Municipality/Organization: Hanscom Air Force Base

EPA NPDES Permit Number: MAR042029

MaDEP Transmittal Number: W-041288

Annual Report Number & Reporting Period: No. 5: 1 May 07 – 30 April 08

NPDES PII Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: DONALD C. MORRIS, PE Title: Environmental Director

Telephone #: 781-377-2475 Email: Donald.morris@hanscom.af.mil

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: CHRIS PERKINS, PE

Title: Base Civil Engineer, Government Organization

Date: 30 April 2008

Part II. Self-Assessment

Hanscom Air Force Base (AFB) has completed the required self-assessment and has determined that our base is in compliance with all permit conditions, except for the following provisions:

Part IV.B.2 Hanscom AFB did not provide public notice in accordance with MGL Chapter 39, Section 23 B.

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 5 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 6
3.1a Revised	Partnering w/Massport, Towns	66 MSG/CEV	1 partnering event per year	Meetings with Massport and DEP were held on 30 May 07, 18 Jul 07, 23 Jan 08, 7 Feb 08 and 3 April 08.	Complete similar effort.
3.1b Revised	Partnering w/Base Organizations	66 MSG/CEV	1 partnering event per year	BMP meetings with Roads & Grounds Department (RGD) 16 Nov 07 & 31 Mar 08 plus multiple undocumented meetings with all levels of RGD. All projects under design by Air Force Civil Engineering are documented for stormwater review using AF Form 813.	Complete similar effort and document more formal meeting with managers, foremen.
3.1c Revised	Educational Materials, Base	66 MSG/CEV	Pamphlets, flyers, electronic messages	Shawsheen River cleanup flyer and e-mail 20 Mar 08, & 2 Apr 08. Hanscom Middle School 7th Grade Science Class river cleanup workshop 18 Apr 08.	Complete similar effort.
3.1d Revised	Educational Displays, Notices	66 MSG/CEV	1 display event per year	14-18 April 08 river cleanup displays in four high visibility buildings on base.	Complete similar effort.
3.1e Revised	Pollution Prevention Events	66 MSG/CEV	1 P2 event per week	Hazardous Waste (office, commercial, industrial) and Materials Drop-off Day are held each week, on Tuesday at 8-9 AM. Privatized housing contractor has sponsored separate collection events on Sundays. New collection booms installed in Shawsheen River. Shawsheen River cleanup (35 volunteers) 18 Apr 08.	Complete similar effort
Revised					

1a. Additions

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 5 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 6
3.2a	Public Stakeholder Meeting	MSG/CEV	1 stakeholder meeting per year	The public was informed about storm water improvements at Hanscom AFB during the 20 June 07 Restoration Advisory Board public hearing at the Bedford Town Hall.	Complete similar effort.
Revised					
3.2b	Annual MS4 Public Notice	MSG/CEV	1 notice per year and document responses	A specific MS4 advertisement was not performed.	Issue a public notice.
Revised					
3.2c	Oil, Vehicle Fluid Disposal Info	MSG/CEV	Document distributed info & waste turn-ins	Info posted on base environmental web site, in housing info packets and at auto hobby shop.	Complete similar effort.
Revised					
Revised					
Revised					
Revised					

2a. Additions

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 5 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 6
3.3a Revised	Update Storm Water & Sewer Maps on CAD	66 MSG/CE	Update as changes occur.	Weekly meetings with implementing contractor document updating as changes occur. New GIS (GEOBASE) includes stormwater infrastructure data.	Complete similar effort.
3.3b Revised	Inspect Sewer By-pass Valve, Train Personnel	66 MSG/CE	Sewer valves operate, zero sewer discharge.	Training of implementing contractor is performed continuously. Sewer force main sampling ports programmed to be installed for use by MWRA.	Complete similar effort.
3.3c Revised	Inspect, Clean Oil/Water Separators	66MSG/CE	Document conditions, verify connections	All base oil/water separators were cleaned on 31 Oct – 2 Nov 07, and OWS at Bldgs 1201 (31 Mar 08), 1720, 1707 (28 Mar 08) & 1614 (8 Jan 08) were cleaned again and documented in a report.	Complete similar effort.
3.3d Revised	Inspect for Non-Storm Water Connections	66 MSG/CE	Document findings, eliminate connections	Air Force Institute for Operational Health performed a comprehensive cross connection survey 21-29 Apr 08. Report and corrective action to follow.	Perform corrective action.
3.3e Revised	Sample, Analyze Storm Water	66 MSG/CEV	Sample 2 events per year	Visual inspections for pollutants were routinely performed. Specific sampling events were culvert near motor pool (23 May 07 & 22 Apr 08), open channel near CE (14 May, 22 Oct 07 & 9, 17 Apr 08) and near Runway 29 approach (17 Apr 08). Additionally Hanscom funds the continuous operation of the USGS Stream Gage in the Shawsheen River that analyses storm water.	Complete similar effort.
Revised					

3a. Additions

4. Construction Site Storm water Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 5 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 6
3.4a Revised	Stabilize Drainage, Exposed Soil	66 MSG/CEV	Approve construction P2 plans, inspect sites	Only two small soil projects occurred during Year 5 neither of which required P2 plans. Hay bales and silt fence installed at B1120 soil pile and grass established at BCE Heavy Repair site.	Complete similar effort.
3.4b Revised	Sediment Control	66 MSG/CEV	Inspect before, during and after	Government and implementing contractor continuously inspected construction sites on base. 13 catch basins raised to preclude sediment from entering storm drain.	Complete similar effort.
3.4c Revised	Protect Wetlands, Buffer Zones	66 MSG/CEV	Approve staging, storage, access	Relied on privatized housing contractor to organize and clean up wetland debris 5 Apr 08. Discovered ice damaged trash racks, programmed repair project 29 Apr 08.	Complete similar effort.
3.4d Revised	Sequence Construction Activity	66 MSG/CEV	Approve job sequence, minimize impact	Revised design for new 70,000 SF office building to be phased to minimize impact. Phase II demolition will include new green space.	Complete similar effort.
3.4e Revised	Implement Good Housekeeping	66 MSG/CEV	No-notice site inspections	Incorporated housekeeping into new CE support contract 1 Apr 08. New contractor performs self inspections.	Complete similar effort.

Revised					

4a. Additions

5. Post-Construction Storm Water Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 5 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 6
3.5a	Structural Controls	66 MSG/CE	Design to 5 year watershed action plan	Storm water structural BMPs will reduce post construction flow and increase groundwater recharge at new Bldg 1600 office building. New structural BMP water quality/detention swales completed at 4 acre motor pool.	Complete similar effort.
Revised					
3.5b	Non-Structural Controls	66 MSG/CEV	Link Watershed goals to planning	Planning process now includes storm water element maximizing progress toward flow & recharge targets.	Complete similar effort.
Revised					
3.5c	Natural Controls	66 MSG/CEV	Maintain vegetation buffers	Existing buffers were improved by maintaining no-cut zones base wide and reducing grass cutting in many areas.	Complete similar effort.
Revised					
Revised					

Revised					

5a. Additions

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 5 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 6
3.6a	Catch Basin Cleaning	66 MSG/CE	Sweep streets, clean catch basins	Regular street sweeping after winter sanding and in Spring. Catch basin cleaning greatly improved.	Sustain sweeping and improved catch basin effort.
Revised					
3.6b	Vehicle Wash Controls	66 MSG/CEV	Inspect wash facilities, discharges to sewer	Inspections performed, New car wash facility completed.	Complete similar effort.
Revised					
3.6c	Organic Runoff Controls	66 MSG/CE	Inspect hydro-seeding, composting areas	Compost activities improved producing more high quality loam. Hydro seeding water tank loading area relocated to reduce fugitive releases to storm drain.	Complete similar effort.
Revised					
3.6d	Spill Response Procedure, Plan	66 MSG/CEV	Inspect, train, assure on-call spill response	Spill Response Plan updated Jun, Sep 07 and Feb 08 reviewed and approved by Commander.	Complete similar effort.
Revised					
3.6e	Conduct Environmental Audits	66 MSG/CEV	Annual audit & report	Environmental compliance audit was conducted by 12person team for 5-days (7-11 May 07)	Complete similar effort. The next compliance audit is scheduled for 5-9 May 08.
Revised					

Revised					

6a. Additions

7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA)

Part I.B.2 (l) A TMDL has been established but not approved by the EPA. The TMDL Report MA83-08-2003-01, dated 9 June 2003, DWM Control Number CN: 168.00 is for Segment MA83-08 of the Shawsheen River. The Storm Water Pollutant TMDL identifies storm water pollutants (sediment as reflected in suspended solids, metals, excessive storm water flow rates and insufficient stream flow rates) as impairing aquatic life uses and impacting river habitat. Implementing BMPs addressing storm water detention and groundwater recharge over several years is required however measurable progress is being achieved.

During a 23 April 2007 meeting at Hanscom Field between the Air Force, Massport, DEP and EPA it was agreed that the Air Force and Massport will submit a formal request to the EPA to change the impaired segment on the Clean Water Act 303(d) list of impaired waters from Category 5 to Category 4b. Additional progress meetings were held on 30 May, 18 Jul 07 and 23 Jan, 3 Apr 08. The Air Force and Massport plan to formally submit the redesignation request in 2008. This new direction in achieving water quality goals stresses management by schedule and a mutually agreeable enforcement mechanism which may include the MS4 Permit.

<<if applicable>> NOT APPLICABLE

BMP ID #	**BMP Description**	**Responsible Dept./Person Name**	**Measurable Goal(s)**	**Progress on Goal(s) – Permit Year 4** (Reliance on non-municipal partners indicated, if any)	**Planned Activities – Permit Year 5**
				NO APPROVED TMDL	

Revised					
Revised					
Revised					
Revised					
Revised					
Revised					

7a. Additions

7b. WLA Assessment

Part IV. Summary of Information Collected and Analyzed

The Air Force has funded the operation of a stream gage by the U.S. Geological Survey (USGS) for over 11 years. The stream gage is located on the Shawsheen River between Hanscom Air Force Base and Hanscom Field. It continuously monitors and records flow and

analytical water quality data. This information, especially the hydrograph will be used to assess the effectiveness of flow control structural BMPs installed over the past 5 years.

Part V. Program Outputs & Accomplishments (OPTIONAL)

The Air Force at Hanscom AFB has obtained funding to install additional structural BMPs to address the need to reduce peak flows and increase groundwater recharge to improve base flows. In 2007 a $86,000.00 project was performed to raise the invert elevation of 13 existing stormwater catch basins. This created approximately 3.5 acre-feet of detention and potential groundwater recharge. The project also includes the installation (Summer of 2008) of one new Stormceptor type catch basin at one of the outfalls to the Shawsheen River. This will improve water quality entering the river from one of the industrial areas on the base.

In 2007 and early 2008, a $100,000.00 stormwater program project to construct a water quality swale and flow control/recharge basin was completed. This project affects approximately 4 acres of paved surface at the base motor pool and will result in significant pollutant removal, increased groundwater recharge and a reduction in peak flow.

In 2007 a 2-acre impervious heavy equipment site was demolished redeveloped for the same use. The new design reduces the impervious area by 10%, increases groundwater recharge and expands a vegetated buffer area between the pavement and an existing wetland.

In 2008 the design of a new 70,000 SF office building and demolition of the current 70,000 SF office building was begun. Construction is scheduled to begin in late 2008. The project post construction storm water flow will be decreased and groundwater recharge will be increased.

Programmatic

Storm water management position created/staffed	(y/n)	Y
Annual program budget/expenditures	($)	~$40.0 K
Total program expenditures since beginning of permit coverage	($)	~$900.0 K
Funding mechanism		Congress

Education, Involvement, and Training

Estimated number of residents reached by education program(s)	(# or %)	2,500
Storm water management committee established	(y/n)	N
Stream teams established or supported	(# or y/n)	Y, Shawsheen
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	Y, 0.5 mi.
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	52
▪ community participation	(%)	35%
▪ material collected	(tons or gal)	1.8 tons
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 Storm water Management				X
Accompanying Regulation Status (indicate with "**X**")				
▪ Illicit Discharge Detection & Elimination				X
▪ Erosion & Sediment Control				X
▪ Post-Development Storm water Management				X

Mapping and Illicit Discharges

Outfall mapping complete	(%)	100
Estimated or actual number of outfalls	(#)	12
System-Wide mapping complete	(%)	100
Mapping method(s)		
▪ Paper/Mylar	(%)	100

▪ CADD	(%)	100
▪ GIS	(%)	70
Outfalls inspected/screened	(# or %)	100
Illicit discharges identified	(#)	0
Illicit connections removed	(#) (est. gpd)	0
% of population on sewer	(%)	100
% of population on septic systems	(%)	0

Construction

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

Post-Development Storm Water Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction storm water control	(%)	100
Site inspections (for proper BMP installation & operation) completed	(# or %)	100
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	N
Low impact development (LID) practices permitted and encouraged	(y/n)	Y

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	0.5
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	0.5
Qty of structures cleaned	(#)	318
Qty of storm drain cleaned	(LF or mi.)	0
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	20 tons
Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)		recycle
Basin Cleaning Costs		
Annual budget/expenditure (labor & equipment)	($)	8.0 K
Disposal cost	($)	0

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	15
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	15
Qty. of sand/debris collected by sweeping	(lbs. or tons)	20 tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	Compost
Cost of sweepings disposal	($)	0
Vacuum street sweepers purchased/leased	(#)	0
Vacuum street sweepers specified in contracts	(y/n)	Y

Reduction in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	decreased
▪ Herbicides	(lbs. or %)	decreased
▪ Pesticides	(lbs. or %)	decreased

Anti-/De-Icing products and ratios	% NaCl % $CaCl_2$ % $MgCl_2$ % CMA % Kac % KCl % Sand	25% 0 0 0 0 0 75%
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 %)	-2%
Salt pile(s) covered in storage shed(s)	(y/n)	Y, 100%
Estimated net reduction or increase in typical year sand application rate	(+/-lbs/ln mi or %)	-2%
Storage shed(s) in design or under construction	(y/n)	N