

**Municipality/Organization: Hanscom Air Force Base**

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**EPA NPDES Permit Number: MAR042029**

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**MaDEP Transmittal Number: W-041288**

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**Annual Report Number**

**& Reporting Period: [No. 4: 1 May 06 – 30 April 07](#)**

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## **NPDES PII Small MS4 General Permit Annual Report**

### **Part I. General Information**

Contact Person: DONALD C. MORRIS, PE

Title: Environmental Director

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#### 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:

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Printed Name: CHRIS PERKINS, PE

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Title: Base Civil Engineer, Government Organization

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Date: 30 April 2007

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## **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.1      Hanscom AFB did not provide educational displays and notices but will accomplish this BMP in the year 5 cycle.

Part IV.B.3      Hanscom AFB did not sample and analyze stormwater during the reporting year due to limited funds. Year 5 sampling and analysis funds are available and this BMP will be performed.

**Part III. Summary of Minimum Control Measures**

**1. Public Education and Outreach**

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 4</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Permit Year 5</b>
3.1a Revised	Partnering w/Massport, Towns	66 MSG/CEV	1 partnering event per year	Meeting with Massport and DEP was held on 7 June 06, 19 Jan and 23 April 07. Storm water improvements hearing 15 Feb 07 with Bedford Conservation Commission on building construction near Shawsheen River.	Complete similar effort.
3.1b Revised	Partnering w/Base Organizations	66 MSG/CEV	1 partnering event per year	Multiple undocumented meetings with all levels of Roads & Grounds Department. 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	Wetland bird pamphlet was distributed to Boy and Cub Scouts on base. Canoe trip for 8 <sup>th</sup> graders and marine ecosystem field trip for 6 <sup>th</sup> graders. Shawsheen River cleanup e-mail on 20 April 07.	Complete similar effort.
3.1d Revised	Educational Displays, Notices	66 MSG/CEV	1 display event per year	None.	Improve effort to accomplish this BMP.
3.1e Revised	Pollution Prevention Events	66 MSG/CEV	1 P2 event per week	Hazardous Household Waste and Materials Drop-off Day are held each week, on Tuesday at 8-9 AM. Housing contractor has sponsored separate collection events on Sundays. New collection booms installed in Shawsheen River.	Complete similar effort
Revised					

**1a. Additions**


**2. Public Involvement and Participation**

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year4</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Permit Year 5</b>
3.2a Revised	Public Stakeholder Meeting	MSG/CEV	1 stakeholder meeting per year	Hanscom AFB and Executive Office of Environmental Affairs met to review water budgets program and process for watersheds on 29 Jun 06 and 1 Mar 07.	Complete similar effort.
3.2b Revised	Annual MS4 Public Notice	MSG/CEV	1 notice per year and document responses	A specific MS4 advertisement was not performed; however the public was informed about storm water improvements at Hanscom AFB during Bedford and Lincoln Conservation Commission public hearings.	Complete similar effort.
3.2c Revised	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					

**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 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
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 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 inspections and meetings with MWRA, Bedford and Lexington to address excessive wear in pipe.	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 25-27 Oct 06 and documented in a report. Oil/water separators at Car Wash and Snow Barn cleaned on 17-18 Nov 06.	Complete similar effort.
3.3d Revised	Inspect for Non-Storm Water Connections	66 MSG/CE	Document findings, eliminate connections	Inspection program identified several indirect connections from condensate return line into stormwater catch basins. All were fixed.	Complete similar effort.
3.3e Revised	Sample, Analyze Storm Water	66 MSG/CEV	Sample 2 events per year	Visual inspections for pollutants were routinely performed but no stormwater sampling was performed.	Improve effort to accomplish this BMP.
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 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
3.4a Revised	Stabilize Drainage, Exposed Soil	66 MSG/CEV	Approve construction P2 plans, inspect sites	P2 plans for most small and all large construction sites (CE Heavy Repair Facility and Fitness Center) were reviewed and compliance assured.	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. Extra emphasis and success in installing hay bales and silt fence at temporary soil piles and redevelopment sites.	Complete similar effort.
3.4c Revised	Protect Wetlands, Buffer Zones	66 MSG/CEV	Approve staging, storage, access	Kept and used backup supply of hay bales for quick fixes and installed additional downstream catch basin fabric. Construction in base housing area involved extensive wetland protection materials.	Complete similar effort.
3.4d Revised	Sequence Construction Activity	66 MSG/CEV	Approve job sequence, minimize impact	Hanscom AFB participation in housing privatization contract planning resulted in project phasing and design of flow control device and low impact development BMPs. Redeveloped site was phased to minimize exposed	Complete similar effort.
3.4e Revised	Implement Good Housekeeping	66 MSG/CEV	No-notice site inspections	Site inspection at CE Heavy Repair Facility in March 07 resulted in improved housekeeping prior to heavy rains.	Complete similar effort.
Revised					

#### 4a. Additions


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

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 4</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Permit Year 5</b>
3.5a Revised	Structural Controls	66 MSG/CE	Design to 5 year watershed action plan	CE Heavy Repair Facility design will result in 12% reduction in runoff and 10% increased groundwater recharge. Structural BMP project to raise catch basins and install Stormceptor device will add ~3.5 acre-feet of detention.	Complete similar effort.
3.5b Revised	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.
3.5c Revised	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					
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### 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 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
3.6a Revised	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.
3.6b Revised	Vehicle Wash Controls	66 MSG/CEV	Inspect wash facilities, discharges to sewer	Inspections performed, New car wash facility design started.	Complete similar effort.
3.6c Revised	Organic Runoff Controls	66 MSG/CE	Inspect hydro-seeding, composting areas	Compost activities improved producing more high quality loam.	Complete similar effort.
3.6d Revised	Spill Response Procedure, Plan	66 MSG/CEV	Inspect, train, assure on-call spill response	Spill Response Plan updated Feb 07 and elevated to base level document reviewed and approved by Commander.	Complete similar effort.
3.6e Revised	Conduct Environmental Audits	66 MSG/CEV	Annual audit & report	Environmental compliance audit was conducted by 12person team for 5-days (12-16 June 06)	Complete similar effort. The next compliance audit is scheduled for 7-11 May 07.

Revised					
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**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. 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

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 4</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Permit Year 5</b>
				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 10 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. The USGS will present a summary of the data collected to the EPA, DEP, Air Force and Massport during the summer of 2007. This information, especially the hydrograph will be used to assess the effectiveness of flow control structural BMPs installed over the past 4 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 FY06 a \$86,000.00 project was awarded to raise the invert elevation of 13 existing stormwater catch basins. This will create approximately 3.5 acre-feet of detention and potential groundwater recharge. The project also includes the installation 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 FY07, additional funding in the amount of \$100,000.00 was obtained for another stormwater program project to construct a water quality swale and flow control/recharge basin. This project will affect 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 and is being 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.

**Programmatic**

Storm water management position created/staffed	(y/n)	Y
Annual program budget/expenditures	(\$)	~\$110.0 K
Total program expenditures since beginning of permit coverage	(\$)	~\$870.0 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	(#)	56

▪ community participation	(%)	35%
▪ material collected	(tons or gal)	3.3 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	(%)	50
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)	(#)	2
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	100%
Site inspections completed	(# or %)	100%
Tickets/Stop work orders issued	(# or %)	1
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	25%
	% CaCl <sub>2</sub>	0
	% MgCl <sub>2</sub>	0
	% CMA	0
	% Kac	0
	% KCl	0
	% Sand	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/l <sub>n</sub> mi or %)	-2%
Storage shed(s) in design or under construction	(y/n)	N