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Town of North Reading
Massachusetts

Department of Public Works

April 28, 2010

Ms. Glenda Velez
U.S. Environmental Protection Agency
5 Post Office Square – OEP06-01
Boston, MA 02109-3912

Re: Town of North Reading, MA – NPDES Annual Report No. 7

Dear Ms. Velez:

Enclosed please find the NPDES Phase II Small MS4 General Permit Annual Report (Permit Year 7) for the Town of Ipswich, Massachusetts. As required, the report has been signed and certified by an authorized representative of the community. This report is being submitted concurrently to the Massachusetts Department of Environmental Protection.

If you have any questions or require any additional information, please do not hesitate to contact me at (978) 357-5226.

Respectfully,

Town of North Reading

Michael P. Soraghan, P.E.
Town Engineer

cc: Fred Civian, Massachusetts Department of Environmental Protection
Richard M. Carnevale, Director of Public Works

4/30/10

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Municipality/Organization: Town of North Reading, MA

EPA NPDES Permit Number: MAR041215

MassDEP Transmittal Number: W-041239

**Annual Report Number
& Reporting Period:** Year 7: April 09 – March 10

**NPDES PII Small MS4 General Permit
Annual Report
(Due: May 1, 2010)**

Part I. General Information

Contact Person: Michael P. Soraghan, P.E. **Title:** Town Engineer

Telephone #: 978-357-5226 **Email:** msoraghan@northreadingma.gov

Mailing Address: Town of North Reading, 235 North Street, North Reading, MA 01864

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: Greg Balukonis

Title: Town Administrator

Date: April 19, 2010

Part II. Self-Assessment

The Town of North Reading has completed the required self-assessment and determined that our municipality is in compliance with all permit conditions. The Town has revised the Stormwater Management Rules and Regulations and is awaiting adoption at Town Meeting. An Illicit Discharge Detection and Elimination Plan (IDDE) was developed by New England Civil Engineering (NECE) for the Town and will be used as the guideline for future field screening of outfalls. In addition, NECE conducted dry weather sampling on 24 outfalls previously identified as “suspect” during the development of the existing drainage map. The work eliminated 20 of the 24 outfalls from the list of potential or suspect illicit connections, while, further investigation is recommended for the remaining four.

The Town is continuing research into the installation of sanitary sewer in key areas of the Town. Several Town meetings have been held to review the findings of the Comprehensive Wastewater Management Plan, developed by Weston and Sampson, and community input on the possible installation of sanitary sewer in the town.

The Town has been awarded a 319 grant by the State and will address some of the stormwater issues previously indentified in the Stormwater Capital Improvement Program Report created by Malcolm Pirnie in 2006. The North Reading Stormwater Infiltration Project: Reaching Out to Absorb Runoff (R.O.A.R.) is an effort to both capture stormwater before it reaches a conveyance system as well as to make sure that those systems are promoting recharge. This project goals center on:

- Infiltration of roadway runoff and sediment reduction through the installation of deep sump catch basins and infiltration chamber;
- Bioswale, infiltration enhancement, rain gardens and outfall rehabilitations to capture roof and parking lot runoff
- Rain garden project, including a Town Common installation and town-wide participatory programs centered on planning and implementing parcel-based rain gardens to promote infiltration;
- Outreach and education via an Elementary School education program and contest, newspaper advertizing campaign, Town Hall Low Impact Development (LID) kiosk, Town Library display, Town event outreach and signage.

Town has also been award a 604b grant by the State. Entitled Identifying Stormwater Remediation - Upper Ipswich River Basin, this project will assess stormwater conveyance, streambank erosion, sediment erosion, sediment plumes at outfalls and water quality. These grants were developed in thanks to the Martins Pond Associations work with the town to address stormwater issues.

Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 7 (Reliance on non-municipal partners indicated, if any)	Planned Activities Permit Year 8
1A Revised	Two meeting with Town	DPW/ M. Soraghan	Hold a meeting on stormwater in Town	Held several meetings with Town that including public involvement from WSWAC and Martins Pond Association.	New permit requirements to be addressed in Notice of Intent.
1B Revised	Develop plan for public education	DPW/ M. Soraghan	Identify and develop public education programs.	Continued to coordinate with existing Town agencies/groups including the Martins Pond Association, Reading/North reading Stream Team, and the Ipswich River Watershed Association to conduct stenciling, development of public outreach programs on shoreline restoration and erosion and sediment control.	New permit requirements to be addressed in Notice of Intent.

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 7 (Reliance on non-municipal partners indicated, if any)	Planned Activities Permit Year 8
2A Revised	Two meeting with Town	DPW/ M. Soraghan	Number of meetings held.	Held several meetings with Town that including public involvement from WSWAC and Martins Pond Association.	New permit requirements to be addressed in Notice of Intent.
2B Revised	Public Participation Plan	DPW/ M. Soraghan	Number of programs developed.	Continued to coordinate with existing Town agencies/groups including the Martins Pond Association, Reading/North reading Stream Team, and the Ipswich River Watershed Association to conduct stenciling, development of public outreach programs on shoreline restoration and erosion and sediment control.	New permit requirements to be addressed in Notice of Intent.

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 7 (Reliance on non-municipal partners indicated, if any)	Planned Activities Permit Year 8
3A Revised	Illicit Connection Identification	DPW/ M. Soraghan	# of dry weather outfalls assessed.	Conducted investigation on illicit connections at 24 suspect outfalls. Investigations eliminated 20 outfalls from the list of suspect or potential sources of illicit connections, additional sampling to be completed on the four remaining suspect outfalls.	New permit requirements to be addressed in Notice of Intent.
3B Revised	Illicit Source Identification	DPW/ M. Soraghan	# of illicit sources investigated.	Conducted investigation on illicit connections at 24 suspect outfalls. Investigations eliminated 20 outfalls from the list of suspect or potential sources of illicit connections, additional sampling to be completed on the four remaining suspect outfalls.	New permit requirements to be addressed in Notice of Intent.
3C Revised	Ordinance development to prohibit non-storm water flows	DPW/ M. Soraghan	Bylaw/Ordinance adopted by Town.	Storm Water Management Bylaw was approved and became effective in Permit Year 4.	New permit requirements to be addressed in Notice of Intent.
3D Revised	Storm Water map development	DPW& Planning M. Soraghan/S. Murphy	Map completed showing outfalls.	Completed mapping of storm water system that included outfalls, drainage piping, catch basins, and manholes in Permit Year 3. Updated GIS as needed based on as-build submissions and field work.	New permit requirements to be addressed in Notice of Intent.

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 7 (Reliance on non-municipal partners indicated, if any)	Planned Activities Permit Year 8
4A	Ordinance development for waste control	DPW/ M. Soraghan	Recommend ordinance/ bylaw language at Town Meeting.	Storm Water Management Bylaw was approved and became effective in Permit Year 4.	New permit requirements to be addressed in Notice of Intent.
Revised					
4B	Formalize site plan review procedures	DPW/ M. Soraghan	Site plan review procedures document complete.	Storm Water Management Bylaw was approved and became effective in Permit Year 4. Rules and Regulations were reviewed and updated. A waiting final adoption by the Town.	Adopt final Rules and Regulations.
Revised					
4C	Revised ordinance to address storm water pollution	DPW/ M. Soraghan	Recommend ordinance/bylaw language at Town Meeting.	Storm Water Management Bylaw was approved and became effective in Permit Year 4.	New permit requirements to be addressed in Notice of Intent.
Revised					
4D	BMP Manual	DPW/ M. Soraghan	Handbook completed and adopted by Town.	The Town of North Reading's Bmp Manual was reviewed and finalized in Permit Year 3. Manual is referenced in newly revised draft Rules and Regulations.	New permit requirements to be addressed in Notice of Intent.
Revised					
4E	Formalize Inspection Procedures	DPW/ M. Soraghan	Standard operating procedures on inspection complete.	Storm Water Management Bylaw was approved and became effective in Permit Year 4. Draft Rules and Regulations include inspection requirements.	Adopt final Rules and Regulations.
Revised					

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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 7 (Reliance on non-municipal partners indicated, if any)	Planned Activities Permit Year 8
5A Revised	Procedures for long term O&M	DPW/ M. Soraghan	Adoption of procedures by Town.	Storm Water Management Bylaw was approved and became effective in Permit Year 4. Rules and Regulations were reviewed and updated. Awaiting final adoption by the Town.	Adopt final Rules and Regulations.
5B Revised	Site plan review procedures for water quality impacts	DPW/ M. Soraghan	Adopt procedures.	Storm Water Management Bylaw was approved and became effective in Permit Year 4. Rules and Regulations were reviewed and updated. Awaiting final adoption by the Town.	Adopt final Rules and Regulations.
5C Revised	BMP Handbook	DPW/ M. Soraghan	BMP Handbook	The Town of North Reading's Bmp Manual was reviewed and finalized in Permit Year 3. Manual is referenced in newly revised draft Rules and Regulations.	New permit requirements to be addressed in Notice of Intent.
5D Revised	Revise ordinance to address storm water pollution	DPW/ M. Soraghan	Recommend ordinance/bylaw language at Town Meeting.	Storm Water Management Bylaw was approved and became effective in Permit Year 4.	New permit requirements to be addressed in Notice of Intent.

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 7 (Reliance on non-municipal partners indicated, if any)	Planned Activities Permit Year 8
6A	Employee Training	DPW/ M. Soraghan	# of employees trained.	Conducted Storm Water Management workshop with Town departments including the DPW in Permit Year 2. Eighteen (18) employees were trained	New permit requirements to be addressed in Notice of Intent.
Revised					
6B	Prioritized Street Sweeping	DPW/ M. Soraghan	Schedules and prioritized street sweeping	The Town purchased a mechanical sweeper in 2005 and has since increased street sweeping on a more frequent basis in prioritized areas.	New permit requirements to be addressed in Notice of Intent.
Revised					
6C	Spill Response and Prevention	DPW/ M. Soraghan	Develop procedures.	At Storm Water Management Workshop discussed proper spill response and prevention BMP's in Permit Year 2.	New permit requirements to be addressed in Notice of Intent.
Revised					
6D	Prioritized Catch Basin Cleaning	DPW/ M. Soraghan	Schedules and prioritizes cleaning.	Outlined recommendations in the Town's Storm Water Capital Improvement Program Report that includes modification to the Town's current catch basin cleaning program in Permit Year 3. Considered changes to the catch basin cleaning program based on prioritization and cleaning equipment recommendations.	New permit requirements to be addressed in Notice of Intent.
Revised					

Part IV. Summary of Information Collected and Analyzed

During development of the Stormwater Management Rules and Regulations fees have been put in place to offset the cost of administration processing and engineering review of stormwater applications. These fees include an Application Fee (\$500), Review Fee (depending on the complexity of the project) and an Inspection Fee (also depending on the complexity of the project). The Review and Inspection fee will be determined by the Town Engineer. In addition, in-house meetings with departments that deal with development to discuss the upcoming permit and the possibility of establishing a storm water utility have been held.

To comply with BMP 3A and 3B, the Town conducted dry weather sampling on 24 outfalls previously identified as "suspect". Upon completion of sampling 20 of 24 were eliminated from the list of potential or suspect illicit connections while further investigation is recommended for the remaining four due to possible high groundwater level interference. While bacteria test came back negative in all these outfalls, some analytical results indicate possible wash water contamination. The town anticipates continuation of field investigations to eliminate any possible illicit connections to these outfalls.

Part V. Program Outputs & Accomplishments (OPTIONAL)

(Since beginning of permit coverage unless specified otherwise by a **, which indicates response is for period covering April 1, 2009 through March 31, 2010)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	
Annual program budget/expenditures **	(\$)	
Total program expenditures since beginning of permit coverage	(\$)	
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		

Education, Involvement, and Training

Estimated number of property owners reached by education program(s)	(# or %)	
Stormwater management committee established	(y/n)	Y
Stream teams established or supported	(# or y/n)	Y
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	Y
Shoreline cleaned since beginning of permit coverage	(mi.)	
Household Hazardous Waste Collection Days		
■ days sponsored **	(#)	2

▪ community participation **	(# or %)	
▪ material collected **	(tons or gal)	
School curricula implemented	(y/n)	N

Legal/Regulatory

	In Place Prior to Phase II	Reviewing Existing Authorities	Drafted	Draft in Review	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

	(Preferred Units)		Response
Outfall mapping complete	(%)		100 ¹
Estimated or actual number of outfalls	(#)		524 ²
System-Wide mapping complete (complete storm sewer infrastructure)	(%)		100
Mapping method(s)			
▪ Paper/Mylar	(%)		100 ³
▪ CADD	(%)		Unknown
▪ GIS	(%)		100 ⁴

Outfalls inspected/screened **	(# or %)	24 ⁵
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	524
Illicit discharges identified **	(#)	6 ⁵
Illicit discharges identified (Since beginning of permit coverage)	(#)	0
Illicit connections removed **	(#); and (est. gpd)	0
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	0
% of population on sewer	(%)	1
% of population on septic systems	(%)	99

Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre) **	(#)	
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(%)	
Site inspections completed **	(# or %)	
Tickets/Stop work orders issued **	(# or %)	
Fines collected **	(# and \$)	
Complaints/concerns received from public **	(#)	

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	
Site inspections (for proper BMP installation & operation) completed **	(# or %)	
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	
Low-impact development (LID) practices permitted and encouraged	(y/n)	

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **	(times/yr)	1
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	1
Qty of structures cleaned **	(#)	1821
Qty. of storm drain cleaned **	(%, LF or mi.)	0
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Beneficial use

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	
• Hourly or per basin contract rate **	(\$/hr or \$ per basin)	
• Disposal cost**	(\$)	
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	
• Vacuum truck(s) owned/leased	(#)	
• Vacuum trucks specified in contracts	(y/n)	
• % Structures cleaned with clam shells **	(%)	
• % Structures cleaned with vacuor **	(%)	

(Preferred Units)		Response
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	1
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	1
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Beneficial use
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	
• Hourly or lane mile contract rate **	(\$/hr. or ln mi.)	
• Disposal cost**	(\$)	
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	1 ⁶
• Vacuum street sweepers owned/leased	(#)	

• Vacuum street sweepers specified in contracts	(y/n)	N
• % Roads swept with rotary brush sweepers **	%	100
• % Roads swept with vacuum sweepers **	%	0

Reduction (since beginning of permit coverage) in application on public land of:		
▪ Fertilizers	(lbs. or %)	
▪ Herbicides	(lbs. or %)	
▪ Pesticides	(lbs. or %)	
Integrated Pest Management (IPM) Practices Implemented	(y/n)	

	(Preferred Units)	Response
Average Ratio of Anti-/De-Icing products used **	% NaCl % CaCl ₂ % MgCl ₂ % CMA % Kac % KCl % Sand	60% NaCl 35% Sand 5% CaCl ₂
(also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)		
Pre-wetting techniques utilized **	(y/n or %)	Y
Manual control spreaders used **	(y/n or %)	Y
Zero-velocity spreaders used **	(y/n or %)	N
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/ln mi. or %)	
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln mi. or %)	
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100
Storage shed(s) in design or under construction	(y/n or #)	N

100% of salt/chemical pile(s) covered in storage shed(s) by May 2008	(y/n)	Y

Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	
• Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	

Notes:

1. Bases on available mapping of outfalls.
2. Updated based on revised mapping and outfall assessments conducted.
3. 100% of all new and existing outfalls have drainage plans filed with Town.
4. 100% correlates to the percentage of outfalls visited and GPS located.
5. 18 potential illicit discharges eliminated further investigation to be conducted on six outfalls.
6. One mechanical sweeper purchased in 2005