Sandwich Department of Public Works will be providing bags, gloves and trash pickers. The town will pick up filled bags following the event at designated locations.

The town-wide clean up encourages neighbors to band together to clean up their own streets and intersections. "Last year, the Galloping Hills neighborhood organized and had a very successful clean up. 20 volunteers filled dozens of jumbo trash bags with an unbelievable collection of fireball nip bottles, beer cans, and discarded personal items," said Jonathan Finn, a resident of Chipman Road and an organizer of this year's event. "People also had fun and a great sense of accomplishment. They met new neighbors and it only took a few hours of their time."

The event also expands the momentum generated by the [Great Massachusetts Cleanup](#) — a series of grassroots clean ups in nearly 100 towns across the state. Discarded nip bottles have become one of the worst offenders when it comes to litter in Massachusetts and Cape Cod — ending up in our waterways where they leach toxic chemicals and harm marine life.

Residents and businesses in Sandwich are invited to get more information and sign-up for **Community Pride Clean Up Day** at facebook.com/groups/sandwichspringclean or by emailing sandwichspringclean@gmail.com. The Department of Public Works can be contacted at (508) 833-8002.

###

2018 Upper Cape Schedule

April
28

9am to 1pm
Sandwich Oak Ridge School
260 Quaker Meetinghouse Rd.

June
16

9am to 1pm
Falmouth High School
874 Gifford St., off Brick Kiln Rd.

August
18

9am to 1pm
Mashpee High School,
500 Old Barnstable Rd., off Rt 151

Oct.
20

9am to 1pm
Bourne Landfill,
201 MacArthur Boulevard
(RT 28 North)

* NON-RESIDENTS VISIT
WEBSITE FOR REGISTRATION.
PROOF OF RESIDENCY REQUIRED.

Questions? Visit our website

www.loveyourlocalwater.org

 [loveyourlocalwater](https://www.facebook.com/loveyourlocalwater)



**LOVE YOUR LOCAL WATER.
IT'S A CAPE COD THING.**

"Love your local water. It's a Cape Cod Thing." is a campaign of Barnstable County Government and Cape Cod Cooperative Extension to protect our drinking water.

DID YOU KNOW

SOME HOUSEHOLD
PRODUCTS ARE
TOO TOXIC TO TRASH?

FREE disposal of:

Pesticides and Lawn Chemicals
Household Cleaners and
Disinfectants
Arts & Crafts Chemicals
Hobby Supplies
Auto and Boat Fluids
Pool Chemicals
Paints, Polishes, and Stains*

*Latex and Acrylics will be accepted at Cape
Cod Latex Paint & Recycling Initiative

When conditions present a danger to staff or participants,
collection officials maintain the right to cancel the event.

www.loveyourlocalwater.org

Kalliope Chute
HazMat Environmental Specialist
1-800-319-2783
Cape Cod Cooperative Extension
Barnstable, MA 02630-0367

*HHW Collections are funded by the Towns of Bourne, Sandwich,
Mashpee and Falmouth; and Barnstable County's Cape Cod
Cooperative Extension.*

Cape Cod Cooperative Extension
www.capecodextension.org

2018 HOUSEHOLD HAZARDOUS WASTE COLLECTION SCHEDULE



Visit the FREE Collection for
Residents of
BOURNE, SANDWICH, FALMOUTH,
MASHPEE, JOINT BASE CAPE COD

*Small Business disposal accepted. See inside panel for info.



**LOVE YOUR LOCAL WATER.
IT'S A CAPE COD THING.**





Household hazardous waste (HHW) collections protect our local drinking water. Most chemicals are too toxic to throw away in regular trash or dump down the drain, so FREE collections are being held to take that waste off your hands and keep it out of our water supply.

NOT A RESIDENT? VISIT WEBSITE FOR REGISTRATION. PROOF OF RESIDENCY REQUIRED.

Are you a small business and do you use chemicals? To make your state required disposal arrangements and obtain pricing, contact Kalliope Chute, HazMat Environmental Specialist, at #508-375-6699.



BRING THESE ITEMS TO YOUR COLLECTION

For items not listed here visit your town's website for disposal instruction.



PAINTS, POLISHES & STAINS *NO LATEX*

Alkyd-Based Paint & Stain • Marine Paints & Sealers • Metal & Furniture Polish • Oil-Based Paint & Stain
Paint Thinner & Remover • Solvent-Based Wood Finish • Wood Preservatives • Auto Paint (no latex)



YARD CHEMICALS

Driveway Sealer with Solvent • Fertilizers with Weed Killer • Rodent Poison • Weed Killer
Insecticides • Pesticides



CLEANERS & CHEMICALS

Pool Cleaners & Chemicals Solvents • Photo & Hobby Chemicals • Oven Cleaner • Drain Cleaner
Spot Remover • Acids • Degreasers • Disinfectants



AUTO FLUIDS

Car Cleaner with Solvent • Brake & Power Steering Fluid • Bug & Tar Remover • Camp Fuel
Radiator Flush • Car Polish • Gasoline



To dispose of usable latex or acrylic paint visit
Cape Cod Latex Paint and Recycling Initiative at

www.townofbourne.com/paint



It is important to keep mercury out of our water supply. To dispose of household mercury products, bring items to your local HHW collection. If you come across large amounts in your home contact Kalliope at #508-375-6699.

Thermometers, Thermostats, Barometers



Large amounts in jugs or bottles



Bring to your local Universal Waste Shed or HHW Collection

Call Kalliope at #508 -375-6699 for FREE pick-up



LOVE YOUR LOCAL WATER.
IT'S A CAPE COD THING.

Please visit our website for more info:

www.loveyourlocalwater.org
f loveyourlocalwater

Who wins with PAYT?

Everyone wins from the environmental and cost saving benefits. Residents who recycle to control their trash will have lower costs. PAYT is good public policy.

What is Dual Stream Recycling?

Dual stream is a system in which recyclables are collected in two streams. One stream is fiber (paper, cardboard) and the other is standard recyclables (glass, plastic, cans). Using only two streams of recyclables reduces the need to separate all materials brought to the Transfer Station.



Is there a limit to the amount of material I can recycle?

No. The Town encourages residents to recycle as much as they can. The more you recycle, the fewer bags you need to purchase and the more money you save. Consequently, the more residents recycle the less the Town of Sandwich pays to have their trash incinerated.

What is recyclable in Sandwich?

Sandwich residents may recycle a lot more than many realize. Recycling facilities now accept more types of materials and can sort them more effectively.

What types of material can be recycled?

- Newspaper and magazines with inserts
- Paperback books
- Office paper - staples, spirals, paper clips **do not** have to be removed.
- Colored paper
- Shredded paper in closed clear plastic or paper bags
- Junk mail, with windows
- Phone books
- Cereal boxes, paper towel tubes
- Pasta and cracker boxes
- Cardboard (unless it has food stains)
- Steel and tin cans
- Aluminum cans, pie plates, trays, foil
- Glass, containers
- All plastics marked #1-#7,



For further questions or information, please contact the Town of Sandwich DPW at 508-833-8002, or view the website at Sandwichmass.org – Public Works – Transfer Station – General Information



SAVE MONEY & REDUCE TRASH

NOW IS THE TIME FOR PAY-AS-YOU-THROW (PAYT) IN SANDWICH

Prepared by the Sandwich DPW with assistance from MassDEP



Printed on recycled paper

What is Pay-As-You-Throw?

Pay-As-You-Throw (PAYT) is a system much like electricity, gas or telephone under which the user pays a basic amount that covers fixed costs and then a user fee for the amount used.

How does PAYT work?

You buy blue, Town approved bags at stores where you usually shop. You put your trash in those bags and bring them to the Transfer Station to dispose of as you currently do with your trash.

Why would PAYT be good for Sandwich?

It would be fairer. Right now, every household, regardless of size, pays the same fee. Under PAYT, people who generate less trash would pay less by using fewer bags. It would remind people to recycle more, lowering the amount of trash thrown away and reducing the Town's trash disposal costs.

Why not continue to charge every household the same trash fee?

The present system is not fair. A lot of people, who are serious about recycling, are saying that they don't want to pay for the trash that other people throw away.

Is PAYT easy and convenient?

Yes. Residents will be able to buy bags at local stores where they shop. It's just that the bags will be different. They will be blue with the town logo printed on them.

What about large families?

If large families buy more than smaller families, they will have more to throw away and will have to buy more trash bags. The PAYT program will give them a chance and a new incentive to lower their costs by recycling everything they can. The present flat fee system doesn't offer any choice or incentive to recycle. In PAYT towns, residents have reduced their trash tonnage by 25%-40% by recycling more, composting more, donating more and buying more wisely.

How will PAYT reduce Town Disposal Fees and User Costs?

Without PAYT, the annual cost of trash disposal per household will significantly increase. Currently, the solid waste budget is supplemented by the tax base. If you and most of the households in Sandwich actively recycle all you can, you will use less bags and the total cost of disposal will go down. We cannot control the cost of disposal per ton but, as a town, we can control the total tons that are sent to the incinerator, and that will lower our costs as a community.

How does PAYT help the environment?

As residents recycle more, less trash would go to Semass/Covanta Energy for incineration. Incineration of plastics and other recyclable material, contributes to global warming by adding CO₂ to the atmosphere. By increasing recycling, we would save on raw materials, natural resources and energy consumption and reduce the amount of greenhouse gas.

What will not change with the PAYT?

- Household Hazardous Waste Days
- Christmas Tree recycling
- Yard Waste Drop off
- Compost processing

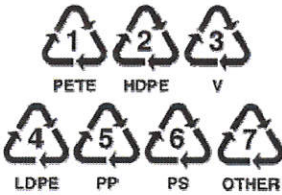
How much are PAYT bags and where can I buy them?

There are three sizes of bags available, a 30 gallon (barrel size) at a cost of \$1.20, a 15 gallon (kitchen size) at a cost of \$0.60 and 8 gallon (office size) at a cost of \$0.25 (all costs subject to change). Bags are available at the following locations in Sandwich. Additional retailers may be added at a later date.

- Anchor Ace Hardware (Cotuit Rd)
- Aubuchon Hardware (Cotuit Rd)
- Aubuchon Hardware (Merchants Square)
- Meetinghouse Liquors (Cotuit Rd)
- Merchant Square Liquors (Merchant Sq)
- Mobil - Forestdale (Rt 130)
- Rt 6A Convenience Store (E. Sandwich)
- Sandwich Car Wash (Rt 130)
- Sandwich Food Mart & Deli (corner of Rt 130 & Cotuit Rd)
- Sandwich Mart & Spirits (Rt 6A)
- Stop & Shop (Merchant Square)
- Stop & Shop (QMH Rd)
- Tedeschi Food Shops (Rt 6A)



How to Recycle in Sandwich

	MATERIAL	WHAT TO RECYCLE	HOW TO PREPARE	DO NOT INCLUDE
- COMMINGLED COMPACTORS -	METAL	<ul style="list-style-type: none"> Steel/tin and metal food cans Aluminum pie plates and trays Deposit and non-deposit beverage cans <p>Deposit cans may also be donated at the Sandwich Little League shed</p> <p>Recycle <u>DO NOT INCLUDE</u> items in the light-iron pile</p>	<ul style="list-style-type: none"> Rinse clean Labels OK 	<ul style="list-style-type: none"> Aerosol cans Paint cans Coat hangers Cookware
	GLASS	<ul style="list-style-type: none"> Clear and colored beverage containers Food and sauce jars <p>Deposit bottles may also be donated at the Sandwich Little League shed</p>	<ul style="list-style-type: none"> Rinse clean Collar, neck rings & labels OK Caps & lids OK 	<ul style="list-style-type: none"> Broken glass/auto glass Mirrors Ceramics: plates, cookware Drinking glasses Light bulbs Windows
	PLASTIC	<ul style="list-style-type: none"> All number 1 thru 7 recyclable rigid plastic containers Milk, water, soda, juice bottles Shampoo, conditioner bottles Laundry, bleach, fabric softener bottles Waxy gable cartons: Milk and Juice 	<ul style="list-style-type: none"> Rinse clean, caps OK 	<ul style="list-style-type: none"> Plastic bags: recycled in waste receptacles located in front of each compactor Styrofoam packaging of ANY KIND Chemical and motor oil containers Water/Garden Hose
- FIBER COMPACTORS -	CARDBOARD	<ul style="list-style-type: none"> All cardboard must be recycled and will not be allowed in the trash-trailer except as noted in <u>DO NOT INCLUDE</u> <p>Complete list on back of brochure</p>	<ul style="list-style-type: none"> Break down, flatten or fold 	<ul style="list-style-type: none"> Contaminated boxes Food soiled and frozen food boxes example: pizza and Chinese take out
	PAPER	<ul style="list-style-type: none"> Newspapers Magazines, catalogs Junk mail, envelopes: tearable Books Paper bags Phone books Office and computer paper Boxboard: cereal, cracker - remove plastic liners <p>Complete list on back of brochure</p>	<ul style="list-style-type: none"> Place in paper grocery bags 	<ul style="list-style-type: none"> Food soiled as noted above Paper towels Tissues Diapers Boxboard plastic liners: recycled in waste receptacles located in front of each recycling compactor.

Paper (Fiber) is recycled in first or second designated compactor from left to right. Commingled metal, glass and plastic is recycled in third or fourth designated compactors from left to right. Only one Fiber and one Commingled compactor is open at a time. Limited recycling and Transfer station stickers may be obtained at the Town Hall Annex, 145 Main Street, across from the Sandwich Library. If unsure where a specific item should be recycled, please ask an attendant.

How to Recycle Fiber (Paper) in Sandwich

WHAT FIBER TO RECYCLE

Booklets
Books: soft cover
Boxes: for office supplies, like paper clips
Boxes: cereal, cracker, pasta, shoe, etc
Boxes: with plastic window
Brochures: including glossy
Calendars: wall type
Cardboard: corrugated and paperboard
Catalogs
Clasp envelopes
Colored paper
Construction and kraft paper
Cover and card stock, index cards
Envelopes: with plastic windows or labels
File folders
Flyers
Glossy paper
Greeting cards
Lottery tickets
Mail
Magazines
Mat board: used in picture framing
Math paper: graph and ledger, etc.
Newspapers: with or without inserts
Newsprint
Office and copy paper
Packing paper
Paper: lined and white
Paper: fax
Paper bags: brown and white
Paper bags: with handles
Paper towel and toilet paper tubes
Phone books
Photocopies
Post-it notes
Receipts
Shredded paper: in paper bags
Spiral notebooks
Writing tablets

DO NOT INCLUDE

Candy wrappers
Carbon paper
Disposable diapers
Envelopes with bubble wrap
Food-soiled paper and cardboard
Label backings
Paper cups or plates
Paper towels, napkins, tissues
Photographs
Take-out food containers: Chinese, etc.
Tyvek® mailing envelopes
Waxed paper and cardboard
Waxy gable cartons: Milk and Orange Juice

Metal spiral notebooks, paper clips, plastic envelope windows, self-stick labels and staples are allowed to be recycled with the items listed above

Items containing personal information should be shredded and recycled in paper bags

REDUCE, REUSE & RECYCLE



TOWN OF SANDWICH DEPARTMENT OF PUBLIC WORKS

In an effort to encourage the 3 R's (Reduce, Reuse and Recycle) and minimize solid waste, below is a list of web sites from organizations providing opportunities for residents to donate and/or find free, usable items. Some charities will pick up items at homes and certain donations may be tax deductible.





FOLLOW THE TOWN ON



facebook & twitter



Town Hall

Commonwealth Connect

Directory

Public Documents

Calendar

MAPS

Minutes/Agendas

Inc.
1639

OUR TOWN

Boards & Committees

Town Hall

Public Safety

Public Works

Human Services

Public Library

Town Report

Permit Info

Recreation

Meeting Agendas

Human Resources

Maps - GIS

Employment

OUR COMMUNITY

Economic Development

About Sandwich

Local Comprehensive
Plan

Sandwich Community
Television

Sandwich Schools

Sandwich Hollows Golf

Sandwich Marina

Calendar

The Boardwalk

Town Hall Auditorium

The Oldest Town on Cape Cod



Town Boards & Committees

[Click Here](#) for listing of
all filled and vacant Town board and committee seats

Click the Following Button to View & Pay Tax Bills, Licenses & Other Permit Fees:

Online Payments



[Click HERE](#) for Town Credit Rating



New: Click <https://sandwichma.opengov.com/> for New Town Financial Transparency Program (OpenGov)

Town of Sandwich Mission Statement

The government of the Town of Sandwich will provide the public with the highest, most efficient and effective level of service with the resources available in a manner that exemplifies honesty, integrity and a commitment to public service while honoring our rich history, protecting our environment and responsibly planning for our future.



Questions about a town beach?

Contact the Town's Recreation Director at (508) 888-4361

or via e-mail to recreation@townofsandwich.net

[Click HERE](#) for Beach Rules & Regulations

[Click HERE](#) for Town Neck Beach Bath House Feasibility Study

[Click HERE](#) for Fire Dept Beach Fire Permit Information

[Click HERE](#) for Police Dept Evening Beach Use Special Permit Information

NOTE: PDF DOCUMENTS MAY NOT PRINT PROPERLY FROM THE WEBSITE USING SOME VERSIONS OF THE FIREFOX WEB BROWSER.
WE SUGGEST YOU DOWNLOAD PDF'S TO YOUR COMPUTER BEFORE PRINTING IF YOU USE FIREFOX

TALENT BANK
VOLUNTEER & SERVE
YOUR COMMUNITY

**ADA/ACCESSIBILITY
INFO**

MAILING LIST
SIGN UP FOR THE TOWN
OF SANDWICH EMAIL

SEARCH

sandwichmass.org

Google Custom Search

Search

HIGHLIGHTED LINKS

Town of Sandwich By-Laws
As most recently amended at the November 17, 2017
Special Town Meeting.

November 2017 Zoning Bylaws
Planning & Economic Development Department:
November 2017 Zoning Bylaws

Subdivision Rules Regs 2018
Subdivision Rules Regs 2018

Long Range Plan - May 2017 Update
Board of Selectmen: Long Range Plan - May 2017
Update

Town Charter - 2014
Town Charter: As Adopted by Town Meeting in May 2013
and Approved by State Legislature and Governor in
February 2014.

NEW ONLINE

Erosion Control Guidelines
Updated guidance from the Engineering Dept. regarding
Erosion Control to aid contractors, property owners, and
others.

Stormwater BMP Guidelines
Updated guidance from the Engineering Dept. regarding
Stormwater Best Management Practices to aid developers,
designers, contractors, and others.

2018-05-03 Preparation Meeting For Annual Town
Meeting Agenda

2018-04-30 Sandwich Economic Initiative Corporation
Agenda

2018-05-07 Annual Town Meeting Agenda

SANDWICH TOWN NEWS

Annual Town Meeting: Mon May 7
Annual Town Election: Thurs May 10
[Click HERE](#) for Sample Ballot
[Click HERE](#) for Warrant

[Click HERE](#) for Household
Hazardous Waste Collection Info

[Click HERE](#) for Town Manager's
Proposed FY19 Budget

**Due to Storm Damage
Boardwalk is CLOSED
Town Neck Beach Access
Points/Stairs Closed**

[Click HERE](#) for NRG Canal Power
Plant Construction Project Info

[Click HERE](#) for Draft Comprehensive
Water Resources Management Plan
[Click HERE](#) for CWRMP
Appendix Material

[Click HERE](#) for 2015 KBA Wing
School Feasibility Study

[Click HERE](#) for 2012 SMMA Wing
School Master Plan Study

webmaster@sandwichmass.org
OldCapeCod.net

Town of Sandwich

Main Town Hall
130 Main Street, 02563
E-Mail: townhall@townofsandwich.net
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STORMWATER BEST MANAGEMENT PRACTICE GUIDELINES

APRIL 2018

Stormwater management is an important aspect of site development and construction in all areas of Town. As noted in the Town's Stormwater Management Plan (SMP) and Local Comprehensive Plan (LCP), Stormwater Best Management Practices (BMPs), when properly designed and implemented, can protect water quality, reduce the risk of flooding, minimize the expense of conventional infrastructure, and become part of an attractive landscape. All stormwater management facilities should be designed in accordance with applicable regulations and engineering standards, including the Town's Protective Zoning Bylaw and Subdivision Rules and Regulations. These require that stormwater be managed with naturally vegetated low areas on the site that are designated for drainage and protected from future development. This approach is one element of Low-Impact Design, which can be highly effective, and is recommended for incorporation with all site development. The LCP states:

Low-Impact Design Applications

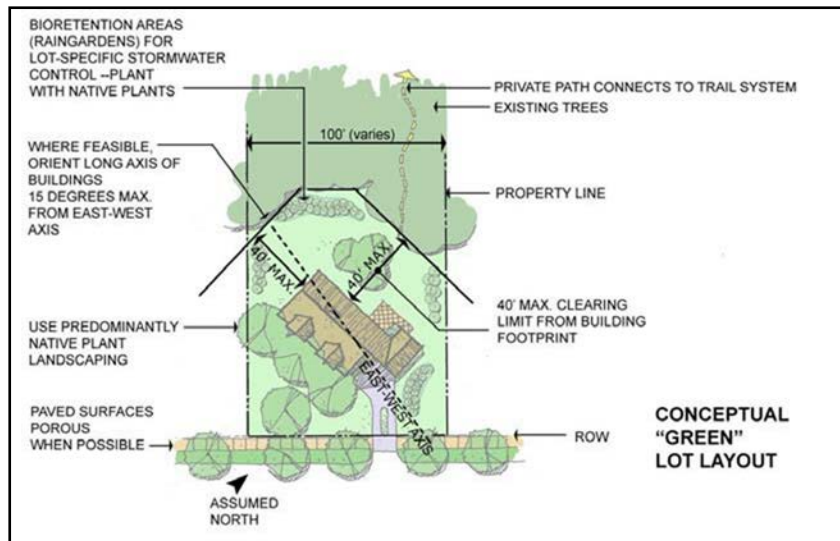
The low-impact development, or LID, site design approach is a precise arrangement of natural and engineered technologies. The devices, or Integrated Management Practices (IMPs), function as a comprehensive system across the site to achieve the goals of:

- *Peak flow control;*
- *Volume reduction;*
- *Water quality improvement (filter and treat pollutants); and*
- *Water conservation.*

Future development in Sandwich should use LID principles, which can be generally described as incorporating a series of techniques in the conceptual site plans with decentralized stormwater management to reduce the environmental footprint of new development.

Specific measures identified in the LCP include:

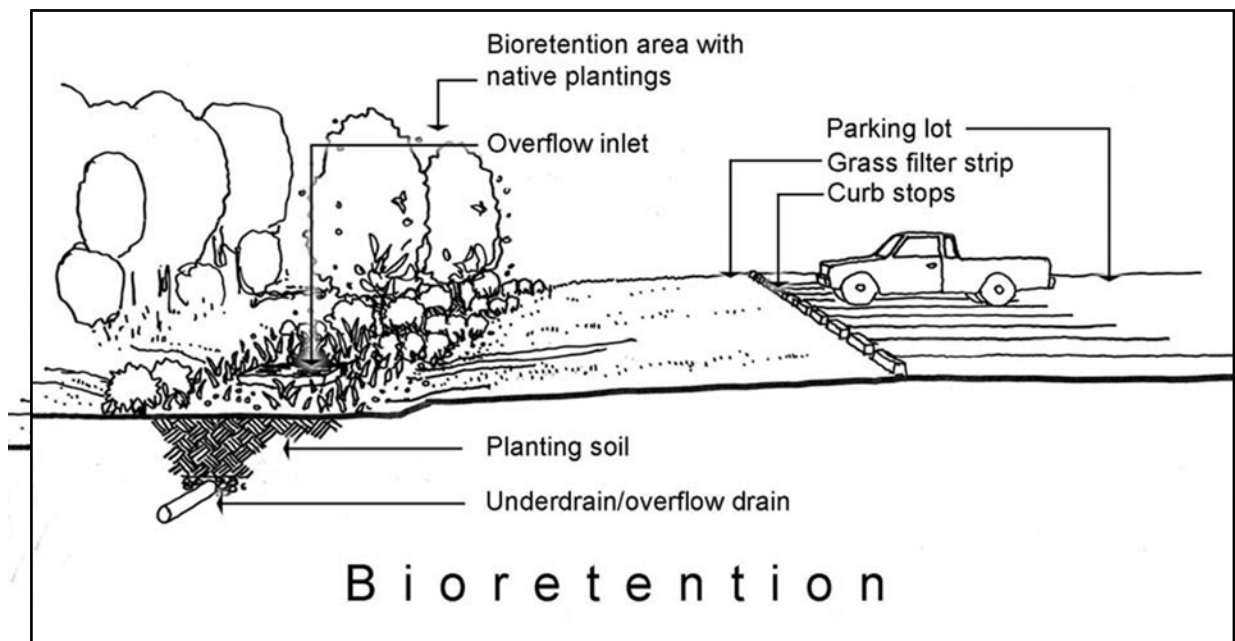
***Site Design and Layout** - LID applications used in Sandwich should integrate hydrology and stormwater management into site design using existing conditions to influence the location and layout of roadways, buildings, and parking areas. Buildings and roadways are placed in areas less sensitive to disturbance, and the stormwater management system design creates a symbiotic relationship between the development and natural hydrology.*



Decentralized Stormwater Treatment System - The goal for Sandwich is to reduce impervious surface areas that drain directly into conventional pipe-and-pond stormwater systems. Creating small drainage basins and more natural treatment systems such as swales, bioretention areas, infiltration structures, and filter strips should include LID stormwater treatment design.

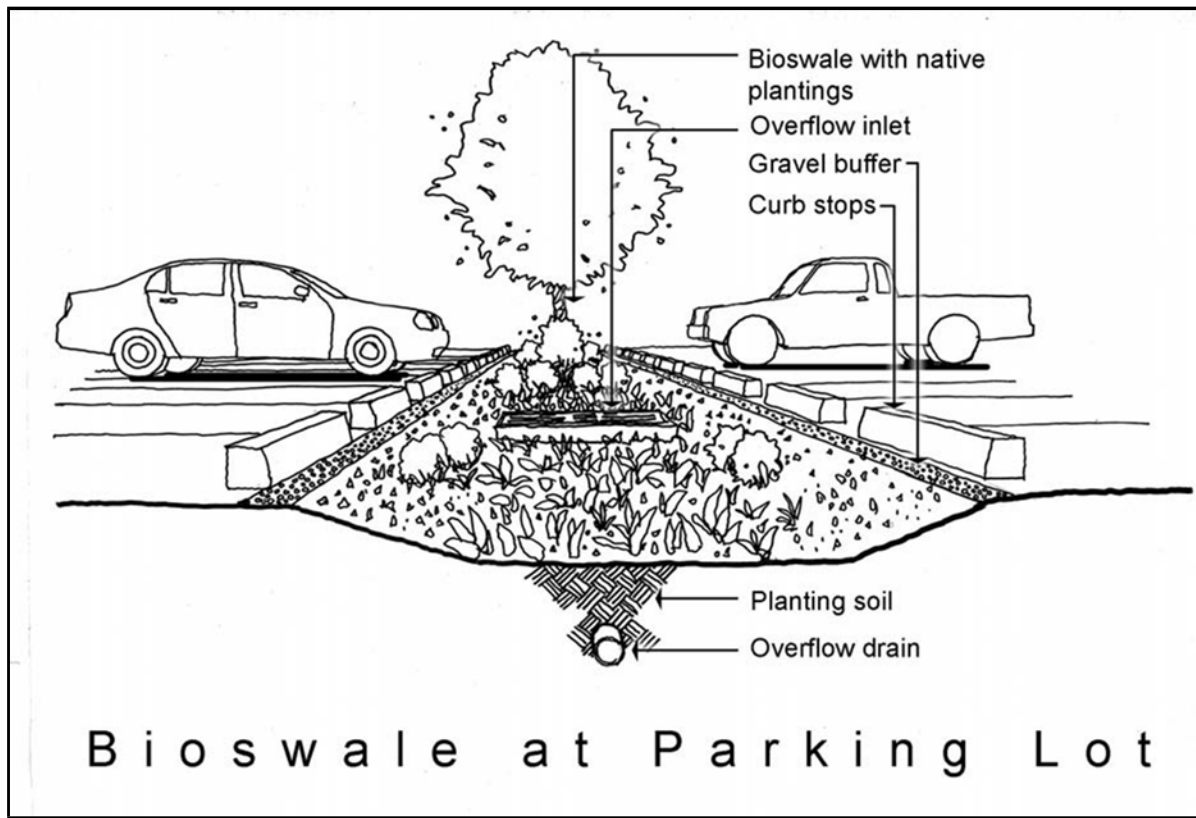
Filter Strips – Filter strips are bands of densely vegetated slopes, designed to reduce water runoff volume and improve water quality prior to entering stormwater drainage basins.

Bioretention Cells (Rain Gardens) – Rain gardens, also known as bioretention cells, are vegetated depressions that store and infiltrate runoff. Rain gardens are designed to encourage vegetative uptake of stormwater to reduce runoff volume and pollutant concentrations.

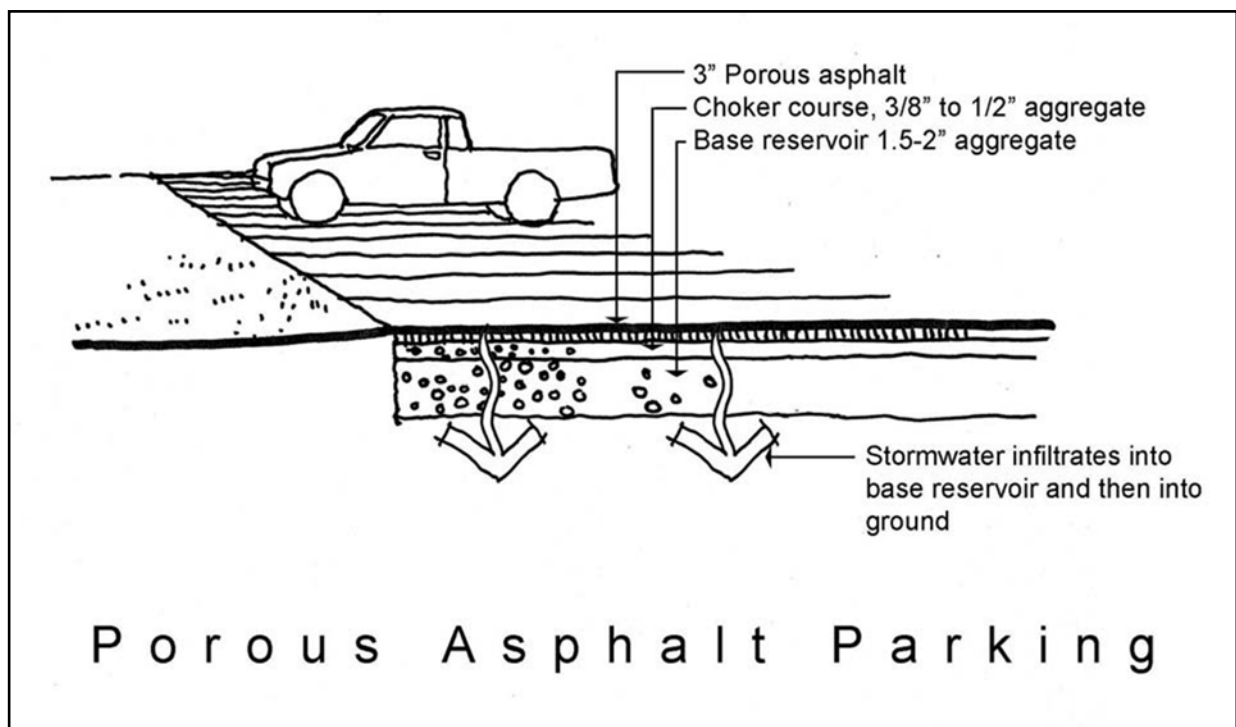


Vegetated Swales (Bioswales) – Vegetated swales are broad, shallow channels designed to convey and infiltrate stormwater runoff. The design of swales in Sandwich should seek to reduce

stormwater volume through infiltration, improve water quality through infiltration and vegetative filtering, and reduce runoff velocity by increasing flow path lengths and channel roughness.



Infiltration – Infiltration includes designs that enhance water percolation through a media matrix that slows and partially holds stormwater runoff. Infiltration practices also promote groundwater recharge and facilitate pollutant removal.



Subsurface Retention Facilities (Stormwater Vaults) – Subsurface retention facilities are typically constructed below parking lots (either permeable or impervious) and can be built to any depth to retain, filter, infiltrate, and alter the runoff volume and timing. This practice is well suited to dense urban areas or areas with constraints of open space uses such as in Sandwich Activity Centers.

Pocket Wetlands – Pocket wetlands are constructed wetland systems designed to control stormwater volume and facilitate pollutant removal. Pocket wetlands generally have less biodiversity than natural wetlands, but still require a base flow through the wetland to support the aquatic vegetation present. Pollutant removal in these systems occurs through the settling of larger solids and coarse organic material and also by uptake in the aquatic vegetation.

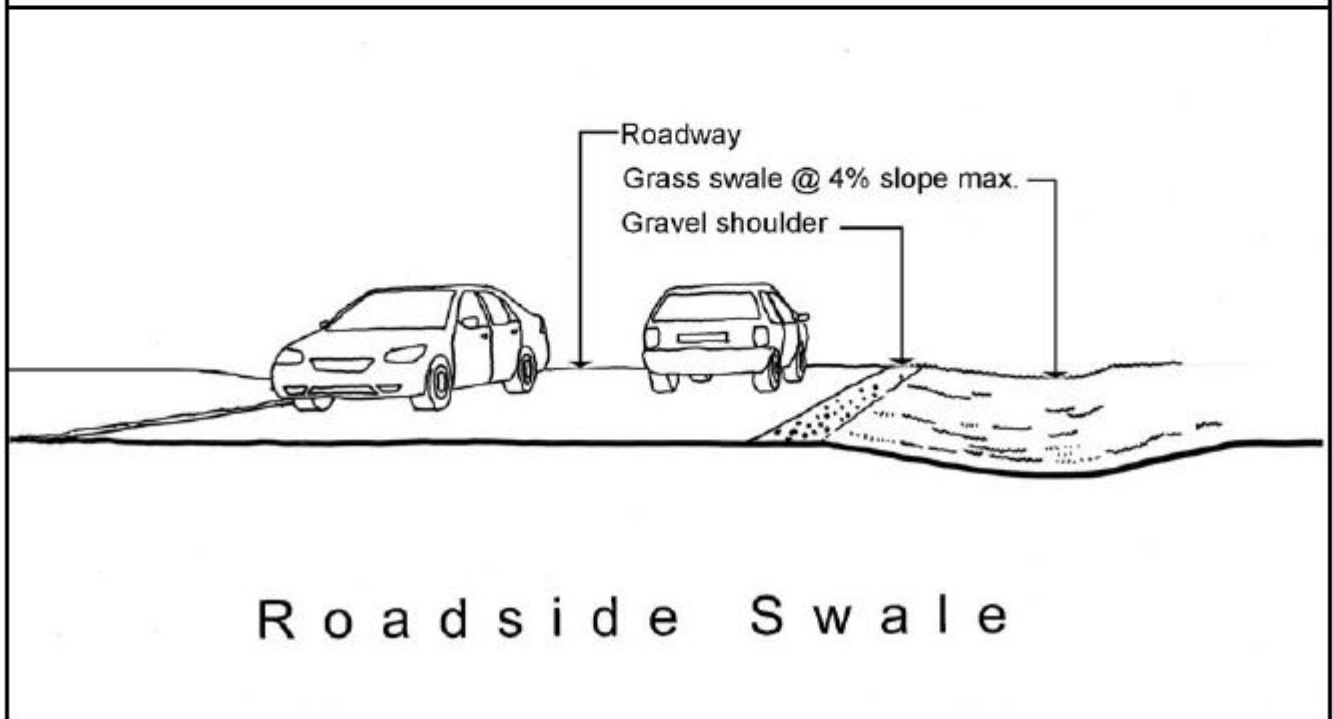
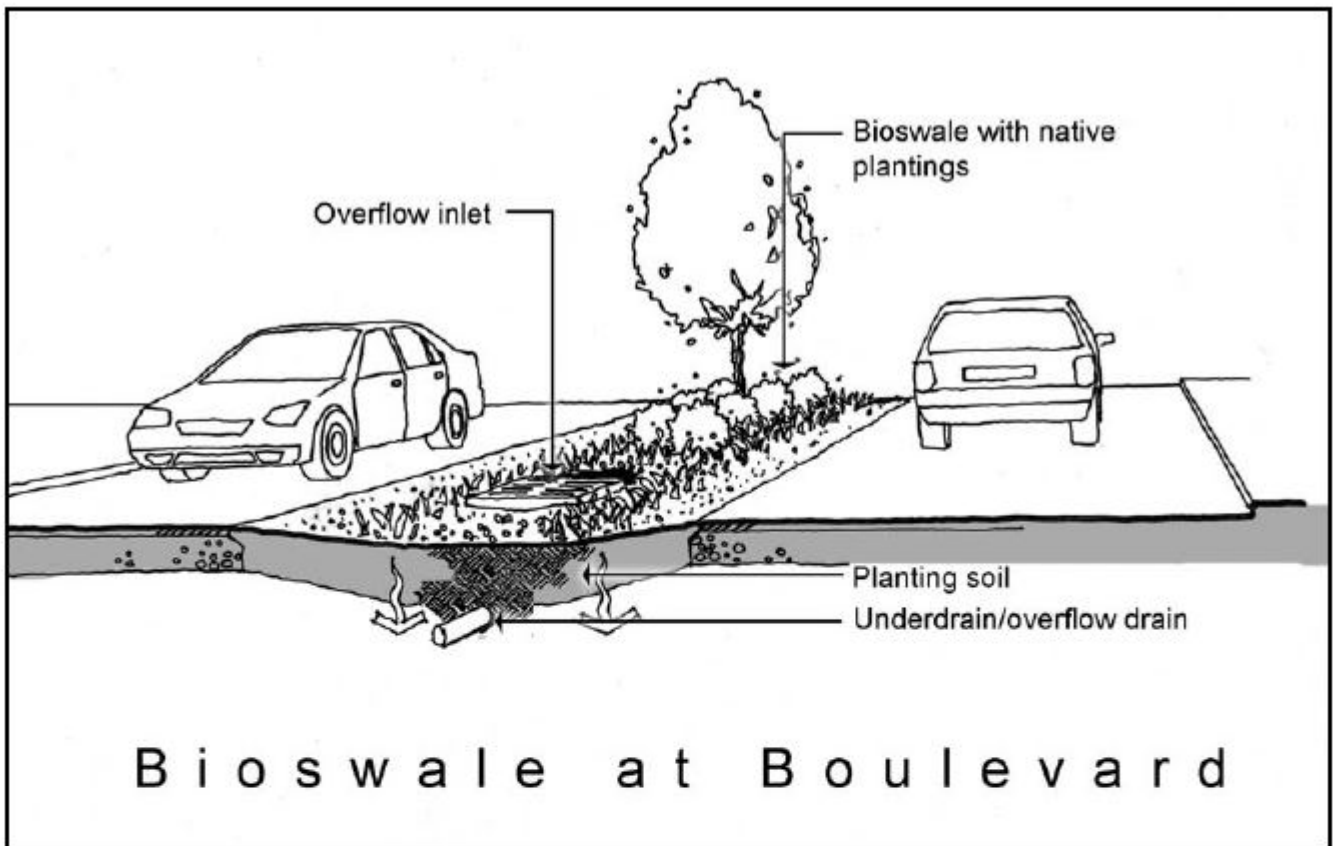
Roadway Design - Basic strategies for low-impact roadway design in Sandwich should include narrow road widths, shared driveways, and open-section roadways. Parking lot design includes breaking up large paved areas into smaller lots, maximizing shared parking, providing adequate parking (based on actual demand rather than general standards), and using permeable paving where appropriate. The design objectives for roadways and parking lots are to:

- Reduce total impervious surfaces;
- Reduce road and parking construction and long-term maintenance costs;
- Provide safe access and adequate parking;
- Minimize disturbance to natural site hydrology;
- Create opportunities for stormwater treatment and infiltration; and
- Improve site appearance.



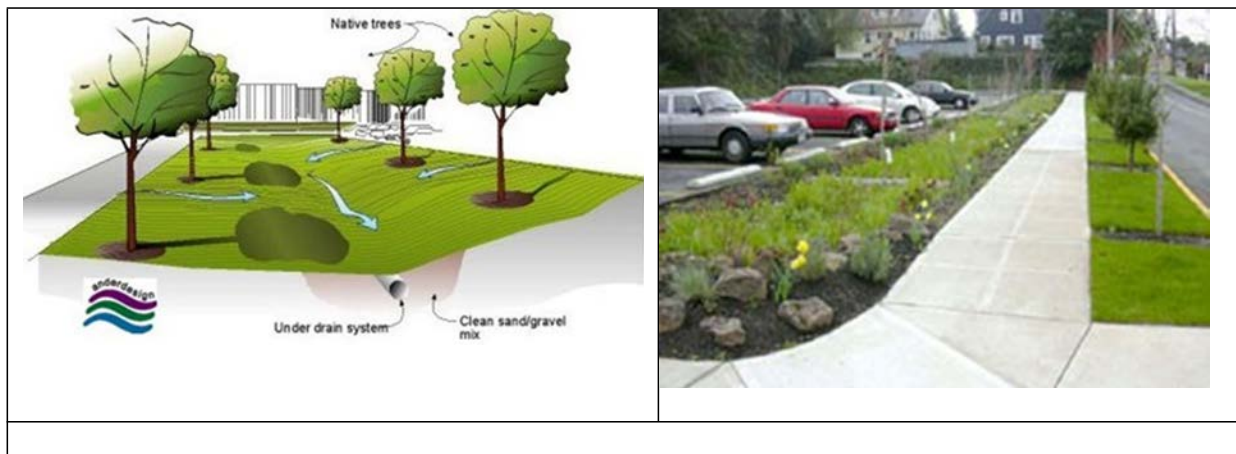
Example Open-Section Road For LID Development in NH

Low-impact roadways use a narrower, more traditional design that enhances site character and produces less runoff, which is directed to roadside swales for treatment and conveyance. This technique helps to filter roadway runoff, promote infiltration, and reduce runoff velocity, resulting in lower peak discharge rates. If properly designed, open section roadways will be no more prone to flooding than conventional roadway profiles.



Turnarounds and Cul-De-Sacs - Cul-de-sacs should be designed to reduce runoff and improve character, while still providing sufficient room for emergency vehicles and delivery trucks to maneuver. One treatment for the circles is landscaped islands built as bioretention areas with proper grading to catch and treat roadway runoff.

Parking Lot Design - Expansive parking lots that drain to catch basins create large volumes and high velocities that require pipe-and-pond stormwater infrastructure. LID parking design should be incorporated into new developments in Sandwich to create multiple parking areas at different elevations that can reduce the amount of grading necessary to preserve natural hydrology.



Example Bioswale Treatment in Parking Lots

Natural Landscaping and Xeriscaping - Natural resource preservation and Xeriscaping™ can be used to minimize the need for irrigation systems and enhance property values. Preserving existing wooded areas, mature trees, and natural terrain can give new developments a premium "mature landscape" appearance and provide residents with additional recreational amenities. Both of these features can improve marketability. Xeriscaping refers to landscaping with plants native to area climate and soil conditions. These plants thrive naturally, requiring less maintenance and irrigation than most hybrid or imported varieties.

Contact the Town of Sandwich Engineering Department for a list of storm-water projects that can be viewed locally.

Additional information may be found at the following:

[Town of Sandwich Local Comprehensive Plan](http://www.sandwichmass.org/Documents.asp?iFrame=Sandwich LCP May 2009.pdf&ID=159&DID=109)

<http://www.sandwichmass.org/Documents.asp?iFrame=Sandwich LCP May 2009.pdf&ID=159&DID=109>

[Massachusetts Stormwater Handbook](http://www.mass.gov/eea/agencies/massdep/water/regulations/massachusetts-stormwater-handbook.html)

<http://www.mass.gov/eea/agencies/massdep/water/regulations/massachusetts-stormwater-handbook.html>

[Low Impact Development Center](https://lowimpactdevelopment.org/)

<https://lowimpactdevelopment.org/>

[UNH Stormwater Center](https://www.unh.edu/unhsc/)

<https://www.unh.edu/unhsc/>

[Town of Sandwich Zoning Bylaw and Subdivision Rules & Regulations](http://www.sandwichmass.org/Documents.asp?ID=113&DID=7)

<http://www.sandwichmass.org/Documents.asp?ID=113&DID=7>



EROSION CONTROL GUIDELINES

APRIL 2018

Property owners and their construction contractors are responsible for managing stormwater and preventing offsite discharge of sediment and other stormwater-borne pollution. Besides being a nuisance, sediment and other pollution can permanently damage drainage systems and impair receiving waters and other sensitive features. Property owners and their contractors can minimize erosion and sedimentation by properly implementing appropriate Best Management Practices (BMPs). Sample BMPs and links to resources for additional information are included below.

A properly implemented erosion control program will:

- Minimize exposed soil areas through maintaining existing vegetation, site control, construction sequencing, temporary seeding, and other management measures;
- Protect downslope resources;
- Provide and maintain barriers and devices to manage stormwater runoff and erosion; and
- Establish a permanent vegetative cover or other stabilization as soon as possible.

Prior to construction:

- Review and adhere to all applicable permit requirements;
- Install appropriate BMPs, such as a stone construction entrance, sediment barriers, etc.
- Protect all vulnerable features downslope of the proposed work with appropriate BMPs.

During construction:

- Limit construction vehicle access to approved driveways only.
- Replenish crushed stone driveway aprons as needed to prevent sediment tracking.
- Do not exceed slopes of 2-Horizontal to 1-Vertical (2H to 1V)
- Restrict disturbances to the approved limits of work.
- Apply erosion control blankets, mulch, or bonded fiber matrix to exposed soils that will not be permanently stabilized within 30 days. Mulch should be hydraulically applied and anchored with netting or approved tacking agent.
- Inspect all BMPs at least once per day during rain events and at least once per week during dry weather. Repair deficiencies immediately.
- Promptly remove any soil, debris, or other material that has washed onto adjacent properties. Restore affected areas immediately.

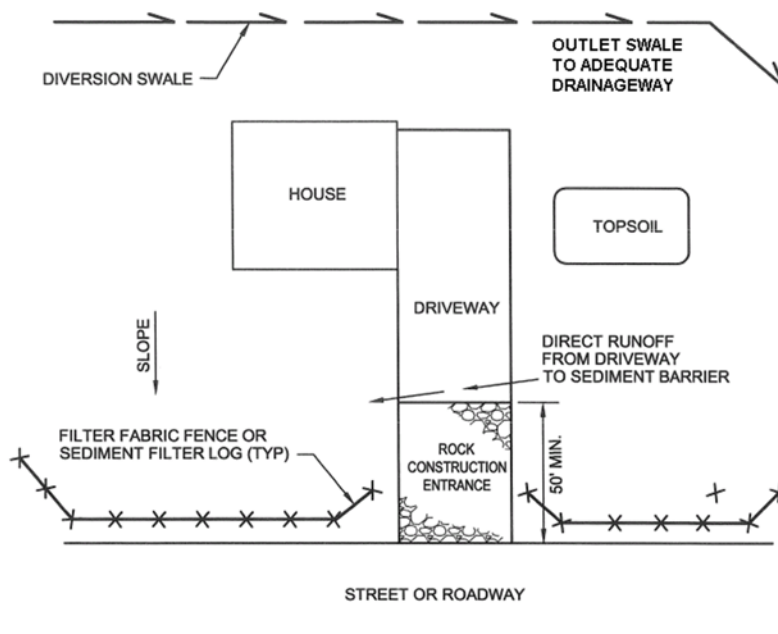
At the close of construction:

- Stabilize disturbed areas with grass and 6-inches of topsoil or other approved method. Foundation plantings and mulch may be established in areas retained by walls with slopes less than 3H to 1V.
- Apply soil stabilization fabric/ erosion control blankets to disturbed areas sloped more than 3H to 1V and as needed.
- Pipe roof drains to drywells.
- Grade final driveway aprons to maintain the gutter line of the adjacent street and pave in accordance with the Town's driveway regulations. Provide berms or curbing along sides of driveways as needed.
- Remove and properly dispose of all silt fence, hay/straw bales, and other BMPs after vegetation is established and the site is stabilized.

Sample BMPs:

Site Configuration

Typical On-lot BMPs for Lot Above Roadway

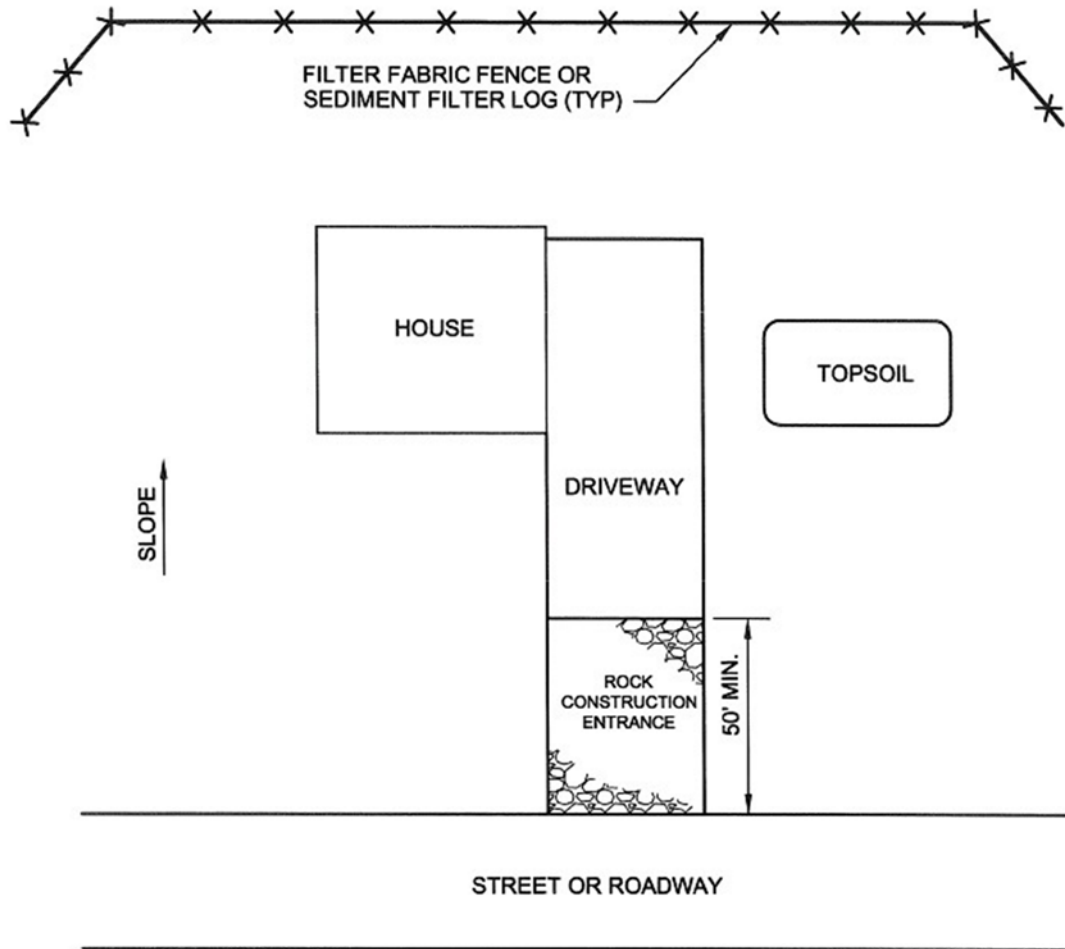


THE UPSLOPE DIVERSION CHANNEL SHOULD BE INSTALLED WHEREVER THE LOT EXTENDS MORE THAN 150 FEET ABOVE THE ROADWAY OR WHERE RUNOFF FROM AREAS ABOVE THE LOT IS NOT OTHERWISE DIVERTED AWAY FROM THE LOT. THE CHANNEL SHOULD BE PROPERLY SIZED AND PROVIDED WITH A SUITABLE PROTECTIVE LINING. THE DESIGNER MUST EXERCISE CAUTION TO PROTECT ALL DOWNSTREAM PROPERTY OWNERS WHEN SELECTING THE DISCHARGE POINT FOR THIS CHANNEL.

Source: PA DEP Erosion and Sediment Control Program Manual

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Typical On-lot BMPs for Lot Below Roadway

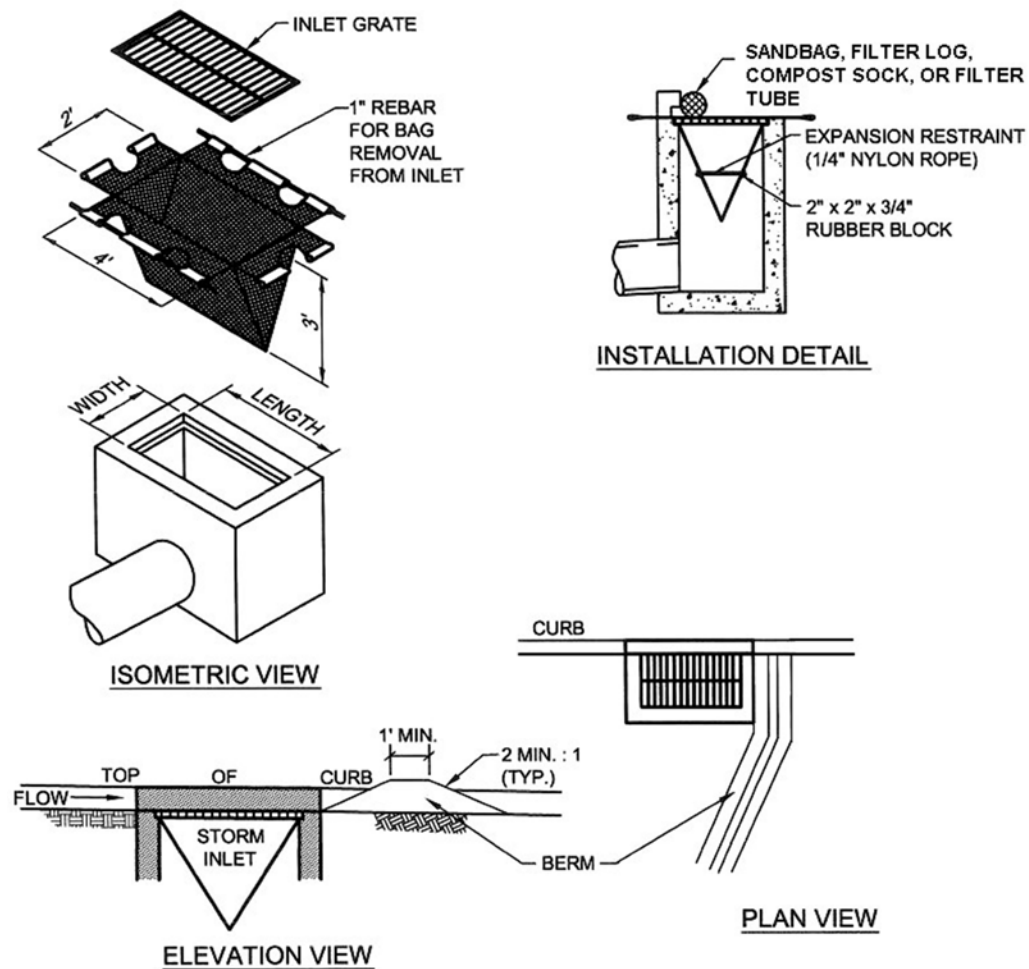


THE AREA DOWNSLOPE FROM THE FILTER FABRIC FENCE MAY NOT BE UNDER DEVELOPMENT OR OTHERWISE DISTURBED .

PA DEP Erosion and Sediment Control Program Manual

NTS

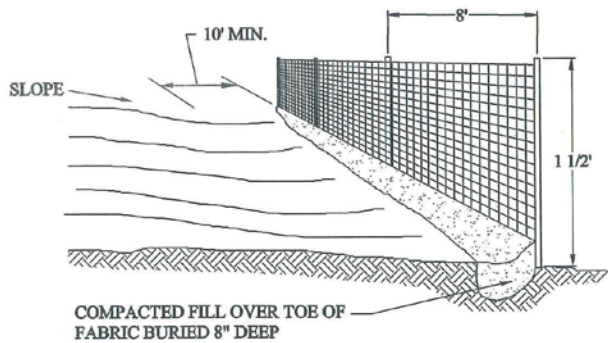
Catch Basin Protection



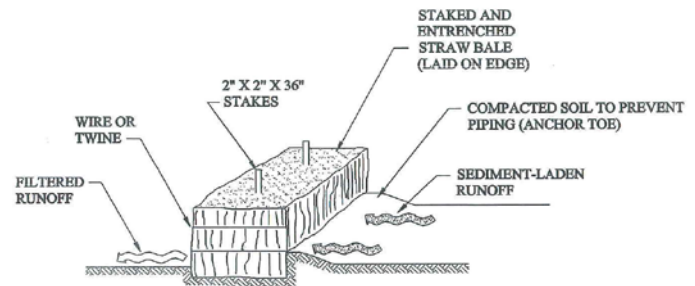
Source: PA DEP Erosion and Sediment Control Program Manual

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Sediment Barriers

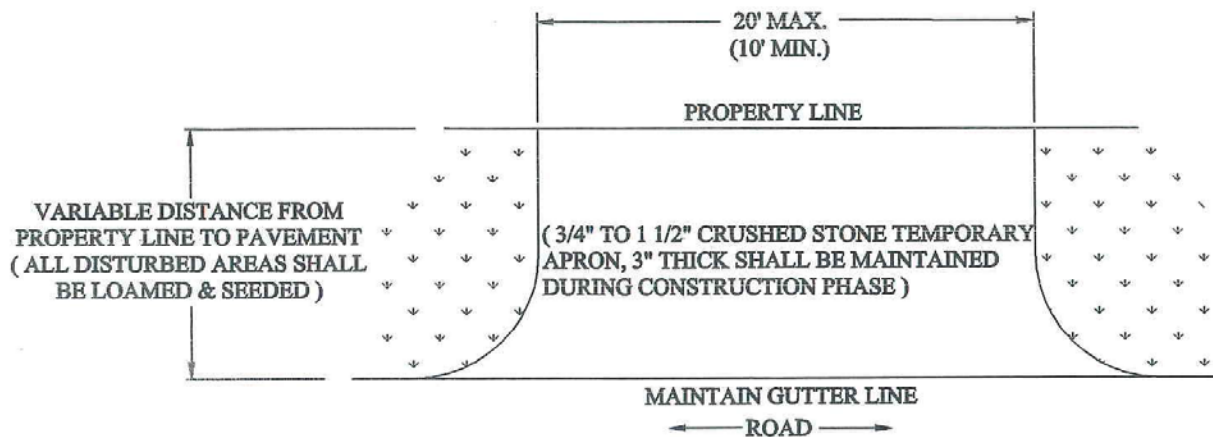


**SILT/SEDIMENT FENCE
INSTALLATION**

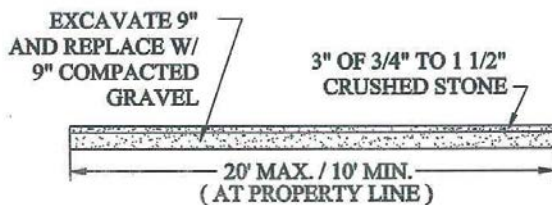


**HAYBALE INSTALLATION
CROSS SECTION**

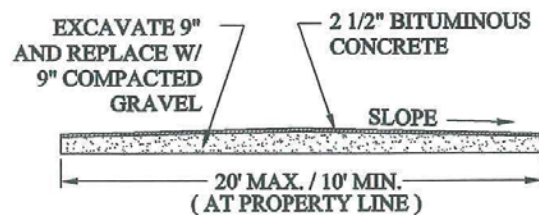
Small-Scale Site Development Driveway Apron Plan



**DRIVEWAY APRON
PLAN VIEW**

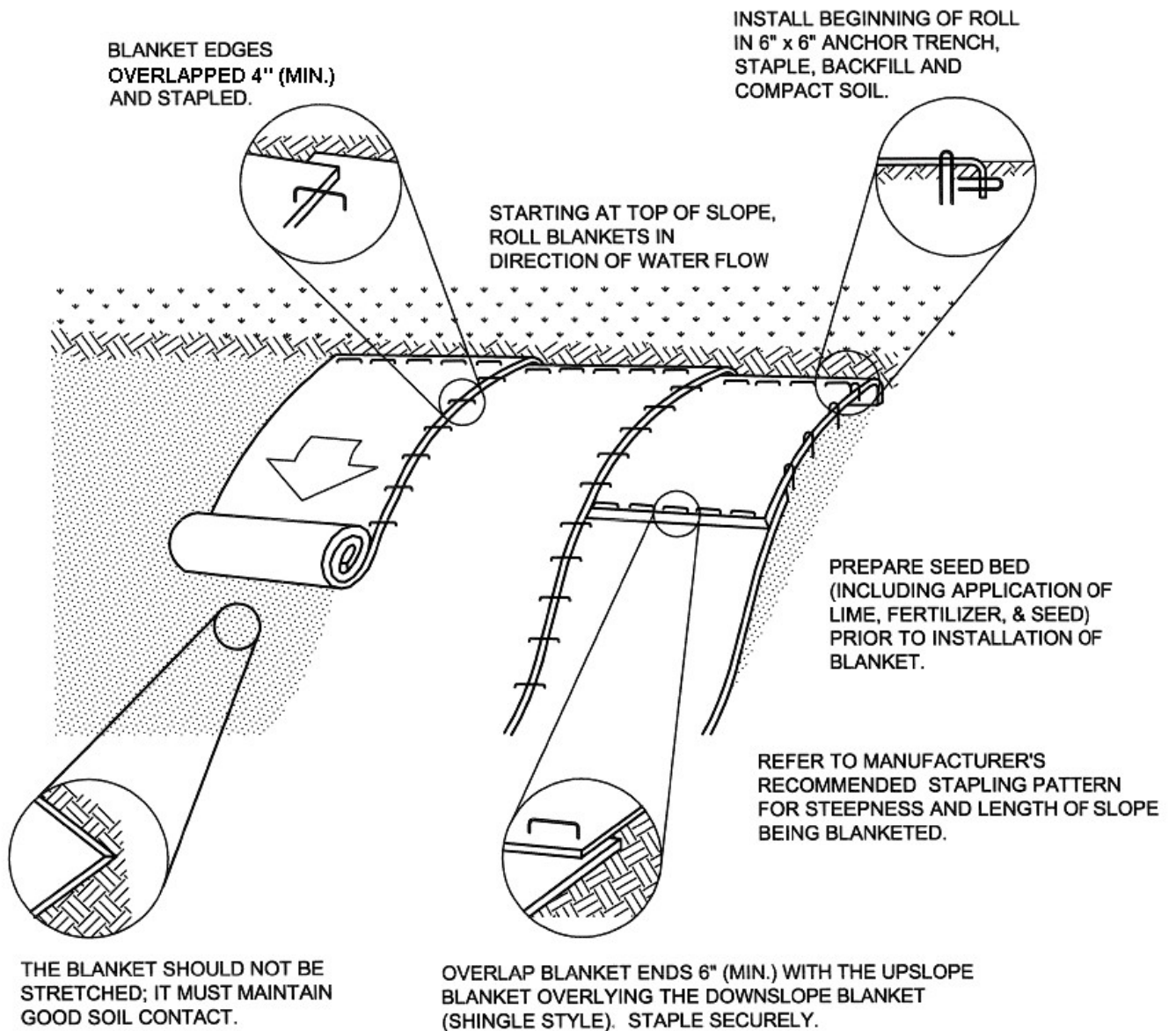


**TEMPORARY
DRIVEWAY APRON
CROSS - SECTION**



**COMPLETED
DRIVEWAY APRON
CROSS - SECTION**

Erosion Control Blanket



Source: PA DEP Erosion and Sediment Pollution Control Program Manual

The following chart is designed to help select erosion and sediment control practices that may be appropriate for the site. It is often advantageous to use several practices, including retaining existing vegetation, as a combined treatment approach for addressing erosion and sedimentation issues at the site.

Vegetative cover is the best and often the most cost-effective practice for controlling site erosion!

Practice	Prevention	Runoff Control	Erosion Control	Sediment Control	Good Housekeeping	Page
Site Layout, Project Staging and Phasing	X					7
Vegetation Preservation/Buffers	X					7
Ditch Checks (Temporary)		X				9
Stone Check Dams		X				11
Level Spreaders		X				13
Diversions (Temp. & Perm.)		X				15
Temporary Slope Drains		X				17
Mulch			X			19
Surface Roughening			X			22
Slope Breaks			X			23
Erosion Control Blankets, Nets, Turf Reinforcement Mats			X			26
Seeding and Sod			X			30
Silt Fence				X		33
Straw Bales				X		35
Compost Socks & Berms				X		36
Wattles and Fiber Rolls				X		39
Temporary Sediment Traps				X		42
Temporary Sediment Basins				X		44
Inlet Protection				X		46
Outlet Protection & Stabilization				X		49
Floating Silt Barriers				X		51
Stabilized Ingress & Egress					X	53
Tire Washes					X	53
Construction Road Stabilization					X	55
Swamp Mats/Timber Mats					X	57
Stockpile Management					X	59
Dewatering					X	61
Concrete Washout Areas					X	63
Dust Control					X	64
Construction Waste Material Management					X	66
Street Sweeping					X	67

Additional information for BMPs and managing sites may be found at the following:

MassDEP - Erosion & Sedimentation Guidelines

<http://www.mass.gov/eea/docs/dep/water/esfull.pdf>

MassDOT Erosion and Sediment Control Field Guide

<http://www.massdot.state.ma.us/Portals/8/docs/FieldOperations/ErosionSedimentFieldGuide2013.pdf>

PA DEP Erosion and Sediment Pollution Control Program Manual

<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-88925/363-2134-008.pdf>

EPA - Stormwater Menu of BMPs

<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm>