

Municipality/Organization: Hanscom Air Force Base

EPA NPDES Permit Number: MAR042029

MassDEP Transmittal Number: W-041288

Annual Report Number **Year 6**
& Reporting Period: **April 1, 2008 – March 31, 2009**

NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2009)

Part I. General Information

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

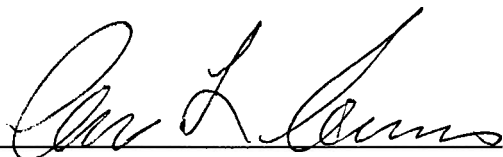
Telephone #: 781-377-2475 **Email:** Donald.morris@hanscom.af.mil

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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:



Printed Name: CHRIS PERKINS, PE

Title: Base Civil Engineer

Date: 30 April 2009

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:

None.

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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
3.1a Revised	Partnering w/Massport, Towns	66 MSG/CEV	1 partnering event per year	Meetings with Massport and DEP were held on 16 Jul 08, 19 Jun 08 and 2 Dec 08.	Complete similar effort.
3.1b Revised	Partnering w/Base Organizations	66 MSG/CEV	1 partnering event per year	BMP meetings with Engineering Design Department every Thursday plus multiple undocumented meetings with all levels of Roads & Grounds Dept. All projects under design by Air Force Civil Engineering are documented for stormwater review using AF Form 813.	Complete similar effort and document 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 7 April 09 & 17 Apr 09. Hanscom Middle School 7 th Grade Science Class river cleanup workshop 17 Apr 09.	Complete similar effort.
3.1d Revised	Educational Displays, Notices	66 MSG/CEV	1 display event per year	9-17 April 09 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 (50 volunteers) 17 Apr 09. Wetland cleanup (30 volunteers) 22 Apr 09.	Complete similar effort

Revised					
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1a. Additions

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
3.2a Revised	Public Stakeholder Meeting	MSG/CEV	1 stakeholder meeting per year	The public was informed about storm water improvements at Hanscom AFB during the 10 June 08 Restoration Advisory Board public hearing at the Bedford Town Hall.	Complete similar effort.
3.2b Revised	Annual MS4 Public Notice	MSG/CEV	1 notice per year and document responses	The Hanscom AFB Restoration Advisory Board meeting which covers MS4 stormwater/groundwater, public notice advertisement was placed in the local and base newspapers on 5 June 08.	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					
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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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
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 not installed but flume grates opened 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 29 Sep – 2 Oct 08 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. Corrective action began Sep 08.	Corrective action to continue until all documented deficiencies are complete.
3.3e	Sample, Analyze Storm Water	66 MSG/CEV	Sample 2 events per year	Visual inspections for pollutants were routinely performed. Specific sampling	Complete similar effort.

Revised				events were culvert near motor pool (28 Apr 09), open channel near CE (17 Jul, 21 Oct 08 & 20 Apr 09) and near Runway 29 approach (16 Jul 08 & 20 Apr 09) and wetlands near Runway 29 (16 Jul & 20 Oct 08 & 20 Apr 09). Additionally Hanscom funds (\$24K) the continuous operation of the USGS Stream Gage in the Shawsheen River that analyses storm water 24/7.	
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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
3.4a Revised	Stabilize Drainage, Exposed Soil	66 MSG/CEV	Approve construction P2 plans, inspect sites	Construction of B1604 required a P2 plan. Hay bales and silt fence were installed and inspected at B1811 Stormceptor installation in August 2008 and at B1604 in March 09.	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.	Complete similar effort.

3.4c Revised	Protect Wetlands, Buffer Zones	66 MSG/CEV	Approve staging, storage, access	Ice damaged trash racks at Marrett Street culvert repaired May 08.	Complete similar effort.
3.4d Revised	Sequence Construction Activity	66 MSG/CEV	Approve job sequence, minimize impact	Design and construction for new B1604 (70,000 SF) office building is phased to minimize impact. Phase II demolition of B1600 will include new green space.	Complete similar effort.
3.4e Revised	Implement Good Housekeeping	66 MSG/CEV	No-notice site inspections	Incorporated housekeeping oversight into new Environmental support contract 6 March 09.	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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
3.5a	Structural Controls	66 MSG/CE	Design to 5 year watershed action plan	Storm water structural BMPs will reduce post construction flow, increase	Complete similar effort.

Revised				groundwater recharge and improve water quality at B 1604 office building. New structural BMP Stormceptor installed at Shawsheen River outfall near B1811 in Aug 2009. Water quality/detention swales constructed at catch basins 1952 and 1953 on 29 April 2009.	
3.5b Revised	Non-Structural Controls	66 MSG/CEV	Link Watershed goals to planning	Planning process 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. Native species wildflowers planted and invasive species (phragmite) eradication commenced at B1993 wetland on 22 April 2009.	Complete similar effort.
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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
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 accomplished Aug 08 (500 catch basins) and Oct 08 (100 catch basins). New, higher efficiency municipal street sweeper purchased in August 2008.	Sustain sweeping and catch basin cleaning.
3.6b Revised	Vehicle Wash Controls	66 MSG/CEV	Inspect wash facilities, discharges to sewer	Inspections performed, New car wash facility completed.	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. Hydro seeding water tank loading area improved to reduce fugitive releases to storm drain.	Complete similar effort.
3.6d Revised	Spill Response Procedure, Plan	66 MSG/CEV	Inspect, train, assure on-call spill response	Spill Response Plan updated draft completed in Feb 2009. Final Plan due in May 09. Spill response team and on-call contractor training 12 Feb 09.	Complete similar effort.
3.6e Revised	Conduct Environmental Audits	66 MSG/CEV	Annual audit & report	Environmental compliance audit was conducted by 16person external team for 5-days (5-9 May 08)	Complete similar effort. The next compliance audit is scheduled for 1-5 June 09.
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, 2 Dec 08. The Air Force and Massport plan to formally submit the redesignation request in 2009. 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 6 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 7
Revised				NO APPROVED TMDL	
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 and electrical upgrade in 2009 of a stream gage by the U.S. Geological Survey (USGS) for over 12 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 6 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 included the installation in August 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, B1642, 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 began in April 2009. The project post construction storm water flow will be decreased and groundwater recharge will be increased.

In FY09 the Base received \$110,000.00 for structural stormwater controls. These funds will be used to construct additional water quality swales and detention areas ancillary to existing parking areas.

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	Y
Annual program budget/expenditures **	(\$)	~80.0K
Total program expenditures since beginning of permit coverage	(\$)	~1,050.0K
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		Congress

Education, Involvement, and Training

Estimated number of property owners reached by education program(s)	(# or %)	2,500
Stormwater 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
Shoreline cleaned since beginning of permit coverage	(mi.)	3.0
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	52
▪ community participation **	(# or %)	35%
▪ material collected **	(tons or gal)	1.3 tons
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
Estimated or actual number of outfalls	(#)	12
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	100
Mapping method(s)		
Paper/Mylar	(%)	100
CADD	(%)	100
▪ GIS	(%)	80
Outfalls inspected/screened **	(# or %)	100%
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	100%
Illicit discharges identified **	(#)	0
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	(%)	100
% of population on septic systems	(%)	0

Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre) **	(#)	1
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 Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater 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)	1
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	1
Qty of structures cleaned **	(#)	600
Qty. of storm drain cleaned **	(%, LF or mi.)	0
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	18 tons
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	compost

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	16.0K
• Hourly or per basin contract rate **	(\$/hr or \$ per basin)	26/basin
• Disposal cost**	(\$)	0
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	0
• Vacuum truck(s) owned/leased	(#)	1
• Vacuum trucks specified in contracts	(y/n)	Y
• % Structures cleaned with clam shells **	(%)	0

• % Structures cleaned with vector **	(%)	100
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	(Preferred Units)	Response
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	26
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	26
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	30 tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	compost
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	30.0K
• Hourly or lane mile contract rate **	(\$/hr. or ln mi.)	
• Disposal cost**	(\$)	0
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	0
• Vacuum street sweepers owned/leased	(#)	1
• Vacuum street sweepers specified in contracts	(y/n)	Y
• % Roads swept with rotary brush sweepers **	%	0
• % Roads swept with vacuum sweepers **	%	100

Reduction (since beginning of permit coverage) in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	2
▪ Herbicides	(lbs. or %)	5
Pesticides	(lbs. or %)	N/A
Integrated Pest Management (IPM) Practices Implemented	(y/n)	Y

(Preferred Units) Response

Average Ratio of Anti-/De-Icing products used ** (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)	% NaCl % CaCl ₂ % MgCl ₂ % CMA % Kac % KCl % Sand	25
Pre-wetting techniques utilized **	(y/n or %)	N
Manual control spreaders used **	(y/n or %)	Y
Zero-velocity spreaders used **	(y/n or %)	Y
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/ln mi. or %)	-4%
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln mi. or %)	-4%
% 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	N
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	N
• Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	N