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TOWN OF DUXBURY
DEPARTMENT OF PUBLIC WORKS
TOWN OFFICES
878 TREMONT STREET
DUXBURY, MASSACHUSETTS 02332

APR - 2 2012

United States Environmental Protection Agency
New England Region
Office of Environmental Stewardship
5 Post Office Square
Boston, MA 02109-3912
Attention: Denny Dart(OES 04-4)

March 26, 2012
Year 9 Annual Report
May 1, 2011-April 30, 2012

Mr. Fred Civian
Massachusetts Dept. of Environmental Protection
One Winter Street – 5th Floor
Boston, MA 02108

Re: Annual NPDES General Permit for MS4's Report
Permit Number: MA041034/MaDEP Transmittal Number: W114295

To Whom It May Concern:

I hereby am filing the above referenced report on behalf of the Town of Duxbury, MA. This report is structured per the General Permit requirement, Part II F. (Attachment A)

- a) The following is a self-assessment review of compliance with the permit conditions. To assist, I have attached the Town of Duxbury's Program Summary (Attachment B) and our Implementation Schedule (Attachment C).

1. Public Education

- 1A. Drainage Posters in Schools and Public Buildings
Completed in April of 2004 (4/28/04 report).

- 1B. Stencil Catch Basins
Completed summer of 2006 (4/25/07 report)
- 1C. Pamphlets in Water Bills
Completed in October of 2005 (4/27/06 report).
- 1D. Educational Material on Web-Site
Completed. (4/27/06 report).
Distribution of pamphlets was resumed by inclusion in water bills in the fall of 2011.
- 1E. Educate Community Groups
The Town of Duxbury Conservation Agent, Joe Grady has participated in and is on the steering committee for the Watershed Action Plan for the south coastal watershed, being funded by the EOEA. Process of education through this forum is ongoing. Harbormaster/shellfish warden also takes school classes for tour of estuary and teaches ecology of this resource. Duxbury Bay Maritime School also teaches maritime ecology to the classes each summer(1600 students). Montassori School students take water samples at the Bluefish River and identify pathogens. In addition the Duxbury Bay Commission and Duxbury Beach Reservation conduct interactive programs that involve many volunteers and users of these resources. The Beach Reservation maintains an agreement with Mass. Audubon to continue their endangered species monitoring and weekly educational programs.

2. Public Participation

- 2A. Stencil Catch Basins
See 1B. above.
- 2B. Planning Board and Planning Director work on water quality goals
Every year the Planning Director and Planning Board meet to review the Subdivision Rules & Regulations including stormwater quality issues. Current Zoning Regulations require Planning Board Administrative Review of most site development, including municipal.
- 2C. Paint Day Collections
The D.P.W. hosted Paint Day Collections once a month from April to October this past year. Hazardous waste is collected once a year. Programs have been scaled back because most of the collected material is gone from households.
- 2D. Open Space & Rec. Committee
The Open Space & Rec. Committee meet regularly and have currently been working on maintaining open space areas which preserves water

quality, maintains watersheds and promotes interest in preserving Duxbury's open space areas. The committee sponsors Earth Day, trail days and other pertinent events. The Duxbury Open Space And Recreation Plan was approved by The Commonwealth of Massachusetts in January of 2009 and will qualify Duxbury to participate in DCS grant rounds through 2013. A 2 year extension was approved in 2010 which now allows Grant participation to 2015. The Open Space and Rec. Committee supports, and publicizes Community Preservation Committee Open Space acquisitions.

2E. Community Preservation Committee

The CPC meets regularly and received approval from 2008 Town Meeting to purchase two large land parcels totaling 146.5 acres. One of the parcels contains 106 acres and borders the South River and is referred to as Camp Wing (part of South River Watershed). The other parcel is called Berrybrook and consists of 40 acres. Both parcels have a permanent Conservation Restriction placed on the Deeds.

In addition, Town Meeting March 2011 has approved the purchase of a 5 acre parcel for 3.5 million dollars. This is property that is on Duxbury Bay. Also 60 acres of Green Harbor River watershed for open space. The Town Meeting has also authorized the purchase of restrictions on cranberry bog property (60 acres) under wetlands restoration WRS program. This is the Crowell wetlands.

2. Public Participation Extras

2F. Duxbury Bay Management Commission

The Duxbury Bay Management Commission developed the "Duxbury Aquaculture Management Plan" which was adopted by the Board of Selectmen 1/12/2009. This group are the "Keepers of the Bay" and are involved in many issues that affect the Bays including water quality. 82 acres of Duxbury Bay is leased for aquaculture-specifically the propagation of oysters which are commercially harvested and coveted worldwide for quality. A five year compilation of water quality sampling has been completed of Duxbury Bay and is now available. Duxbury Bay has for some time provided the best shell fishing for both recreational, and commercial permit holders. The Commission has completed it's first State of The Bay Report.

2G. Fish Ladder Restoration

As noted in a prior report, in 2006 the Island Creek Herring run restoration project was completed with the involvement of many townspeople, Boards

and Committees. A monitoring and management program was established. The statewide moratorium on herring stocking was lifted and Island Creek was stocked the last four years by the State Division of Marine Fisheries (2008-2011)

2H. Duxbury Beach Reservation

The Duxbury Beach Reservation is a private organization dedicated to the preservation of Duxbury Beach. Each year hundreds of thousands of dollars are spent to plant beach grass and beach nourishment, dune restoration, and fencing to capture sand to build dunes. The beach is a barrier beach and is about 6 miles long. Volunteers participate in the beach planting each spring and a beach cleanup is conducted with volunteers.

2I. Engineering Study of Seawall and Beach.

Duxbury has been awarded \$110,000 for a study and remediation design of the 4,600 foot seawall from the Marshfield Town Line to Gurnet Light. This study will include a nourishment program for the entire beach. The study will be completed by June 30, 2012.

3. **Illicit Discharge Detection and Elimination**

3A. Map Drainage System

The Town efforts toward creation of a drainage map layer for our GIS system has been completed. The Town has utilized a consulting firm to research and consolidate all existing drainage plans to a new master drainage overlay suitable for Permitting application. Remediation drainage projects to reduce pollutants at their outfall are surveyed and contributing drainage systems are mapped. This has focused on Crescent Street and Bay Road primarily to improve water quality in the "Nook" area of Duxbury Bay.

3B. Coord. with the Div. of Marine Fisheries on Testing Bay Outfalls

The Conservation Agent continues to coordinate with the Div. of Marine Fisheries to perform annual water quality testing in the Duxbury and Kingston Bays.

3C. Investigate Pollution Hot Spots as needed via Test Results

The Div. of Marine Fisheries notifies the Board of Health about any potential locations of illicit discharges. Also, Board of Health conducts

weekly bacteria testing at 7 beach locations during summer months. Two beaches were shut down for one day. This is the best record in many years. See Appendix D.

- 3D. Stencil Catch Basins
See 1B. above.
- 3E. Paint Day Collections
The D.P.W. hosted Paint Day Collections on every 3rd Saturday of the month from April to October. Used motor oil is also collected year-round along with a comprehensive recycling program. (Pay As You Throw).
- 3F. **Additional** - Pet control bylaw adopted to control dogs at the beach and require droppings to be picked up by owners. Also, permits are required to walk dogs on the beach.
- 3G. Assessment of Pollution sources MDEP has awarded the Conservation Commission \$58,000 to further assess pollution sources from roadway sources along Kingston Bay.
- 3H. Jones River Estuary and Kingston Bay Stormwater Assessment Project
Partnering between the Conservation Commissions of Duxbury and Kingston for baseline water quality data and preliminary design plans for future stormwater mitigation projects. (See attachment E)
- 3I. Stony Brook and Tussock Brook Marsh Restoration Plan
Project shared between Kingston and Duxbury Conservation to protect and enhance local coastal habitats by identifying and addressing primary anthropogenic stressors to estuarine habitat and water quality. The dam has been studied and tide gate removed at Route 3(2011).
- 3J. Ongoing 604B Grant for Stormwater mitigation at Bay Road started Nov. 2009 and carries for 19 months. This program identifies and samples 10 additional outfalls and prioritizes pollution impact. With a preliminary outcome this investigation leads to another grant for construction at Bayview Rd. and Bay Rd. Focus is to improve water quality at the Nook area.
- 3K. Town Meeting appropriated \$16,750. for weed control on Lower Chandler Mill Pond.
- 3L. With the acquisition of the Crowell property, 43.35 acres will be deeded to Conservation, increasing it's holdings to 2,588.76 acres.

3M. The Conservation Commission has received a total of \$850,000. in stormwater remediation grants to improve water quality in the Crescent Street, Bay Road, and Nook area of Duxbury Bay.

3N. DPW constructed new structures at 4 outfall locations to eliminate first flush from entering the Bay.

4. Construction Site Runoff Control

4A. Proposed Zoning Changes re: drainage quality to Town Mtg.
Completed in March of 2003 (4/28/04 report).

4B. Proposed Conservation Commission Bylaw Changes to Town Mtg.
Completed in March of 2003 (4/28/04 report).
Mass. Wetlands Protection Act MGL.Chap.131 S.40, and Town of Duxbury Wetlands Protection Bylaw Chapter 9

4C. Projects Reviewed by Development Review Team (DRT)
The DRT meets very regularly and stormwater issues are a top priority.
The DRT includes representatives from each Town Department.

4D. Review and Update Subdivision Rules & Reg.'s re: drainage BMP's.
Completed in November of 2004 (4/27/05 report).

4E. Zoning Bylaws have been updated to include:
Wetlands Protection Overlay District
Dunes Protection District
Flood Hazard Areas Overlay District
Aquifer Protection Overlay District
Administrative Site Plan Review

4F. Spring Town Meeting will consider additional development regulations for parking to capture runoff and keep it from migrating from the property.
Indefinitely Postponed, Annual Town Meeting 2012.

5. Post Construction Runoff Control

5A. Review BMP Operation Manuals
It is standard operating procedure for the Conservation Agent and Commission to review Stormwater Operation and Maintenance Plans for all applicable projects. Also, as stated in 4B and 4E above, Post construction conditions are monitored and Regulations enforced.

- 5B. DRT review of BMP Operation Manuals
It is standard operating procedure for the DRT (Development Review Team) to require and review Stormwater Operation and Maintenance Plans for all applicable projects.
- 5C. Maintain BMP's of Projects Accepted by the Town
Upon acceptance by the Town, each street is added to the street sweeping, catch basin cleaning, and BMP monitoring.
Drainage systems constructed to improve stormwater outfall quality are routinely checked and maintained.
- 5D. Require Annual Maintenance / Inspection reports for regulated projects
It is standard operating procedure for all regulatory authorities to request Maintenance / Inspection reports for regulated projects.
- 5E. Bylaw to Town Meeting
The Planning Director, Conservation Agent, Health Agent and DPW Director are working on a bylaw to submit for Town Meeting action.

5. Post Construction Runoff Control Extras

- 5G. Revised Conservation Rules and Regulations
Completed in March of 2006 (4/27/06 report)
- 5H. Estuaries Project
Our Conservation Commission with the Mass. DEP and UMASS Dartmouth are exploring the development of Total Maximum Daily Loads (TMDL's) for nitrogen loadings for the Duxbury, Plymouth and Kingston Bays. During the summer of 2007 water samples were taken with the help of Conservation staff.
- 5I. Penalty for Conservation Violations

Voted March 15, 2010. Non-criminal disposition of General By-Laws, Chapter 9.1.10 to penalty of \$300 per offence and adds Conservation Commission members and Administrator for enforcement.

6. Municipal Good Housekeeping

- 6A.& 6B. Snug Harbor Drainage
Completed. (4/27/06 report).
- 6C Projects of the Town are periodically inspected and cleaned on a regular basis

6D. Sweep Streets

There is an ongoing, as needed sweeping process throughout the year. Winter sand is removed throughout the Town starting early March each year and after the spring cleanup. Sweeping continues until November. This past year 125 miles of streets were swept with business areas done 6 times. Due to the mild winter, sweeping was continued through the winter months.

6E. Clean Catch basins

Catch basins are cleaned on a regular basis. This past year 1442 basins were cleaned. 24 structures were rebuilt.

6F. Staff Training

Completed. (4/27/06 report)

6. **Municipal Good Housekeeping Extras**

6G. Halls Corner Bay Rd. Drainage Project

The Town previously had received a grant from Coastal Zone Management to study outfalls coming from the Bay Rd. area and flowing into the Kingston Bay. The Town contracted with a consultant to track down all of the outfalls and connecting watersheds. As part of this work a drainage map of this area was created.

Also as part of this project an assessment of each outfall was done, the outfalls were prioritized from a polluting standpoint, The Conservation Agent obtained a grant from Coastal Zone Management (\$125,000). The first phase (Depot and Chestnut Streets) of this BMP installation project in the Halls Corner / Bay Road area was completed in July 2007. Design consisted of multiple leaching structures tied to deep sump catch basins with first flush retention and absorption. Design of the second phase (Bay Road) has been completed and funded through a second CPR Grant. Construction and restoration was completed in 2009. Both phases should significantly help the receiving waters of the Kingston Bay.

The Town received a Coastal pollutant Remediation Grant for \$121,386 during this reporting period for the installation of 3 infiltration BMPs on Bay Road to eliminate NPS pollution to Duxbury Bay. (See Appendix E)

6H. Rte 3A Drainage

Completed 2006. (4/27/07 report)

6I. Elm St. Drainage

The DPW has finished installing a number of leaching catch basins which have virtually eliminated direct discharge of street runoff into Island Creek (2009)

6J. Senior Center Parking Lot Upgrade

The parking lot at the Duxbury Senior Center was enlarged and stormwater BMP's were installed as part of the project. The BMP's include catch basins with deep sumps and hoods, oil / water separator, sediment forebay, energy dissipation bowl and vegetated detention basin. Runoff from the existing parking lot was also directed through the BMP's.

6K. Union Bridge Road Drainage

To correct flooding problems in the area the DPW designed and installed three leaching pits to collect, clean and recharge stormwater.

6L. Partridge Road Drainage

During 2007 the DPW constructed a grass-lined swale and installed a leaching pit to treat and infiltrate runoff. The work eliminated a direct discharge into Blue Fish River.

6M. Bay Road Swale

The DPW has constructed a grass swale and drainage ditch along Bay Road between Bay View Road and Bay Ridge Lane. The swale and ditch treat stormwater runoff which currently discharges directly into Kingston Bay.

6N. Bay Road/Crescent Street Drainage Project

The third phase of the Bay Road Project has been constructed utilizing CPR funds and Chapter 90 state funds. Both phases of the Crescent Street drainage have been completed in 2010.

6O. Powder Point Bridge West Drainage

The DPW installed a leaching pit in the Town parking area at the west end of Powder Point Bridge. Before, stormwater runoff from the parking area and adjacent roads flowed through a riprap channel into Duxbury Bay. Over time the runoff has eroded the riprap and underlying soil, washing it into the bay. The leaching pit intercepts a portion of this runoff thereby minimizing erosion. The riprap channel was also reconstructed as part of this project. The shellfish beds in the immediate vicinity are better protected with the installation of this leaching system.

- 6P. Beach bacteria monitoring/Board of Health
5 beaches are sampled weekly from early June through mid September for Enterococci bacteria. Several beach closings occurred, primarily attributable to stormwater runoff during heavy rain conditions.
- 6Q. The harbormaster manages 2 pumpout facilities for boats. One is a boat and the other is a shore facility. This is provided annually, in season.
- 6R. The DPW has reduced it's application of sand and sodium chloride by blending Magnesium to the mix. Results indicate at least a 10% reduction of both sand and salt.
- 6S. The DPW picked litter along roadways during the year. (88 miles)

b) BMP Appropriateness Assessment

We are pleased with the BMP's selected and their results. Street sweeping and catch basin cleaning are a staple of a good program. Duxbury has had and continues to improve our regulatory authority to ensure no adverse affects on the environment. Duxbury has adopted the CPA and is very proactive at buying and maintaining open space. The Town currently has a total of 2,588.76 acres of land under Conservation control. Duxbury has a very involved and interested group of volunteers on its committees. We also have close relationships with the relevant state authorities. Duxbury has very successful Paint Day, Hazardous Material and Recycling Programs. Pay-as-you-throw and Single Stream Recycling Programs are proving effective to reduce waste stream and cost and promote the environment. Duxbury is in the top 10 communities for it's recycling effort. The public is well educated and open to new ideas. Our increased public education efforts have received positive comments.

c) Progress Towards Measurable Goals Assessment

We are making progress. We continue to put out public awareness messages. Our Paint Day and Hazardous Waste Day Collections are a continued success. The Division of Marine Fisheries continues to test Duxbury Bay. Our DRT continues to support the Local Boards with the regulation of proposed projects. Our efforts to continually improve water quality throughout the community are highlighted in the projects listed under "Municipal Good Housekeeping Extras" above. These projects set an example for private entities within town. They show that not only does Duxbury enforce stormwater regulations but also adheres to them.

d) Test Results

None available at the time of this writing.

e) Next Reporting Cycle

Our on-going activities shall remain for the next cycle. We are continuing our land acquisitions for open space. Drainage mapping is a part of our GIS system and continues. This will be a valuable tool for many years to come. Continued stormwater collection systems are being funded and a cooperative program with Kingston will further enhance water quality in the Bay Road area of the two communities.

f) Changes to BMP's and Goals

No changes have been discussed or are proposed at this time.

g) Reliance on Other Entities

The Town relies significantly on the Division of Marine Fisheries & Wildlife for the testing they do in Duxbury Bay. We note that the Massachusetts DEP adopted new Stormwater Regulations in January 2008. These regulations give the regulatory entities in Town more power to enforce these important regulations,

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: 

Printed Name: Peter Buttkus

Title: Director of Public Works

Date: April 5, 2012

Cc: Town Manager
Operations Manager
Conservation Agent
Planning Director
Director of Inspectional Services
Health Agent