Municipality/Organization: **Town of Braintree, MA**

EPA NPDES Permit Number:

MaDEP Transmittal Number: **W- 041000 (for No.1)**

Annual Report Number & Reporting Period: **No. 3: March 2005-March 2006**

NPDES PII Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: Bob Campbell Title: Town Engineer

Telephone #: 781-794-8010 Email: rcampbell@beld.net

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: Robert P. Campbell

Printed Name: Robert P. Campbell, P.E.

Title: Town Engineer

Date: April 2, 2007

Part II. Self-Assessment

In pursuing our self assessment it became clear that we had not communicated between departments sufficiently either in the preparation of our initial Phase 2 permit application or in subsequent implementation. We are not reneging on any of our commitments. Rather we have found that many of the things we said we'd do had already been done, even before Phase 2 came into effect. As evidence, I've attached in full a memo from the Town's Director of Planning and Conservation. I've also inserted applicable sections of the memo into the permit Tables, as appropriate.

The Town of Braintree is committed to protection of our water resources and is in compliance with all permit conditions, except for the following provisions:

As part of PE 2 we were to distribute brochures at the July 4th Town Fair. The Town Fair was not held.

Other duties and intense interaction with Selectmen left our DPW Director unable to accomplish several of his goals, including PE-5 (stormwater cable access program), PP-3 (Poster Contest), and GH-3 (Good Housekeeping Workshop at DPW.)

PART III. Summary of Minimum Control Measures.

1. Public Education and Outreach

BMP ID#	Best Management Practice/*Responsible Dept. – Contact*	Measurable Goals			
		Year 3 (March 2005 to March 2006)	Annual Report Status	Year 4 (March 2006 to March 2007)	Year 5 (March 2007 to March 2008)
PE 1	**Partner w/ local organization/** ***Peter Lapolla – Planning/ConCom***	Continue partnership	Continued partnership with Fore River Watershed Association, including discussions on establishing a remote-monitorred gaging station on Monatiquot River at Commercial Street .	-	Continue partnership
PE 2	**Develop public education brochures/press releases/** ***John McMahon - DPW***	Distribute fliers to abutters of pavement projects to address SSO issues. Brochure distribution at July 4th Town Fair	Continued practice of handing out fliers to abutters of roadway reconstruction projects alerting them to drainage work being done ant to avail themselves of the oppurtunity to remove sump pump connections from sewer lines. This reduces flow in the sewers and diminishes the likliehood of sewer surcharges to the rivers and wetlands. Didn't do. July 4th Town Fair was cancelled this year.	Distribute fliers to abutters of pavement projects to address SSO issues. Brochure distribution at July 4th Town Fair	Distribute fliers to abutters of pavement projects to address SSO issues. Brochure distribution at July 4th Town Fair
PE 3	**Classroom instruction/*Peter Lapolla –Planning/ConCom***	Prepare storm water education	The Department of Planning and Conservation has scheduled to develop a storm water education program for Pond Meadow's summer camp and plans to implement the program in Summer 2007.	Present storm water education	Present storm water education
PE 4	**Develop web page/*Mike Steen - MIS***	Maintain and update webpage	The Wetlands Protection Act and local regulations are posted and updated on the Towns web site. Results of water quality testing at Town beaches are also posted and maintained	Maintain and update webpage	Maintain and update webpage
PE 5	**Cable Access TV Show/*John McMahon -DPW***	Begin creation of one storm water cable access program		Finalize outline and text for cable access episode	1 Cable access episode devoted to Storm Water

2. Public Involvement and Participation

BMP ID#	Best Management Practice/*Responsible Dept. – Contact*	Measurable Goals			
		Year 3 (March 2005 to March 2006)	Annual Report Status	Year 4 March 2006 to March 2007)	Year 5 (March 2007 to March 2008)
PP 1, PP 2	**Partner w/ local organization/ *Peter Lapolla –Planning/ConCom***	Identify one priority area for storm drain stenciling program and continue partnership	Subarea R2, draining toward Sunset Lake and the Town Beach at that location are identified as the first priority for the stencilling program. The Town and its partners will commence stencilling at catchbasins throughout the subarea.	Continue stenciling program	Continue partnership through financial contribution
PP 3	**Poster Contest/ *John McMahon – DPW***	Develop and Pilot Contest in Grade 4		Modify and continue contest	Modify and continue contest
PP 4	**Organize public meetings and panels/ *John McMahon – DPW***	Discussion of storm water at one public meeting and broadcast on cable	Discussed flooding in the Bestick Road area and among other things, its impact on water quality in Town Brook. Water innundating numerous basements and outbuildings in the area has resulted in gasoline sheens migrating into the brook. Mitigation of the flooding is in the planning stages.	Discussion of storm water at one public meeting and broadcast on cable	Discussion of storm water at one public meeting and broadcast on cable
PP 5	**Town Departments Involved/ *John McMahon - DPW***	Continue to involve departments	Highway Department distributed fliers. Board of Selectmen spoke with affected residents, and some toured the damaged areas.	Continue to involve departments	Continue to involve departments

3. Illicit Discharge Detection and Elimination

BMP ID#	Best Management Practice/*Responsible Dept. – Contact*	Measurable Goals			
		Year 3 (March 2005 to March 2006)	Annual Report Status	Year 4 March 2006 to March 2007)	Year 5 (March 2007 to March 2008)
ID 1	**Develop a comprehensive Storm Drain Map for the Town/** *John McMahon-DPW*		GPS location and map updating continued on schedule.	GPS locate 20% drainage system & outfalls Input existing plans to GIS map	GPS locate 20% drainage system & outfalls Update map with any drainage additions
ID 2	**Implement a Town Bylaw** */ Peter Lapolla - Planning/ConCom*	Evaluate effectiveness of stormwater regulations, incorporate into new Town Ordinances.	Last year the Town had determined that the development of additional ordinances or regulations was not warranted at that time. We continue to monitor the effectiveness of the regulations in place as we prepare for the change in form of government.	Evaluate effectiveness of stormwater regulations and ordinances.	Review effectiveness of ordinances
ID 3	**Perform an illicit discharge detection campaign/** ***John McMahon - DPW***			-	-
ID 4	**Correct Illicit Discharges/** ***John McMahon - DPW***	Remove illicit discharges if confirmed to be required in Common Street and Commercial Street areas.	No illicit discharges were confirmed in the area.	Enforce By-Law	
ID 5	**Educate Citizens/** ***John McMahon - DPW***	-		-	Re-distribute fliers

4. Construction Site Stormwater Runoff Control

BMP ID#	Best Management Practice/*Responsible Dept. – Contact*	Measurable Goals			
		Year 3	Annual Report Status	Year 4	Year 5
CS 1	**Implement by-law related to construction runoff control/ *Peter Lapolla –Planning/ConCom***	Review by-law and enhance if necessary	The Departments of Conservation & Planning, Engineering, and Inspections, with applicant's engineering firms continue to fine tune ordinances and site plan designs with emphasis on maintaing clean water environments.	Review by-law and enhance if necessary	-
CS 2	**Incorporate sanctions into By-Law to ensure compliance/ *Peter Lapolla –Planning/ConCom***	-		Noticeable efforts made to ensure compliance	-
CS 3	**Site Plan Review/ *Peter Lapolla –Planning/ConCom***	-		-	-
CS 4	**Site inspection and enforcement of control measures/ *Peter Lapolla –Planning/ConCom***			Review inspection guidelines. Enhance if necessary.	Measurable decrease in violations since start of inspections.
CS 5	**Establish procedures to record and address public inquiries or concerns / *Peter Lapolla –Planning/ConCom***	Review procedure and enhance if necessary.	Procedures now in place continue to meet our needs, but will be monitored for long term effectiveness.	-	-

5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID#	Best Management Practice/*Responsible Dept. – Contact*	Measurable Goals			
		Year 3	Annual Report Status	Year 4	Year 5
PC 1	**Evaluate, enhance and implement zoning requirements / *Peter Lapolla –Planning/ConCom***	Develop new zoning by-laws focused on surface water preservation	In 2003 an erosion control component was added to the Zoning Bylaw updated the section on grading. The same regulations were adopted into the Rules and Regulations for the Subdivision of Land and the Town's wetland regulations. Although cumbersome, and sometimes used as tools in neighborhood feuds, the regulations have further assisted our ability to keep our waters cleaner.	-	-
PC 2	**Develop regulations requiring specific structural storm water controls/ *Peter Lapolla –Planning/ConCom***	-		-	-
PC 3	**Develop review and inspection procedures for private storm water systems *Peter Lapolla –Planning/ConCom***	Review condition on maintenance requirements	Maintenance requirements imposed as conditions of special permit or site plan review approvals and as parts of Con Comm Orders of Conditions are continuously updated as experience tells us what works and what does not.	Develop and implement an inspection procedure	-

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID#	Best Management Practice/*Responsible Dept. – Contact*	Measurable Goals			
		Year 3	Annual Report Status	Year 4	Year 5
GH 1	**Audit of Town Facilities/ *John McMahon – DPW***	Assessment of WWTP	Notes from the daily visits to each of our Sewage Pumping Stations have been evaluated and formed the basis of a program to update the pumping stations. Jefferson Street Pumping Station is scheduled to be replaced in fy2008.	Assessment of Filtration Plant	-
GH 2	**Operation and Maintenance Program/ *John McMahon - DPW***	Develop schedule for catch basin cleaning based on priority areas	The Highway Department is working with Engineering and Planning & Conservation to accelerate the schedule of catchbasin cleaning in our priority areas. Manpower and equipment shortages have hampered implementation.	-	-
GH 3	**Employee Training Programs/ *John McMahon – DPW***	Administer a good housekeeping workshop at DPW		-	-
GH 4	**Recycling Program/ *John McMahon - DPW***	-		Monitor recycling program and enhance if necessary	-

Part IV. Summary of Information Collected and Analyzed

Part V. Program Outputs & Accomplishments (OPTIONAL)

Programmatic

Stormwater management position created/staffed	(y/n)	N
Annual program budget/expenditures	($)	Not tracked

Education, Involvement, and Training

Estimated number of residents reached by education program(s)	(# or %)	1000
Stormwater management committee established	(y/n)	Not per se
Stream teams established or supported	(# or y/n)	Y
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	0.5 – 1.0 mi.
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	1
▪ community participation	(%)	Small
▪ material collected	(tons or gal)	Unknown
School curricula implemented	(y/n)	N

Legal/Regulatory

	In Place Prior to Phase II	Under Review	Drafted	Adopted
Regulatory Mechanism Status (indicate with "**X**")				
▪ Illicit Discharge Detection & Elimination	X			
▪ Erosion & Sediment Control				X
▪ Post-Development Stormwater Management				X
Accompanying Regulation Status (indicate with "**X**")				
▪ Illicit Discharge Detection & Elimination	X			
▪ Erosion & Sediment Control				X
▪ Post-Development Stormwater Management				X

Mapping and Illicit Discharges

Outfall mapping complete	(%)	About 85%
Estimated or actual number of outfalls	(#)	247+
System-Wide mapping complete	(%)	85%
Mapping method(s)		
▪ Paper/Mylar	(%)	85
▪ CADD	(%)	85
▪ GIS	(%)	85
Outfalls inspected/screened	(# or %)	227
Illicit discharges identified	(#)	7
Illicit connections removed	(#) (est. gpd)	
% of population on sewer	(%)	99
% of population on septic systems	(%)	1

Construction

Number of construction starts (>1-acre)	(#)	1
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	100
Site inspections completed	(# or %)	2
Tickets/Stop work orders issued	(# or %)	0
Fines collected	(# and $)	0
Complaints/concerns received from public	(#)	20 – 30

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	100%
Site inspections completed	(# or %)	100%
Estimated volume of stormwater recharged	(gpy)	Not tracked

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	0.43 /year
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	0.43/year
Total number of structures cleaned	(#)	2300
Storm drain cleaned	(LF or mi.)	1500 lf
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	Unknown
Disposal or use of screenings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)	compost	
Cost of screenings disposal	($)	0

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	2

Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	2
Qty. of sand/debris collected by sweeping	(lbs. or tons)	2700 t/yr
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	Compost site
Cost of sweepings disposal	($)	0
Vacuum street sweepers purchased/leased	(#)	0
Vacuum street sweepers specified in contracts	(y/n)	0

Reduction in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	Can't compare
▪ Herbicides	(lbs. or %)	Can't compare
▪ Pesticides	(lbs. or %)	Can't compare

Anti-/De-Icing products and ratios	% NaCl % $CaCl_2$ % $MgCl_2$ % CMA % Kac % KCl % Sand	72% 0% 28%
Pre-wetting techniques utilized	(y/n)	Y
Manual control spreaders used	(y/n)	Y
Automatic or Zero-velocity spreaders used	(y/n)	N
Estimated net reduction in typical year salt application	(lbs. or %)	Can't compare
Salt pile(s) covered in storage shed(s)	(y/n)	Y
Storage shed(s) in design or under construction	(y/n)	N

Fertilizer and Pesticide Applications At the Braintree Municipal Golf Course

The Braintree Municipal Golf Course is a 188 acre parcel of land of which approximately 60 acres is considered to be highly maintained turfgrass of various types.

The 60 acres of maintained turfgrass consists of:

4 acres of Putting Green Turf
3 acres of Tees
2 acres of Approaches and Collars
30 acres of Fairway Turf
21 acres of Rough

Fertilization

Applications of fertilizer occur consistently throughout the growing season at various rates and frequencies depending on the area, turf type, and weather conditions.

Typically each area receives the following amount of nitrogen each growing season:

Greens: 250-350 pounds of Nitrogen per acres per year.
Tees: 130-220 pounds of Nitrogen per acre per year.
Approaches and Collars: 130-220 pounds of Nitrogen per acre per year.
Fairways: 130-220 pounds of Nitrogen per acres per year.
Rough: 45-90 pounds of Nitrogen per acre per year.

The amounts of various other macro and micro nutrients such Potassium, Phosphorus, Iron etc. is dependent on the fertilizer formulation chosen and turfgrass and soil test recommendations.

Pesticide Applications:

The amount of pesticides applied each year has remained fairly consistent over the past 2-3 years. It is very difficult to compare the amount of pesticides being applied year to year due to the following reasons:

1. Newer pesticide formulations, brands, and types are introduced to the turfgrass market each year.
2. The active ingredient percentages of certain pesticides have changed over the past few years as manufactures are continually modifying their product formulations to save on shipping & packaging.
3. Most of the newly registered pesticides that are being introduced to the market have active ingredients that require substantially lower application rates compared to older products and formulations.
4. Weather conditions by far play the biggest role in determining when, why, and how much of any pesticide is used in a given year. Weed, fungal disease, and insect populations are directly correlated to the weather conditions and weather history of any given year.

Engineering Division

Braintree Public Works

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April 2, 2007

Ann Herrick - CIP
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Boston, MA 02114-2023

Fred Civian
Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108

Enclosed please find our NPDES Phase II Small MS4 General Permit Annual Report Number 3, covering the period of March of 2005 to March of 2006.

Very truly yours,

Robert P. Campbell, P. E.
Town Engineer