City of Nashua

Public Works Division
165 Ledge Street
Nashua, NH 03060

Division Director
(603) 589-3137
Fax (603) 589-3169

April 28, 2006

Mr. Jeffery Andrews
New Hampshire Department of Environmental Services
Water Division
Wastewater Engineer Bureau
P.O. Box 95
Concord, NH 03302-0095

PV
Received
5/9/06

RE: City of Nashua, New Hampshire
NPDES Phase II General Permit No. NHR041021
2006 Annual Report

Dear Mr. Andrews:

Please find enclosed the 2006 Annual Report for the period May 2005 to April 2006 as required under the NPDES General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) for the City of Nashua, New Hampshire. Included in this report is:

Part I. General Information
Part II. Self-Assessment
Part III. Summary of Minimum Control Measures
Part IV. Summary of Information Collected and Analyzed
Part V. Implementation Schedule

Information supporting the report is included in Appendices A through E.

Please contact this office if you should have any questions concerning this report.

Respectfully,

for

Richard S. Seymour, Jr., Director
Division of Public Works

enc: (1)
c: Thelma Murphy, USEPA, Region 1
Stephen Dookran, P.E., City Engineer, Nashua DPW
Mario Leclerc, Superintendent, Nashua DPW, Nashua Wastewater Treatment Facility
Amy Prouty Gill, Nashua DPW

Administration Business Office (603) 589-3140	Street Department (603) 589-4750	City Engineer (603) 589-3120	Parks-Recreation Department (603) 589-3370	Solid Waste Department (603) 589-3410	Traffic Department (603) 589-4700	Wastewater Treatment Plant (603) 589-3560

City of Nashua

Public Works Division
165 Ledge Street
Nashua, NH 03060

Division Director
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Fax (603) 589-3169

April 28, 2006

United States Environmental Protection Agency
Water Technical Unit
P.O. Box 8127
Boston, Massachusetts 02114

RE: City of Nashua, New Hampshire
NPDES Phase II General Permit No. NHR041021
2006 Annual Report

Dear Regulator:

Please find enclosed the 2006 Annual Report for the period May 2005 to April 2006 as required under the NPDES General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) for the City of Nashua, New Hampshire. Included in this report is:

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Respectfully,

S Dookran
for

Richard S. Seymour, Jr., Director
Division of Public Works

enc: (1)

c: Jeffery Andrews, New Hampshire Department of Environmental Services
Stephen Dookran, P.E., City Engineer, Nashua DPW
Mario Leclerc, Superintendent, Nashua Wastewater Treatment Facility
Amy Prouty Gill, Nashua DPW

Administration Business Office (603) 589-3140	Street Department (603) 589-4750	City Engineer (603) 589-3120	Parks-Recreation Department (603) 589-3370	Solid Waste Department (603) 589-3410	Traffic Department (603) 589-4700	Wastewater Treatment Plant (603) 589-3560

City of Nashua, NH
NPDES Phase II Small MS4
General Permit No. NHR041021

2006 Annual Report

May 1, 2005 to April 30, 2006

April 2006

Prepared by:
City of Nashua
Public Works Division
165 Ledge Street
Nashua, NH 03060
(603) 589-3120

City of Nashua, NH
NPDES Phase II General Permit No. NHR041021
2006 Annual Report

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Municipality/Organization: **City of Nashua, NH**

EPA NPDES Permit Number: **NHR041021**

Annual Report Number & Reporting Period: **No. 3: May 05 – April 06**

NPDES Phase II Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: Richard S. Seymour Title: Director, Public Works Division

Telephone #: 589-3120 Email: seymourr@ci.nashua.nh.us

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: for

Printed Name: Richard S. Seymour, Jr.

Title: Director, Public Works Division

Date: April 28, 2006

Part II. Self-Assessment

The City of Nashua is under an EPA Consent Decree (Civil Action No. 05-376-PB), dated December 26, 2005 (based on the Long-Term Water Quality and Infrastructure Control Plan), to mitigate Combined Sewer Overflows (CSOs). Currently, there are eight CSO outfalls that are a part of the City's sewer collection system, four that discharge to the Nashua River and four that discharge to the Merrimack River. CSOs have been identified as a probable source for the Escherichia coli impairment of the portions of the Nashua and Merrimack Rivers located nearest to the City. In April 2006, the design of a 50 mgd Wet Weather Flow Treatment Facility (WWFTF), located at the Nashua Wastewater Treatment Facility, to capture and treat combined (sanitary and stormwater) flow was completed. This WWFTF will greatly reduce the occurrence of CSOs and the volume of combined flows that is discharged to these rivers. Also, urban stormwater runoff from approximately 30 percent of the City, which is part of the combined flow, can now be conveyed to the WWFTF where it will be treated before being discharged to the Merrimack River. Construction of the project is expected to begin in July 2006 and completed in January 2009.

Separation of some combined sewers continues. Construction of a stormwater treatment train, consisting of a swirl separator unit, detention pond and created wetlands, was completed in June 2005 to treat stormwater from a recently separated 38-acre drainage area near South Main Street. The design of a replacement outfall to convey the treated stormwater to the Merrimack River is ongoing. Construction of replacement sewers and new storm drains for a portion of Ledge Street is ongoing. Catch basins in the project area will have hoods installed to treat the stormwater runoff.

Best Management Practices were incorporated in the design for the new City of Nashua Municipal Complex on Riverside Street. Best management practices designed for the site include a rain garden, infiltration trenches, a Stormceptor unit and hoods.

Thirty-four more Wetland Buffer Markers were installed during this reporting period in addition to the thirty Wetland Buffer Markers that were installed during the previous reporting period for a total of 64 Wetland Buffer Markers. The purpose of the markers is to encourage residents not to dump debris in wetland areas. In addition to the markers, a letter is being drafted that will be sent to abutter and residents adjacent to wetlands to provide information on wetlands and encourage residents not to place debris in the wetland or its buffers.

An Enviroscape Watershed/Non-point Source Model was purchased to help educate the public on non-point source pollution. The model was used to demonstrate nonsource point pollution to City employees and Middle School students. The model will be used in classroom presentations and public events in the next permit period.

Revisions were made to the Chapter 16 – Land Use Code of the Nashua Revised Ordinances, effective January 2, 2006. This included lengthy revisions to Article III -Division 10 Wetlands and to Article V- Division 11 Stormwater Management. Both of these sections are include in Appendix A.

A grant to the New Hampshire Department of Environmental Services (NHDES) Watershed Management Bureau Exotic Species Program to control exotic Aquatic Plants was applied for in October 2005 and approved in December 2006. The grant is to treat water milfoil and fanwort in the Mill Pond and Nashua Canal. Coordination with the vendor contracted to apply the herbicide is ongoing.

A grant to the NHDES to complete an educational video to inform the public about nonpoint source pollution was applied for but denied in the fall of 2005.

An ongoing U.S. Army Corps of Engineers (USACE) project to study the aquatic ecosystem restoration of the Mill Pond and Nashua Canal in Mine Falls Park has been suspended due to funding issues. The City will stay in contact with the USACE and seek the completion of the study.

Other activities completed during the permit period May 2005 through April 2006 are included in the Part III of this report.

To address Part I.C.1 of the City's General Permit, Table B-1 is included in **Appendix B.** Listed on Table B-1 are the water bodies within the City limits that are on the NHDES Final 2004 List of Threatened or Impaired Waters that require a TMDL. Included in the table is the Best Management Practice to address the cause of impairment for each water body.

To address Part I.D, note that no TMDL has been approved for any water body into which the City of Nashua discharges. The schedule for required TMDL's is listed in Table B-1, located in **Appendix B**.

The City of Nashua has completed the required self-assessment and has determined that the City is in compliance with all permit conditions.

Part III. Summary of Minimum Control Measures

The summary of the activities completed in the Permit Year 3, May 2005 through April 2006, of the six Minimum Control Measures is listed on the attached table. Planned activities for Permit Year 4, May 2006 through April 2007, are also listed. Revisions to the Best Management Practices have been noted in the table.

Part III. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals - permit year 3 (reliance on non-municipal partners indicated, if any)	Planned Activities - Year 4
1.00	**Public Education**				
1.01	Storm water education program for school children	Present in two elementary schools each year a environmental program including storm water issues. Include ongoing presentation of "Mr. And Mrs. Fish" during Clean Water Week.	DPW (1) - Rick Seymour, Amy Gill	Prepare program in-house at DPW to focus program on stormwater. Present in May 2005.	
Revision		Purchase Enviroscape Watershed/Nonpoint Source model	DPW - Amy Gill	Enviroscape purchased. Middle Schools contacted and presentation being prepared including video and Enviroscape demonstration. 3 Presentations given.	Continue presentation in the schools. Establish more contacts with educators.
1.02	Insert flyer in local newspaper describing city wide storm water program	Number of inserts distributed annually	DPW - Amy Gill	Draft of insert was developed.	
Revision	Due to excessive costs, newspaper inserts will not be used				
1.03	Create web page on City web site	Web site online by 12/05	DPW - Stephen Dookran, Amy Gill	Portions of web page on line. The web site has been temporarily removed while the new City web site is implemented.	Review and update stormwater web page.
1.04	Create Public Service Announcements	Run Announcement quarterly on cable TV channel access	DPW - Amy Gill	No action taken yet on this item.	Create Public Service Announcements and run on cable access television channel.
1.05	Create brochure and presentation to inform businesses and industrial users about illicit discharges	Distribute to businesses and industrial users once every two years	DPW - Richard Seymour, Phil Appert	No action taken yet on this item.	Begin development of brochure.
1.06	Run three videos on Cable Access TV. "After the Storm" , "Stormwater is Never Away" and "A River Reborn"	Number of times videos are run.	DPW - Amy Gill	"After the Storm" video ran no fewer than 22 times and "Stormwater is Never Away" video ran no fewer than 18 times on government acess television channel in June 2005.	Continue to run videos.
1.07	Create board for display at functions where the public is gathered.	Number of times display is used.	DPW - Amy Gill	Boarded Displayed: in City Hall June 6 - 10, School function Nov. 2, Eagle Scout awards ceremony May 21. Board was displayed at 3 functions. See **Appendix C.**	Update board and continue to display board at various public events.
1.08	Install Wetland Buffer Markers to encourage no dumping of debris in a wetland area.	75 markers to be installed in 3 years.	DPW - Scott Pollock, Amy Gill	Continued to installed markers in various wetland areas. A total of 64 markers have been installed.	Continue to install Wetland Buffer Markers.
1.09	Mail letters to owners/residents that abut wetland to explain importance of wetland and encourage no dumping in wetland area.	Number of letters mailed to abutters	DPW - Amy Gill, NCC(7)	Draft letter developed. Mailing lists for each water body in Nashua created. Wetland Brochure revised and updated, with input from NHDES.	Complete letters. Finalize mailing lists. Mail letters.

Part III. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals - permit year 3 (reliance on non-municipal partners indicated, if any)	Planned Activities - Year 4
1a.	**Addition**				
1.10	Design sign for brook/stream crossings	Percent design completed	DPW - Amy Gill, NCC	Discuss concept with City departments.	Design sign.
1.11	Present Stormwater Management Program at Public Meetings	Number of Presentations	DPW- Amy Gill	Stormwater Management Presentation given at Board of Public Works meeting, May 9, 2005 and televised on government access channel.	Continue presentations as needed.
2.00	**Public Participation**				
2.01	Attach Storm Drain Markers in or near Catch Basins discharging to open water body	40% installed by 11/04, 80% installed by11/05, 100% by 11/06	DPW - Amy Gill, Pennichuck Water Works, Inc.	Areas where markers applied reviewed to determine if markers still in place. Pennichuck began replacing markers in drinking water district which had been removed.	Continue to have public involved in applying markers.
Revision		50% installed by 10/08			
2.02	Continue phone hotline service for stormwater related concerns	Establish a hotline. Record number of phone calls concerning drainage issues	DPW- Mario Leclerc, NWTF(2)	Hotline for drainage issues continues. Record violations and report to NHDES(3) and USEPA(4) as needed.	Continue hotline for drainage issues.
2.03	Meet with local communities, and the NHDOT. Meeting coordinated by the Nashua Regional Planning Commission (NRPC)	Meet every two months for a total of 6 meetings per year	DPW - Amy Gill, NRPC (8)	Representatives from Amherst, Merrimack, Nashua, Hollis, Hudson, Milford, NRPC and NHDOT attend meetings.	Continue to meet with members of the surrounding communities.
2.04	Create door hanger with tips on preventing stormwater pollution	Number of door hangers distributed	DPW - Amy Gill	Door hangers made available at public areas in the Planning Office and Engineering Office. Door hangers distributed during classroom presentations. See BMP 1.01.	Continue to distribute door hangers to the public.
2a.	**Addition**				
2.05	Provide email links for stormwater related concerns	Number of times email received	DPW	Frequent emails received to report stormwater issues.	Continue to monitor emails.
2.06	Request public input for ordinance revision to Stormwater Management and Wetlands sections	Number of meetings held	CDD	Approximately 20 meetings held which requested input. Revised ordinance adopted January 2, 2006.	Continue to obtain public comment on ordinances.

Part III. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals - permit year 3 (reliance on non-municipal partners indicated, if any)	Planned Activities - Year 4
3.00	**Illicit Discharge Detection and Elimination**				
3.01	Map outfalls and waters of the United States in Nashua city limits	Complete by 11/04. Count number of outfalls identified	DPW - Amy Gill	Continued updating GIS maps based on field verifications of drainage systems and outfalls, and completion of new drainage systems. Working jointly with NHDES, an additional 10 outfalls field verified on Salmon Brook. See Summary Memo in **Appendix D**. GIS drainage layer sent to NHDOT(9).	Continue to update GIS maps based on field verification of outfalls and newly constructed outfalls.
3.02	Prepare an Illicit Discharge Detection and Elimination (IDDE) Plan	Complete final plan 10/04	DPW - Amy Gill	Continue to develop Draft IDDE.	Complete IDDE Plan.
Revision		Complete final plan 10/06			
3.03	Review illicit discharge ordinance	Amend ordinance as necessary by 12/ 07	DPW - Amy Gill	Ordinance gathered. CDD(5) contacted. Informed that ordinance may need to be revised.	Inform CDD of proposed future revisions.
3.04	Continue dry weather field survey of outfalls.	Complete survey of outfalls. Locate other outfalls in water bodies not included in survey by 11/04	DPW - Mario Leclerc, Amy Gill	1.45 miles of Salmon Brook revisited. 10 more outfalls were identified. See Summary Memo in **Appendix D.**	Update outfall list as new outfalls are constructed.
3.05	Conduct sampling of dry weather discharges and attempt to trace source of illicit discharge	Sample and identify source of suspect outfalls	DPW - Amy Gill	No outfalls sampled.	Sample suspect sources as needed.
3.06	Remove illicit discharges as budgetary funding allows	Track number of illicit discharges detected and removed	DPW - Mario Leclerc, Scott Pollock	No illicit discharges identified.	Continue testing and tracking suspect discharges.
3.07	Continue Regional Hazardous Waste Collection Day	Conduct 5 collection days per year	DPW - Sally Hyland, Solid Waste	Hazardous waste collection days held on 5/7,6/3, 8/6, 10/1, and 11/5/2005. Event coordinated with NRPC.See Flyer in **Appendix D.**	Hazardous waste collection days scheduled for 5/6, 6/15, 8/5, 10/7, and 11/4/2006 for this year.
3.08	Track Hazardous Spills	Number of Spills identified	DPW - Mario Leclerc	One ruptured vehicle gas tank spilled in to catch basin. NHDES notified.	Report on spills as necessary.
3a.	**Addition**				
3.09	Conduct watershed audit for input in NRPC report	Complete audit	DPW, CDD, NRPC	Received audit form NRPC.	Complete audit.
3.10	Sample outfalls in water body RIV700061201-05, identified on the Impaired waters list	Number of outfalls sampled	DPW - Mario Leclerc	Area identified on NHDES 303(d) list	Sample outfalls and trace source, if possible.

Part III. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals - permit year 3 (reliance on non-municipal partners indicated, if any)	Planned Activities - Year 4
4.00	**Construction Site Runoff Control**				
4.01	Review procedure for site plan review to consider if potential water quality impacts are included	Complete review by Dec. 31 2005	DPW - Amy Gill, CDD	Land use ordinance revised and updated, effective January 02, 2006.	Continue review of implementation of new ordinances.
4.02	Review requirements for construction operators to control demolition waste, chemicals, sanitary waste and other waste at the construction site	Complete review by Dec. 31 2005	DPW - Amy Gill	Land use ordinance revised and updated, effective January 02, 2006.	Continue review of implementation of new ordinances.
4.03	Review existing city ordinances concerning stormwater management at construction sites (Sec 16-145) and modify as necessary	Make recommendations for improvements by June 2006. Proceed through internal process to change ordinance by Dec. 2007	DPW - Amy Gill	Land use ordinance revised and updated, effective January 02, 2006. Article VI, Division 10 Stormwater Management is included as **Appendix A.**	Continue review of implementation of new ordinances.
4.04	Develop standard drawings of runoff prevention BMPs to be used by site developers	Produce document containing at least 7alternative erosion protection measures by Dec. 2006	DPW - Amy Gill	Gather sample drawings and compile into standards.	Compile drawings electronically.
4.05	Review procedures for inspection of construction sites to see if BMPs are in place and functioning correctly	Complete review by Dec. 2006	DPW - Amy Gill, CDD	CDD contacted and informed that procedures need to be reviewed.	Complete review of inspection procedures.
4.06	Review procedures for enforcement of improper functioning sediment and erosion control measures	Complete review by Dec. 2006	DPW - Amy Gill, CDD	CDD contacted and informed that procedures need to be reviewed.	Complete review of inspection procedures.
5.00	**Post Construction Runoff Control**				
5.01	Review existing ordinance Sec. 16-145 which requires post development peak discharges be no greater than predevelopment discharges. Modify as necessary	Make recommendations for improvements by June 2006. Proceed through internal process to change ordinance by Dec. 2007	DPW - Amy Gill	Land use ordinance revised and updated, effective January 02, 2006. Article VI, Division 10 Stormwater Management is included as **Appendix A.**	Continue review of implementation of new ordinances.
5.02	Review ordinance Sec 16-145 for ground water recharge required on new site plans	Make recommendations for improvements by June 2006. Proceed through internal process to change ordinance by Dec. 2007	DPW - Amy Gill	Land use ordinance revised and updated, effective January 02, 2006. Article VI, Division 10 Stormwater Management is included as **Appendix A.**	Continue review of implementation of new ordinances.
5.03	Implement Annual Operations and Maintenance requirement for BMPs on private properties	Implement by Dec. 2007	DPW - Amy Gill	Land use ordinance revised and updated, effective January 02, 2006. Article VI, Division 10 Stormwater Management is included as **Appendix A.**	Continue review of implementation of new ordinances.

Part III. Summary of Minimum Control Measures

Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals - permit year 3 (reliance on non-municipal partners indicated, if any)	Planned Activities - Year 4
Disseminate information contained within city developed Alternative Storm Water Management Methods guide for Storm Water Control	Make available to developers as guide by July 2004	DPW - Amy Gill	CDD contacted to inform them of manual that will be made available to Developers.	Copy and distribute manual.
	Make available by July 2005			
Develop a ditch/swale cleaning program	Develop program by July 2005	DPW - Mario Leclerc	Swales continue to be cleaned. Approximately 21 swales/ditches were inspected and 4 were cleaned. Preliminary inventory of swales of completed. Need field verification.	Continue to inventory swales. Develop program and inspect swales.
Develop culvert maintenance program.	Develop and Implement program by 2007	DPW - Mario Leclerc	List developed form GIS mapping. Locations need to be field verified.	Continue to field verify locations of culverts.
Impaired Waters				
No TMDL is listed for any water body into which the City stormwater discharges.				

(1) DPW - Division of Public Works Division, City of Nashua
(2) NWTF -Nashua Wastewater Treatment Facility, City of Nashua
(3) NHDES - New Hampshire Department of Environmental Services
(4) USEPA - United States Environmental Protection Agency
(5) CDD - Community Development Division, City of Nashua
(6) SSO - Sanitary Sewer Overflow
(7) NCC - Nashua Conservation Commission
(8) NRPC - Nashua Regional Planning Commission
(9) NHDOT - New Hampshire Department of Transportation

Part III. Summary of Minimum Control Measures

Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals - permit year 3 (reliance on non-municipal partners indicated, if any)	Planned Activities - Year 4
Develop enforcement measures and assign internal staff to enforce requirements	Implement by Dec. 2007	DPW - Amy Gill	CDD contacted and informed that requirements need to be reviewed.	Complete review of requirements.
Municipal Good Housekeeping				
Hazardous waste training program for applicable employees	Employees attend annual hazardous spill training program beginning May 2005	DPW - Mario Leclerc	Pertinent employees attended SARA May 11, 2005.	Attend SARA program in 2006.
Storm water discharge training program for applicable municipal employees on preventing non-storm water discharges	Employees attend annual storm water discharge training program beginning May 2005	DPW - Mario Leclerc	No action taken on this item.	Begin Program development or selection of outside program for DPW employees to attend
Review program for handling fertilizer on city property	Complete review July 2005	DPW - Nicholas Caggiano, Amy Gill	Fertilization policy near wetlands reviewed and found to be satisfactory.	Continue implementation of fertilization policies.
Continue litter management program by street sweeping entire City at least once a year.	Review program annually and record number of lane miles swept	DPW - Scott Pollock	Program began in March 2006, earlier than usual due to a mild winter.Entire City sewpt once.	Combination Sidewalk plow/sweeper to be purchased. Continue street sweeping.
Review snow dumping procedure to allow snow storage in areas away from surface waters	Complete review July 2005	DPW - Scott Pollock	Program reviewed. Snow continues to be stored in an area where stormwater treatment is available before the melted snow is discharged to a water body. Area is swept during and after snow melt.	Review program annually.
Continue city wide program to clean catch basins	100% of all catch basins cleaned once every 3 years	DPW - Mario Leclerc	Approximately 265 catch basin were cleaned.	Continue catch basin cleaning program.
Continue SSO(6) correction and mitigation program for SSOs that discharge to water bodies	Record number of SSOs corrected.	DPW - Mario Leclerc	One SSO was reported that affected a water body. See **Appendix E.**	Continue correction of SSOs.
Television inspection of storm drains as needed	Record number Inspect as needed	DPW - Mario Leclerc	Approximately 2,000 LF of Storm Drain were inspected with the robotic camera.	Continue inspection as needed.
Calibrate salt and sand truck spreaders	Complete annually before November 1st	DPW - Scott Pollock	Calibrated salt and sand trucks in November 2005.	Calibrate trucks in fall 2006.
Review pooper scooper ordinance	Review ordinance by July 2005	DPW- Amy Gill, Nick Caggiano	Ordinance reviewed and found adequate. Two Doggie Convenience Stations were installed, one in Mine Falls Park and one in Lincoln Park, as a pilot program.	Monitor the use of the Doggie Convenience Stations.

Part IV. Summary of Information Collected and Analyzed

A 1.45-mile stretch of Salmon Brook was revisited in the summer of 2005, with 10 additional outfalls being located. No outfalls were flowing at the time of inspection so no sampling was taken. A summary of the investigation is presented in **Appendix D** as BMP ID #3.01 and BMP ID #3.04. A total of 392 outfalls along 72 miles of shoreland were investigated since May 2002. Sampling of suspect outfalls will continue in Permit Year 4.

Part V. Implementation Schedule

The Stormwater Management Program Implementation Schedule for the Best Management Practices is outlined on the attached table.

Part V. SWMP Implementation Schedule

	PERMIT YEAR ONE				PERMIT YEAR TWO				PERMIT YEAR THREE				PERMIT YEAR FOUR				PERMIT YEAR FIVE			
BMP ID #	Spring 03	Summer 03	Fall 03	Winter 03 04	Spring 04	Summer 04	Fall 04	Winter 04-05	Spring 05	Summer 05	Fall 05	Winter 05-06	Spring 06	Summer 06	Fall 06	Winter 06-07	Spring 07	Summer 07	Fall 07	Winter 07-08
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Part V. SWMP Implementation Schedule

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BMP ID #	Spring 03	Summer 03	Fall 03	Winter 03 04	Spring 04	Summer 04	Fall 04	Winter 04-05	Spring 05	Summer 05	Fall 05	Winter 05-06	Spring 06	Summer 06	Fall 06	Winter 06-07	Spring 07	Summer 07	Fall 07	Winter 07-08
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Part V. SWMP Implementation Schedule

	PERMIT YEAR ONE				PERMIT YEAR TWO				PERMIT YEAR THREE				PERMIT YEAR FOUR				PERMIT YEAR FIVE			
BMP ID #	Spring 03	Summer 03	Fall 03	Winter 03 04	Spring 04	Summer 04	Fall 04	Winter 04-05	Spring 05	Summer 05	Fall 05	Winter 05-06	Spring 06	Summer 06	Fall 06	Winter 06-07	Spring 07	Summer 07	Fall 07	Winter 07-08
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BOLD TEXT is revised or added
Submitted 4/28/06

Appendix A

Sections of the Nashua Revised Ordinances

Chapter 16

Article III – Division 10 Wetlands
Article V – Division 11 Stormwater Management

ENGINEERING LIBRARY

LAND USE CODE

CITY OF NASHUA, NEW HAMPSHIRE

Chapter 16 - Nashua Revised Ordinances

Adopted November 09, 2005

Effective Date January 02, 2006

Division 10. Wetlands

Purpose and Findings: By and through enactment of this article, it has been determined that the wetlands and buffers within the City of Nashua are fragile natural resources; and as such, pursuant to the authority granted under RSA 674:16-17 and 674:20-21, and any other applicable laws, the city hereby adopts the following regulations. The purpose of this Chapter is, in the interest of public health, safety and general welfare, to:

- *Ensure the protection of valuable wetland and buffer resources;*
- *Prevent the harmful filling, draining, sedimentation, or alteration of wetlands and buffers;*
- *Prevent the destruction or significant degradation of wetlands and buffers which provide flood and storm control by the hydrologic absorption and storage capacity of the wetland and buffer;*
- *Protect fish and wildlife habitats by providing breeding, nesting, and feeding grounds for many forms of plant and animal life including rare, threatened, or endangered species;*
- *Protect subsurface water resources and provide for the recharging of ground water supplies;*
- *Provide pollution treatment to maintain water quality;*
- *Prevent expenditures of municipal funds for the purpose of providing and/or maintaining essential services and utilities which might be required as a result of misuse or abuse of wetlands and buffers;*
- *Provide for those compatible land uses in and adjacent to wetlands and buffers or surface waters which serve to enhance, preserve, and protect wetland and buffer areas as natural resources.*

16-270 Generally

(a) Regulation of land uses

The regulation of land uses both within and adjacent to wetlands, having been determined to be in the best interest of the city, shall be done in a manner consistent with the review procedures and performance standards identified below which reflect the relative importance, value, and function of a particular wetland.

(b) Definitions

A "wetland" is defined by RSA 482-A:2. Wetlands generally include areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The location of a wetland boundary in any particular case must be determined by a Certified Wetlands Scientist, licensed by the State of New Hampshire, through an on-site inspection of all three characteristics of wetlands, namely hydrology, hydric soils, and hydrophytic plants. Said inspections shall conform to the standards established by the New Hampshire Department of Environmental Services in Administrative Rules (Wt 301). These standards are derived from three sources: the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1*, Environmental Laboratory, Department of the Army, (January, 1987), *Field Indicators for Identifying Hydric Soils in New England*, Version 2, New England Interstate Water Pollution Control Commission, (July 1998) and subsequent updates, and Chapters Wt 100-800 of the NH Code of Administrative Rules, April 21, 1997, as amended. The applicable criteria and review process are established in Article III, Division 10, §§16-271 to 16-276, below.

16-271 Wetlands Buffer

(a) Special exceptions shall be reviewed for any use, building, structure, or development within the wetland areas or buffers defined in Table 271-1 below.

(b) For purposes of Table 271-1, Column "C", the buffer shall be measured horizontally outward and perpendicular to the edge of the delineated wetland.

Table 271-1 Wetland Classifications and Buffers

(A) Wetland Category	(B) Definitions	(C) Buffer
Primary wetland	Areas designated as "prime wetlands" in accordance with RSA 483-A:7 and areas that have been documented as satisfying the criteria for designation as prime wetlands in accordance with RSA 483-A:7. "Primary Wetlands" are defined by Resolution R-90-84, and generally depicted on maps entitled "Prime Wetlands, Nashua, New Hampshire" prepared for the Nashua Conservation Commission. R-90-84 defined primary wetlands as: The Merrimack River and its wetlands The Nashua River and its wetlands Salmon Brook and its wetlands Pennichuck Brook, Bowers Pond, Harris Pond, Holts Pond, Pennichuck Pond, Supply Pond and its wetlands Lovewell's Pond and its wetlands Horse Pond and its wetlands Old Ridge Road wetlands Nashua Canal Nahsua Cove	75 feet
Critical wetlands,	Critical wetlands are the following water bodies and watercourses and their wetlands. Critical wetlands also include any perennial streams that are tributaries to prime wetlands. Boire Brook Coburn Pond Cold Brook Colerain Brook Hales Brook Harris Brook Hassells Brook Lincoln Brook Lyle Reed Brook Mill Pond Muddy Brook Old Maid's Brook Round Pond Spectacle Brook Spit Brook Trout Brook Sandy Pond	40 feet
Other wetlands over 9,000 sf	Any wetland other than a Primary or a Critical wetland over 9,000 square feet in area	40feet
Other wetlands from 3,000 to 9,000 sf and intermittent streams	Any wetland other than a Primary or Critical wetland between 3,000 and 9,000 square feet in area. Intermittent streams require a 20 foot buffer from both banks, measured from top of bank. Intermittent streams are streams with a defined channel but that may not flow the entire year. Isolated man-made drainage ditches are not included.	20 feet
Vernal Pools	Twenty foot minimum buffer. Buffer to be determined from recommendations in a protection plan submitted by a professional biologist. The buffer will be measured from the edge of the average annual high water mark.	20 feet

16-272 Administration

The provisions of these wetlands regulations shall be administered and enforced by the Administrative Officer. Where the provisions of these regulations are superimposed over the zoning district, the more restrictive regulations apply. The Administrative Officer shall institute, or cause to be instituted, such actions necessary to ensure compliance with these provisions, and/or the conditions placed upon any required special

exception permit or other approval. The Administrative Officer shall also have the authority to cause whatever actions are necessary at a site or location where a violation of this Chapter has occurred to ensure that it is returned to its original quality and function, and the same cause of action shall be at no cost to the city and shall be assessed to the violator.

16-273 Wetlands Application

(a) Applicability

The section applies to any activity proposed within a wetland or a wetland buffer, except for erosion control measures and the regular use, maintenance or repair of existing buildings, structures, or the improved portions of an existing developed site such as roads, parking lot or sidewalks. It includes any application for development approval, including any building permit applications; land use permit application; Zoning Board of Adjustment applications; Planning Board applications; Board of Health application, or any other any other land use requiring a permit or approval as required by and within the Nashua Revised Ordinances.

(b) Initiation

As part of the initiation of any application listed in subsection (a), above, the Administrative Officer shall determine whether the land area in which the proposed use, development or activity lies is within a wetland, or buffer area as described in § 16-271. If the Administrative Officer determines that the proposed use, development or activity is within a wetland or buffer area, the Administrative Officer shall notify the applicant in writing that the Conservation Commission must review a Wetlands application. The Administrative Officer shall provide notification within two (2) weeks after submittal of a complete application. If such notification is provided to the applicant, the applicant shall submit a Wetlands Application Review Form with the information required by Article X, Division 2, B-50 to the Administrative Officer. Upon receipt of such an application and payment of applicable fees, the Administrative Officer shall forward a copy of the application to the Conservation Commission.

(c) Wetlands Data

(1) Primary or Critical Wetlands. Applications submitted for uses proposed within or adjacent to primary or critical wetlands shall be accompanied by sufficiently detailed information and plans. Such plans shall clearly show the extent of the wetland and buffer areas located on or immediately adjacent to the subject property, and the uses proposed to be located on the subject property. Primary wetlands must be delineated as shown on the Nashua Prime Wetlands maps. In determining the sufficiency of the information to be provided, the Applicant shall consult with the Administrative Officer regarding the nature of the proposed uses and their relations and proximity to any potentially affected wetlands located on or immediately adjacent to the subject property. The Applicant shall also clearly note on the plan any and all sources of wetland delineation information used to determine the wetlands boundary, and shall provide documentation regarding the status of any other permits required under local, state or federal laws.

(2) Other Wetlands. For development or other regulated activity proposed on sites abutting other wetlands as defined in Table 271-1, the Applicant shall be required to denote the boundary and methods used to locate it. The Administrative Officer may consult with the applicant regarding the application regulations.

(d) Submittal Procedures

(1) The applicant shall review the Nashua Conservation Commission Wetland Review Process as set forth in Article X, Division 2 B-50.

(2) The applicant shall provide the Conservation Commission and Administrative Officer with a completed Wetlands Application two weeks in advance of the Conservation Commission meeting at which the proposed project will be discussed.

(3) Upon receipt of the Wetlands Application by the Conservation Commission and Administrative Officer, the Applicant may be asked to provide additional technical information.

(4) The applicant shall schedule a preliminary presentation with the Commission. , At that time, the Conservation Commission may schedule a site walk. At the site walk, the Commission members may request additional information for the applicant to present at the next Conservation Commission Meeting, such as a Wetlands and Buffer Delineation and Protection Plan. The members may provide other informal guidance.

(5) The Conservation Commission may request a review of the project by Planning Staff prior to providing their recommendation. Sufficient time will be provided to allow the Conservation Commission to provide a recommendation on the project to the Administrative Officer.

(e) Recommendation

The Conservation Commission shall consider the application at a public meeting and shall prepare a written recommendation as to whether the proposed development lies within an area subject to § 16-271, and whether the proposed development complies with this Section. The recommendation shall be provided to the Zoning Board of Adjustment. In rendering its decision, the Zoning Board of Adjustment or Building Department Manager shall give due consideration to the recommendations of the Conservation Commission so as to avoid or minimize the detrimental impacts which the proposed use,) may have on the wetland or wetland buffer. Any amendments to a plan following a Conservation Commission decision but before the Zoning Board of Adjustment review shall be reviewed again by the Conservation Commission. Decisions rendered by the Zoning Board of Adjustment are final but subject to appeal as set forth in Article IV, Division 7.

(f) Approval Criteria

See Article X, Division 2, B-50 and §16-274 below.

(g) Amendments

The Applicant may modify the Wetlands Application at any time before the final recommendations of the Conservation Commission are made

(h) Scope of Approval

The Wetlands Application shall be deemed a part of the underlying Application for Development Approval and a condition of any permit or land use decision subject to this Section.

(i) Recording Procedures

The Wetlands application shall be recorded with the underlying Application for Development Approval.

(j) Exceptions

A property owner who intends to undertake routine annual maintenance that has been previously approved by the Conservation Commission is not required to return to the Conservation Commission or obtain a Special Exception.

16-274 Wetlands Standards

(a) Review for Conformity

(1) Uses proposed in any wetland or within the required buffer area shall be reviewed by the Conservation Commission for conformity with this Section. A wetlands-related Special Exception is required prior to and in addition to other relevant approvals.

(2) For uses or activities proposed outside of and adjacent to any wetland or buffer area, the Administrative Officer shall review the proposal for consistency with this Section to demonstrate that what is being proposed is reasonable or necessary, and can be implemented without undue harm to the wetland or buffer area being impacted. Upon receipt of a complete application, the Administrative Officer shall determine whether a special exception is required prior to other necessary reviews/approvals.

(b) Wetland or Buffer Encroachments

For uses proposed to encroach into wetlands or required buffer areas, including but not necessarily limited to road and utility line crossings, water dependent uses (e.g., docks), bridges or other road and passive recreational facilities or activities, the Zoning Board of Adjustment shall find the following prior to approval:

(1) That the use or activity proposed and its attendant impacts cannot reasonably be avoided.

(2) That the least damaging route and methodology have been selected, and that which is being proposed is the best practicable alternative available.

(3) That reasonable and acceptable impact mitigation measures have been incorporated where necessary and appropriate to minimize wetland loss or degradation.[1]

(4) That the overall impact of encroaching into wetland or buffer areas is necessary for the productive use of adjoining buildable land and, as such non-encroachment, is out-weighed by the benefits thereby derived.

(5) That no significant impact on the habitat of rare or endangered species or exemplary communities, as listed by the State of New Hampshire or Federal government, will result.

(6) That the best available adequate erosion and sedimentation control methods are incorporated.[2]

(7) That the proposed activity or use shall not significantly impair wetland capacity to provide important wildlife and fishery functions, including habitat, food, shelter, breeding, migratory and over-wintering.

(8) That the project shall not impair the stability of a water body's bank.

(9) That the wetland and buffer function of hydrologic absorption capacity and storage shall not be impaired.

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[1] The removal of invasive species may be an appropriate mitigation technique. Invasive species are listed in the most recent State of New Hampshire Prohibited Invasive Species List

[2] Some appropriate erosion control standards are: *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, New Hampshire Department of Environmental Services, Rockingham County Conservation District, USDA Soil Conservation Service (August 1992), and *Stormwater Management for Construction Activities*, Environmental Protection Agency (September 1992).

(c) Uses adjacent to wetlands or buffer areas

Any use or activity proposed within one hundred (100) feet of a wetland shall be reviewed by the Administrative Officer for compliance with the following performance standards.

(1) That no significant impact on the habitat of rare or endangered species or exemplary communities, as listed by the State of New Hampshire or the Federal government, will result.

(2) That the filtration of stormwater runoff is adequately provided for and controlled both during and after construction.

(3) That the topography and required regrading of the subject property accounts for and adequately reflects the proximity of a nearby wetland area.

(4) All landscaping requirements and maintenance regiments for a project will ensure that fertilizer and chemical run-off shall not enter the wetland.

(5) For any wetland area utilized for water run-off, the applicant shall demonstrate that excess flow on wetlands shall not cause excessive ponding and retention, thereby causing environmental damage to existing flora or fauna.

(6) Where land is proposed to be subdivided, the applicant shall demonstrate that there is adequate non-wetland area to contain all proposed uses, structures, and utilities in accordance with these regulations.

(d) Prohibited uses

No use or activity shall be located within one hundred twenty-five (125) feet or sited in such a manner so as to pose a serious environmental hazard to a nearby wetland. Uses prohibited include, but are not limited to, septic systems, underground storage tanks not within approved enclosures, junk or salvage yards, or the uncontained or uncontrolled stockpiling of any material which may contaminate the wetland.

16-275 Wetland Buffer Monumentation

(a) Applicability

The Nashua Conservation Commission may require wetland buffers to be marked in order to prevent future encroachment. This section applies to:

(1) Any development subject to an application for building permit, subdivision or site plan approval;

(2) Any development approved before the effective date of this section that is determined to be in violation of any wetland buffer required that existed at the time the development was approved, or

(3) Any activity within a wetland or wetland buffer that was undertaken without obtaining a required special exception.

(b) Requirements

Wetlands (Prime, Critical, and Other) shall be delineated by a State of New Hampshire certified wetland scientist. The wetland buffer shall be located and flagged by an engineer or surveyor. The markers shall follow the contour of the buffer, generally not more than 50 feet apart. The engineer or surveyor shall take all necessary precautions to ensure that said markers disturb no asbestos-fill sites. Where the buffer intersects the property line, markers should be placed on the property line. Markers should be placed along the buffer contour at the point closest to any adjacent structure. The requirements for placing markers are further described in the pamphlet "Requirements for Construction and Installation of Conservation Easement, Wetland Buffer, and Conservation Land Plaques."

16-276 Trees unlawfully cut or damaged within a wetland buffer

(a) Applicability

A tree that has been substantially damaged or unlawfully removed from a wetland buffer that is protected by city ordinances must be replaced with its equivalent replacement in trees. Replacement trees shall be a type of species having shade potential and other positive values at least equal to that of the tree that was removed and shall be a minimum of six (6) feet in height when planted.

(b) Definitions

(1) Tree: Any living, self-supporting woody perennial plant at maturity, which attains a trunk diameter of at least three (3) inches or more when measured at a point four and one-half (4 ½) feet above ground level and which normally attains an overall height of at least fifteen (15) feet, usually with one (1) main stem or trunk and many branches.

(2) DBH: Diameter at breast height. The measurement of a tree's trunk diameter in inches at breast height (four and one-half (4 ½) feet above ground level). For trees with less than four and one-half (4 ½) feet of clear trunk, diameter shall be of the largest leader measured four and one-half (4 ½) feet above ground level. For multi-trunk trees it shall be the sum of the diameter of the individual trunks measured four and one-half (4 ½) feet above ground level. If the DBH is not determinable because cut trees have been removed from the site, DBH shall be determined from the "DBH in Relation to Stump Diameter" tables found in the Forestry Handbook, 2nd ed., 1984, by the Society of American Foresters, edited by Karl Wenger, published by John Wiley & Sons Publishers.

(3) Equivalent replacement: The replacement of a removed or damaged tree to compensate for that tree's removal or its damage with one (1) tree the same diameter or a combination of smaller trees that will equal that removed tree's DBH as defined herein.

(4) Tree-for-tree replacement: Replacing a removed tree with a tree or trees with a minimum of three (3) inches in cumulative trunk diameter at breast height. The replacement species shall be native trees as defined in Trees and Shrubs in New Hampshire, A Guidebook for Natural Beauty Projects, by Cooperative Extension Service, University of New Hampshire, Durham, NH. Replacement species shall not include those species that are not recommended in the guidebook.

(c) Replacement trees

A removed tree must be replaced with its equivalent replacement in trees.

(d) Maintenance of replacement trees

The property owner must replace trees within 30 days from receipt of a written Notice of Violation for unlawful tree removal. The Administrative Officer may grant a time extension for tree replacement if the thirty-day requirement would mean that trees would be planted outside the appropriate planting season (April-June and September-November).

(e) Financial Security for tree replacement

A financial security shall be held by the City of Nashua for one (1) year to insure tree replacement in the event that tree replacement results in the death of any replacement trees. The security amount shall be assessed at three (3) times the fair market value of the required replacement tree(s).

(f) Landscape (tree replacement) plan

Prior to installation of the required replacement trees, a proposed landscape plan must be prepared by a professional landscape architect and approved by the Administrative Officer, who shall consult with the City's Conservation Commission. Replacement trees shall be true to the botanical names and standards of size, culture and quality for the highest grades and standards as sponsored by the American Association of Nurserymen, Inc., in the American Standard for Nursery Stock, latest edition.

(g) Exemptions

During emergency conditions caused by a hurricane or other disaster, or to protect public safety, the Administrative Officer may suspend provisions of this section.

(h) Penalties

The removal of each tree in a buffer zone shall constitute a separate zoning violation, punishable in a court of competent jurisdiction per RSA Chapter 676.

16-277 to 16-299 Reserved

Division 11. Stormwater Management

Purpose: The purpose of this Chapter is to protect, maintain and enhance public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with stormwater runoff, and soil erosion and sedimentation from site construction and development. Subdivision and site plans shall include plans for managing stormwater and controlling erosion and sedimentation as provided herein.

Purpose: this section implements the following Master Plan recommendations –

The City should strongly consider adopting a soil erosion and sediment control ordinance, which would comprehensively address many of the non-point sources of water quality degradation discussed in the Water Resources Protection Plan.

16-620 Applicability

(a) The requirements of this Division apply to any subdivision plan or site plan, except or to the extent provided in subsection (b).

(b) The Planning Board may waive the requirement for all or part of a stormwater management and erosion control plan if it determines that a plan is unnecessary because of the size, character, or natural conditions of a site. All requests for waivers and action thereon shall be submitted pursuant to § 16-452, along with supporting technical documentation to demonstrate minimal environmental impact.

16-621 Stormwater Management Standards

The following stormwater management standards shall be applied to all subdivision and site plans.

(a) Untreated stormwater

(1) No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion into wetlands or water bodies.

(2) Rooftop runoff is considered uncontaminated for the purposes of these standards and therefore does not require treatment.

(b) Post-development peak discharge rates

(1) Stormwater management systems must be designed so that the ten (10) year twenty-four (24) hour post-development peak discharge rate does not exceed the ten (10) year twenty-four (24) hour pre-development peak discharge rates.

(2) In order to meet this standard, controls must be developed for the 2-year, 5-year, and the 10-year 24-hour storm events. The 100-year 24-hour storm event must be evaluated to demonstrate that there will not be increased flooding impacts off-site.

(3) Measurement of peak discharge rates shall be calculated using point of discharge or the downgradient property boundary. The topography of the site may require evaluation at more than one location if flow leaves the property in more than one direction. An applicant may demonstrate that a feature beyond the property boundary is more appropriate as a design point.

(c) Recharge to Groundwater

Annual groundwater recharge rates shall be maintained by providing infiltration by the use of structural and non-structural methods. The annual recharge from post development site conditions shall mimic the annual recharge from pre-development site conditions. Best management practice (BMP) techniques to achieve recharge requirements include infiltration, bioretention, dry swale, and non-structural techniques. Alternative techniques may be used if they meet the performance criteria stated herein and are approved by the Planning Board.

(d) Water quality

(1) For discharges to the conservation zone within the Water Supply Protection District as defined in § 16-37, the runoff volume to be treated for water quality is calculated as one (1.0) inch of runoff multiplied by the total impervious area of the post-development project site.

(2) For all other discharges, the runoff volume to be treated for water quality is calculated as one-half (0.5) inch of runoff multiplied by the total impervious area of the post-development project site.

(3) Removal of eighty (80) percent of the total suspended solids (TSS), floatables, greases, and oils. For new developments, stormwater management systems shall be designed to remove eighty (80) percent of the average annual load of total suspended solids (TSS), floatables, greases, and oils after the site is developed. This standard is met when:

A. The Planning Board determines that suitable nonstructural practices for source control and pollution prevention are implemented;

B. Stormwater management best management practices (BMPs) capture the prescribed runoff volume; and

C. Stormwater management BMPs are maintained as designed.

(e) Critical areas land uses with higher potential pollutant loads

Stormwater discharges from areas with high potential pollutant loads require the use of specific stormwater management BMPs, as detailed in this section. The use of infiltration practices without pretreatment is prohibited.

(1) The following uses are considered to create high potential pollutant loads:

A. Any use requiring a National Pollutant Discharge Elimination System (NPDES) stormwater discharge permit associated with industrial activity;

B. Auto salvage yards/auto recycler facilities;

C. Auto fueling facilities/gas stations;

D. Fleet storage areas (cars, buses, trucks, public works);

E. Vehicle service, maintenance and equipment cleaning areas;

F. Retail parking lots;

G. Road salt storage or loading areas if exposed to rainfall;

H. Commercial nurseries;

I. Metal rooftops, including roofs made from aluminum, tin, galvanized steel, copper, or rooftops which contribute significant pollutant loads;

J. Outdoor storage and loading/unloading areas of hazardous substances;

K. SARA 312 generators if materials or containers are exposed to rainfall; and

L. The service, repainting, and hull maintenance areas of marinas.

(2) The following measures are required in addition to BMP's described in subsection (1), below, within areas with high potential pollutant loads:

A. Source reduction; and

B. Pretreatment.

(3) The following are prohibited within areas with high potential pollutant loads located in a conservation zone :

A. Infiltration trenches;

B. Infiltration basins; or

C. Dry wells.

(4) The following restrictions apply to certain BMPs within areas of high potential pollutant loads: Sand or organic filters, detention basins, wet ponds or constructed wetlands may be used only if sealed or lined.

(f) Wetland or Water Bodies

BMPs approved for use within three hundred (300) feet of a wetland or water body unless otherwise prohibited by §16-37 are limited to:

(1) Extended detention basins;

(2) Wet ponds;

(3) Constructed wetlands;

(4) Water quality swales;

(5) Sand filters;

(6) Organic filters;

(7) Infiltration basins;

(8) Infiltration trenches; and

(9) Deep sump and hooded catch basins (used with other BMPs).

Stormwater management systems should incorporate designs which allow for shutdown and containment in the event of an emergency spill or other unexpected contamination event.

(g) Redevelopment

Redevelopment of previously developed sites must meet the stormwater management standards to the maximum extent possible as determined by the Planning Board. The application shall include a certification by a registered professional engineer as to compliance with this standard.

(h) Erosion and sedimentation controls

(1) Erosion and sedimentation controls must be implemented to prevent impacts during construction or land disturbance activities, and shall be properly installed prior to soil disturbance in the contributing drainage area.

(2) Whenever practical, natural vegetation shall be retained, protected or supplemented. Priority should be given to preserving natural drainage systems including perennial and intermittent streams, wetlands, swales, and drainage ditches for conveyance of runoff leaving the project area.

(3) Examples of BMPs for erosion and sedimentation control are staked hay bales, filter fences, hydroseeding, and phased development. Many stormwater BMP technologies (e.g. infiltration technologies) are not designed to handle high concentrations of sediments typically found in construction runoff and must be protected from construction-related sediment loadings. Construction BMPs must be maintained while construction or land disturbance activities continue.

(4) Measures shall meet as a minimum the Best Management Practices set forth in the "Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire," Rockingham County Conservation District, NH Department of Environmental Services (DES), Soil Conservation Service (now the Natural Resources Conservation Service), August 1992, as amended, and any published DES regulations.

(5) Off-site surface water and runoff from undisturbed areas shall be diverted away from disturbed areas where feasible or carried non-erosively through the project area. Integrity of downstream drainage systems shall be maintained.

(6) All temporary erosion and sediment control measures shall be removed after final site stabilization. Trapped sediment and other disturbed soil areas resulting from the removal of temporary measures shall be permanently stabilized within 30 days.

(i) Stormwater Management Measures

(1) Structural stormwater management measures to achieve recharge, water quality, and peak discharge control shall be structural BMP's designed in accordance with the requirements of the following:

A. Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire," Rockingham County Conservation District, NH Department of Environmental Services, Soil Conservation Service (now the Natural Resources Conservation Service), August 1992, as amended

B. Best Management Practices for Urban Stormwater Runoff, published by NH DES, 1996, as amended

C. Innovative Stormwater Treatment Technologies Best Management Practices Manual, published by NH DES, May 2002, as amended [Reference: http://www.des.state.nh.us/wmb/was/manual/]

(2) The performance criteria specified in the Design Manual with regard to general feasibility, conveyance, pretreatment, environment and landscaping, and maintenance shall be considered in the selection of a structural BMP.

(3) Structural stormwater management practices shall be selected to accommodate the unique hydrologic and geologic conditions of the site. Design computations must document these conditions.

(4) Nonstructural management measures may reduce or eliminate the need for structural BMP's to meet recharge, water quality, and peak discharge control requirements. These techniques, which include Runoff Prevention Methods (RPM's), are encouraged and shall be designed in accordance with the guidelines in the documents listed in subsection (1), above. These techniques may include disconnection of rooftop and non-rooftop runoff, vegetated bio-cells and bio-islands, infiltration edges, dividers, or islands, planters, and raingardens.

16-622 Easements

Where a subdivision is traversed by or requires the construction of a watercourse or a drainage way, an easement of adequate width shall be provided for such purpose.

16-623 Operation and Maintenance Plans

(a) Applicability

All stormwater management systems shall have an operation and maintenance plan (O&M plan) to ensure that systems function as designed. This plan shall be reviewed and approved as a part of the site plan or subdivision plan. If the system is not dedicated to the city pursuant to a perpetual offer of dedication, the Planning Board may require an applicant to establish a homeowners association or similar entity to maintain the stormwater management system.

(b) Minimum Requirements

The operation and maintenance plan shall, at a minimum, identify:

(1) Stormwater management system(s) owner(s);

(2) The party or parties responsible for operation and maintenance;

(3) A schedule for inspection and maintenance;

(4) The routine and non-routine maintenance tasks to be undertaken; and

(5) A certification signed by the owner(s) attesting to their commitment to comply with the O&M plan.

(c) Establishment of O&M Plan

The stormwater management system owner is generally considered to be the landowner of the property, unless other legally binding agreements are established. Execution of the operation and maintenance plan shall be considered a condition of approval of any subdivision plan or site plan.

(d) Recording

(1) The owner shall provide covenants for filing with the registry of deeds, in a form satisfactory to the Planning Board, which provide that the obligations of the maintenance plan run with the land.

(2) The owner shall file with the registry of deeds such legal instruments as are necessary to allow the city or its designee to inspect or maintain the stormwater management systems for compliance with the O&M plan.

(e) Modifications

(1) The owner shall keep the O&M plan current, including making modifications to the O&M plan as necessary to ensure that BMPs continue to operate as designed and approved.

(2) Proposed modifications of O&M plans shall be submitted to the Planning Board for review and approval. Also, the owner must notify the Planning Board within thirty (30) days of a change in owner or party responsible for implementing the plan. Proposed changes in inspection frequency, maintenance schedule, or maintenance activity shall also be submitted, along with appropriate documentation, for review and approval.

(3) The Planning Board may, in its discretion, approve a reduction in the frequency of inspection or maintenance or a change in maintenance activity, provided that the owner has demonstrated that such changes will not compromise the long-term function of the stormwater system.

(4) The Administrative Officer shall notify the owner of acceptance of the plan modification, or request additional information, within sixty (60) days. No response from the Planning Board at the end of sixty (60) days shall constitute acceptance of the plan modification. The currently approved plan shall remain in effect until notification of approval has been issued, or the sixty (60) day period has lapsed.

(f) Recordkeeping

The owner shall retain records (such as maintenance logs and contractor receipts) demonstrating compliance with the scheduled maintenance activities for a period of not less than three (3) years. The city may request copies of such records, or may request inspection of such records on the property. Failure to produce such records or copies of such records within fourteen (14) days of such a request shall constitute a condition of non-compliance with site plan approval, subject to enforcement as outlined under § 16-482.

The owner shall ensure that an annual report is provided to the planning director on or before the first day of January of each year. Such reports shall, at a minimum, include:

(1) The location of the property;

(2) The name, address, and phone number of the owner;

(3) The name, address, and phone number of the party responsible for maintenance if other than the owner;

(4) A brief description of the site uses and stormwater management system;

(5) A summary of inspections completed and the results of such inspections; and

(6) A summary of any maintenance activities or corrective actions undertaken.

Annual reports shall be signed by the owner or other legally responsible party, and shall attest to the accuracy of information provided in the report. Failure to submit annual reports shall constitute a condition of non-compliance with site plan approval subject to enforcement as outlined under § 16-482.

16-624 Plan Review and Approval

The Planning Board shall indicate approval of the stormwater management and erosion control plan, as filed, if it complies with the requirements and objectives of this Division. Such approval shall be a component of subdivision or site plan approval. If disapproved, a list of plan deficiencies and the procedure for filing a revised plan will be given to the applicant.

16-625 to 16-629 Reserved

Division 12. Reserved

Division 13. Utility Standards for Subdivisions and Site Plans

16-630 Applicability

This Division applies to subdivision plans and site plans. Applicants shall also comply with the following chapters of the City Code: Chapter 18 (sewage disposal) and 19 (streets and work in right-of-way).

16-631 Approval Required

(a) No subdivision or portion thereof shall be sold, offered for sale, leased or rented by any person, and no permanent building shall be erected thereon, until the provisions of the state and the city relating to subdivisions have been met and a plan or plot of such subdivision and related data have been filed with and approved by the board of health or its authorized representatives. The plan and data shall show methods for obtaining and furnishing adequate and approved water supply and sewerage facilities to the subdivision, provision for proper surface water drainage for each lot on which a residence, community building or similar structure is proposed, probable nature of the terrain after proposed grading, filling and other similar alterations from its original state are completed, garbage and rubbish disposal services and facilities and other pertinent matters including the results of any soil and percolation tests performed. The installation of facilities required under the terms of this division shall be in accordance with such plan as approved by the health officer or any approved revision thereof. Upon receipt of the plan and data required herein, the health officer shall issue a receipt of filing compliance and within thirty (30) days of issuance of the receipt of filing compliance shall approve or disapprove the subdivision plot or plan. In the event of disapproval, notice of disapproval shall be in writing, listing all reasons for disapproval.

(b) Where all or a portion of a subdivision is not served by either a public water supply or a public sewer, the lots shall conform to the regulations of the DES (Env-Ws 1005 (Subdivisions)).

16-632 Standards

(a) Utilities such as electrical, cable TV, telephone, and sewer shall be provided underground within the public right-of-way if spacing is available or a utility easement adjacent to the street right-of-way.

(b) Utilities shall generally be located within the street right-of-way on both sides of and parallel to the street. However, in order to allow flexibility based on terrain, and to achieve a maximum street tree

Appendix B

Table B-1. Final 2004 List Of Threatened or Impaired Waters that require a TMDL within the Limits of the City of Nashua, NH

Table B-1. Final 2004 List of Threatened or Impaired Waters that require a TMDL within the Limits of the City of Nashua, NH

Water Body NH AUID Number	Causes of Impairment	Probable Source	TMDL Schedule	Best Management Practice
Merrimack River - RIV700061206-24	Escherichia coli	Combined Sewer Overflows	2017	The City continues to implement requirements of the EPA Consent Order, including design and construction of a Wet Weather Flow Treatment Facility to reduce CSOs.
	ph	Source Unknown	2016	
Nashua River - RIV700040402-09	Escherichia coli	Combined Sewer Overflows		The City continues to implement requirements of the EPA Consent Order, including design and construction of a Wet Weather Flow Treatment Facility to reduce CSOs.
Nashua River- RIV700040402-08	Escherichia coli	Combined Sewer Overflows	2017	The City continues to implement requirements of the EPA Consent Order, including design and construction of a Wet Weather Flow Treatment Facility to reduce CSOs.
Nashua River - Mine Falls Dam Pond- IMP700040402-02	chlorophyll-a	Municipal (Urbanized High Density Area)	2017	Vortechnic Units have been installed near two outfalls. Stormwater detention pond installed on another outfall.
Unnamed Brook - to Nashua River IMP700040402-04	Oxygen, Dissolved	Source Unknown	2017	BMP to be determined after field survey of areafurther review of
	ph	Source Unknown	2017	
Nashua River - Jackson Plant Dam Pond IMP700040402-05	Escherichia coli	Combined Sewer Overflows	2017	The City continues to implement requirements of the EPA Consent Order, including design and construction of a wet Weather Flow Treatment Facility to reduce CSOs.

Table B-1. Final 2004 List of Threatened or Impaired Waters that require a TMDL within the Limits of the City of Nashua, NH

Water Body NH AUID Number	Causes of Impairment	Probable Source	TMDL Schedule	Best Management Practice
Salmon Brook-Hassells Brook-Old Maid's Brook- Hale Brook RIV700061201-05	Escherichia coli	Illicit Connections/Hook-ups to storm sewers	2016	Sample outfalls to trace possible locations of sources
Bowers Pond LAK700061001-04-02	Excess Algal Growth	Transfer of water from an outside watershed	2012	Not applicable - Pennichuck Water Works transfers water from Merrimack River to ponds for drinking water supply.
Harris Pond LAK700061001-04-01	Excess Algal Growth	Transfer of water from an outside watershed	2012	Not applicable - Pennichuck Water Works transfers water from Merrimack River to ponds for drinking water supply.
Unnamed Brook to Pennichuck Brook (Boire Fields) RIV700061001-09	Escherichia coli	Source Unknown	2016	Sample outfalls to trace possible locations of sources

Source: New Hampshire Department of Environmental Services, Water Division, Watershed Management Bureau, New Hampshire Final 2004 305(b) and 303(d) Surface Water Quality Assessment.

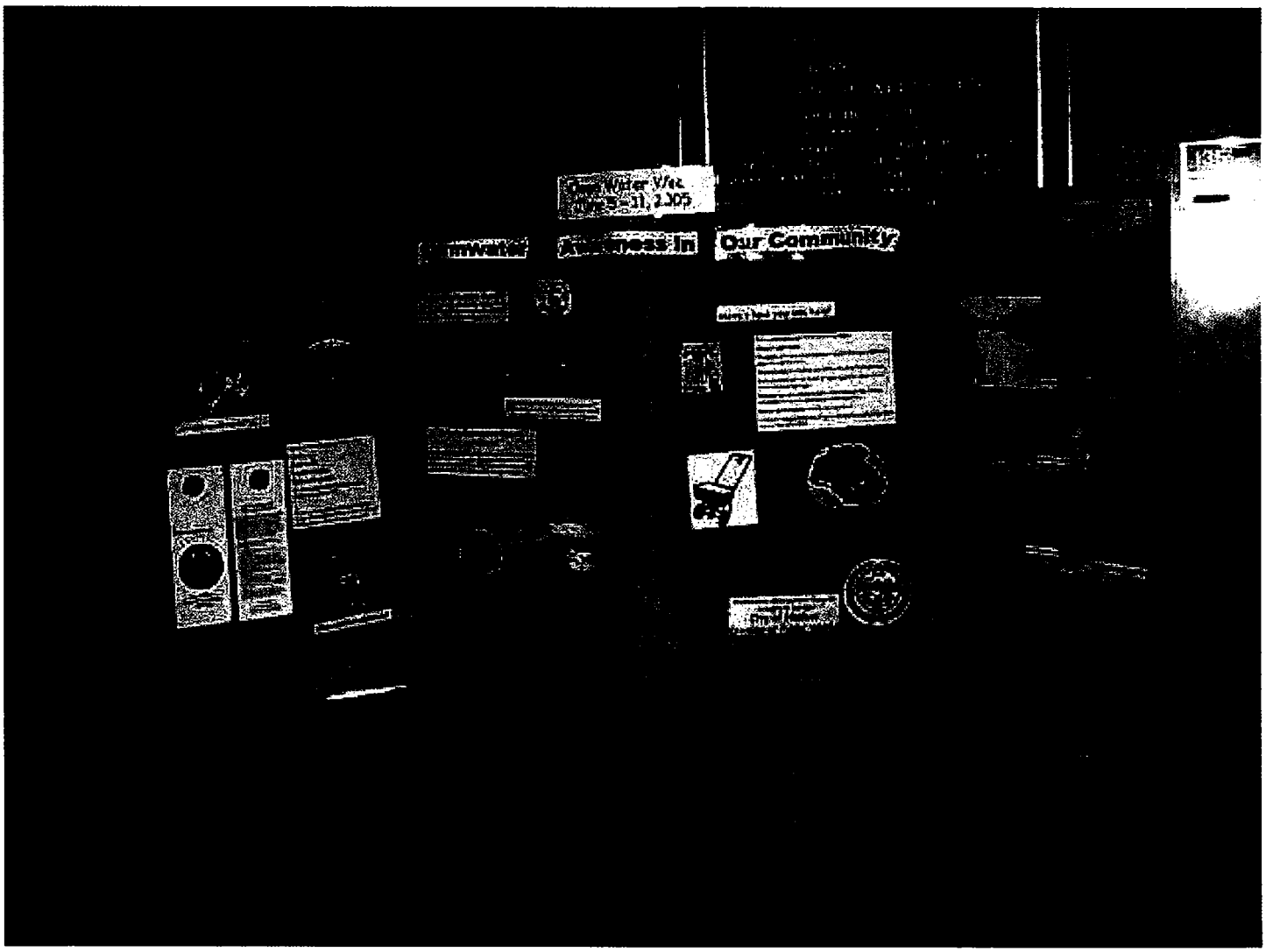
Appendix C

Minimum Control Measures
1.0 Public Education

BMP ID # 1.07 City of Nashua Stormwater Display Board

City of Nashua, NH

NPDES Phase II Small MS4 General Permit
2006 Annual Report



City of Nashua Stormwater Display Board setup in City Hall
June 5-10, 2005 for Clean Water Week

Appendix D

Minimum Control Measures
3.0 Illicit Discharge Detection and Elimination

BMP ID # 3.01 – Memorandum – Update of Nashua Dry Weather Discharge Investigation, September 19, 2005

BMP ID # 3.07 – Household Hazardous Waste Collections Flyer

The State of New Hampshire
Department of Environmental Services

Michael P. Nolin
Commissioner

Memorandum

To: Amy Prouty Gill, Nashua Stormwater Engineer
Rick Seymour, Nashua DPW Director

From: Steve Landry, DES Merrimack Watershed Supervisor
Heather Nolen DES Intern

Date: September 19, 2005

Re: Update of Nashua Dry Weather Discharge Investigations

This memorandum is to inform the City of Nashua that the New Hampshire Department of Environmental Services has reassessed the recommendations given to the City in our last memo, dated March 23, 2005. In the memo it was recommended that initial investigations be performed for a stretch of Salmon Brook that had been overlooked. DES personnel decided it would be best if the remaining stretch of Salmon Brook was investigated by our staff in order to make the initial investigations complete.

On two days this summer, May 13, 2005 and June 1, 2005, the remaining stretch of Salmon Brook was investigated. In total, ten outfall pipes were documented, 1.45 shoreline miles surveyed. Investigations were performed during dry weather conditions; none of the outfall pipes were flowing.

As mentioned in the previous memo the following recommendations are still in place.

Recommended DPW Follow-up:

Since DES has completed initial shoreline survey work in the City of Nashua, we are issuing a set of recommendations based on our findings. It is expected that the City of Nashua will incorporate the information provided by DES and take on the tasks needed to fulfill its Phase II requirements. DES will assist in the future when needed, but we will be moving on to complete surveys in other areas of the Merrimack watershed.

- Monitor and correct potential illicit discharges.
- Conduct follow-up sampling at sites where further attention is needed.
- Investigate new stormwater ponds as they are built.
- Integrate ArcView data layer for Nashua outfalls into existing DPW data sets. Compare existing, municipal outfall locations with ArcView data set delivered by WAS.
- Continue to investigate the outfalls into the storm drainage system on the St. Joseph's Hospital property adjacent to the parking garage and loading docks.

P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095
Telephone: (603) 271-2457 • Fax: (603) 271-7894 • TDD Access: Relay NH 1-800-735-2964
DES Web site: **www.des.nh.gov**

Determine if the high bacteria levels are attributed to bird populations roosting on the roof of physical plant.

- Once data has been reviewed and areas of follow-up investigations are identified, coordinate with WAS personnel if assistance is required for re-sampling visits.

Included in the package are the additional field sheets, daily summaries, and photo summaries which should be added to the binder previously sent. Also included is a CD with the digital photos taken of the outfalls, daily summaries, and an updated GIS Arcview coverage layer.

If you have any questions please contact Steve Landry.

Steve Landry, Merrimack Watershed Supervisor
NH Department of Environmental Services
Watershed Assistance Section
29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
Tel (603) 271-2969 * Fax (603) 271-7894 www.des.state.nh.us/wmb/was/

Household Hazardous Waste Collections

Household Hazardous Wastes (HHW) come from everyday products used in the home, yard or garden. By definition, they are corrosive, flammable, toxic or reactive. Paints and solvents, oven cleaners, pool chemicals, pesticides, drain openers and auto chemicals are just a few examples. When hazardous waste is improperly disposed of - in the trash, on the ground, down the sink or into a storm drain - it poses a threat to water quality and may kill fish and wildlife. Household toxins may also injure humans and animals if they are exposed to these chemicals due to careless storage and handling.

What can you do? Source reduction of potential HHW is the first step. When reduction or reuse isn't possible, securely pack and transport materials in their original containers to the regional household hazardous waste collection center on the scheduled collection dates. Sort and pack chemicals separately, being cautious to avoid spills; tighten caps and leave materials in original labeled containers. Sort different types of waste, and pack separately in sturdy boxes, padded with newspaper. Never smoke while handling hazardous materials and never mix chemicals. If possible, avoid bringing children and pets to the HHW collection. Volunteers are always needed for conducting surveys and controlling traffic at the events; if you would like to help out, please call 883-0366, x 23.

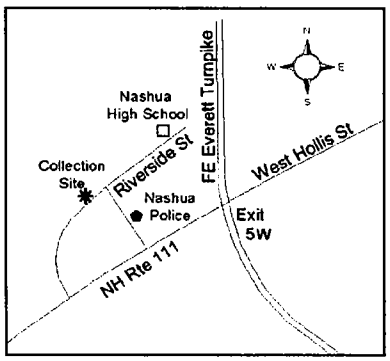
Residents of the following communities may participate:

- *Amherst*
- *Brookline*
- *Hollis*
- *Hudson*
- *Litchfield*
- *Merrimack*
- *Milford*
- *Mont Vernon*
- *Nashua*
- *Pelham*
- *Windham*

What to Bring?

Pesticides	**Antifreeze**	**Ni-CAD Batteries**
Insecticides	**Mixed Gasoline**	**Lithium Batteries**
Herbicides	**Paint Thinners**	**Lead/Oil Based Paints**
Rodent Killers	**Drain Cleaners**	**Wood Preservatives**
Pool Chemicals	**Oven Cleaners**	**Varnish/Paint Stripper**
Muriatic Acid	**Photo Chemicals**	**Coal-Tar Driveway Sealers**

•Residents may bring up to 10 gallons or 20 pounds of waste per household.
•No latex paints or latex driveway sealers will be accepted (see reverse side for disposal tips).
•Please "WASTEPOOL" to the event, bringing waste from multiple households in the same vehicle.



Nashua Regional Household Hazardous Waste Collection Center

The center is located at the Nashua Public Works Garage, 6 Riverside St, Nashua.

Collection hours are from 8 a.m. to noon
Except Thursday June 15th - 3 to 7 p.m.

For more information, contact the Nashua Regional Planning Commission at 883-0366, on-line at www.nashuarpc.org, or the City of Nashua Division of Public Works, Solid Waste Department at 589-3410

Year 2006 Collection Dates:

May	June	Aug.	Oct.	Nov.
6	15*	5	7	4
Saturday	Thursday	Saturday	Saturday	Saturday
8 am - noon	3 pm – 7 pm	8 am - noon	8 am - noon	8 am - noon

What is NOT ACCEPTED at HHW Collection Events

Ammunition, Explosives, or Fireworks	Contact local Police or Fire Department for proper disposal
Asbestos **Creosote**	Contact private contractor; Nashua residents may call Solid Waste Department (589-3410)
Latex Paints or Latex Driveway Sealer	**SEE DIRECTIONS at RIGHT**
Propane Tanks from Grills	Landfill/Transfer Station (or Friend Lumber in Hudson)
Smoke Detectors	Return to Manufacturer
Used Oil & Auto Batteries	Landfill/Transfer Station, or participating auto parts stores

LATEX PRODUCTS

All paints / sealers that can be cleaned with soap and water are **LATEX.** Less than ¼ full containers can be dried out in the can. For larger quantities, use several heavy-duty plastic trash bags to line a sturdy cardboard box. Alternate pouring paint and adding an absorbent material (kitty litter, shredded paper, sawdust, etc). Let air dry. When crispy dry, bring to the Landfill / Transfer Station for disposal.

Reducing Mercury Products in Your Home

HOUSEHOLD PRODUCT	MERCURY-FREE ALTERNATIVE
THERMOMETERS: INCLUDING FEVER, CANDY, DEEP FRY, OVEN, WEATHER	ALCOHOL FILLED OR DIGITAL THERMOMETERS
ANTISEPTICS WITH THERMOSAL, MERCURICHROME (MERBROMIN), OR MERTHIOLATE	ANTIBACTERIAL OINTMENTS
TEMPERATURE CONTROL THERMOSTATS	ELECTRONIC TYPE SNAP SWITCHES
FLUORESCENT OR HIGH INTENSITY DISCHARGE LIGHTS	INCANDESCENT LIGHTS ARE MERCURY FREE, BUT MAY USE UP TO 50% MORE ELECTRICITY THAN A FLUORESCENT BULB
MERCURY-ZINC (MERCURIC OXIDE) BUTTON BATTERIES AND SOME ALKALINE BATTERIES	BATTERIES LABELED 99% MERCURY-FREE OR "NO MERCURY ADDED", ZINC-AIR OR SILVER OXIDE BUTTON BATTERIES
LATEX PAINT MANUFACTURED BEFORE 1990	ANY PAINT MANUFACTURED AFTER 1990

All about Batteries

Non-Rechargeable

Zinc Carbon or Zinc Chloride are labeled as "all purpose", "general purpose", "heavy duty" or "super heavy duty". Both types are non-hazardous and can be placed in the trash. ***Alkaline Manganese*** batteries sold after May 13,1996 may be placed in the trash, with an expiration date later than 1998; older batteries may contain mercury and should be taken to HHW collections. ***Lithium Batteries*** are commonly used in cameras. These are potentially reactive and, if not completely discharged, should be handled as a hazardous waste. ***Button Cells*** are small, disc shaped batteries commonly used in hearing aids, medical devices, watches, calculators and cameras. Mercuric oxide and alkaline manganese buttons may contain mercury if they were purchased prior to May 13, 1996 and should be brought to HHW collections. ***Zinc Air Button Cells*** are a non-hazardous replacement for the older mercury button cells and can be recycled.

Rechargeable

Silver Oxide Button Cells may be hazardous for silver and should be recycled or brought to HHW collections. ***Nickel Cadmium*** (Ni-Cad) may be built into rechargeable appliances, such as hand tools and electronic equipment, or sold as free standing units. Place them individually in plastic bags before being stored with other nickel cadmium batteries. They can be recycled or brought to HHW collections. ***Sealed Lead Acid*** batteries are used in some camcorders and cellular phones. Because of the lead and acids, these should be recycled or brought to HHW collections. ***Nickel Metal Hydride*** batteries are used in computers, cell phones, and camcorders. These are not hazardous but can be recycled or brought to HHW collections. ***Lithium Ion*** packs are used in some cellular phones and notebook computers. Unlike lithium metal batteries, lithium ion batteries are not hazardous and they can be recycled or brought to HHW collections.

Appendix E

Minimum Control Measures
6.00 Good Housekeeping

BMP ID # 6.07 - February 22, 2006 - SSO into surface water

AK —

City of Nashua Division of Public Works
Wastewater Treatment Facility
Sawmill Road
Nashua, NH 03060
Phone 603-589-3560 Fax 603-594-3474

NWTF

"providing quality services that benefit our environment"

Date 2/22/06

Ms. Stephanie Larson
NHDES
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095

Dear Ms. Larson:

The purpose of this letter is to inform you that we had a sanitary sewer overflow (SSO) on Date 2/21/06

Location of Discharge: Newton Drive

How did spill get reported and when: Call from maint. Personnel at apartment complex on 2/21/06

Source of Discharge: ☐ Manhole overflows ☐ Sewer Line
☒ Pump Station overflow ☐ other:

Cause of Discharge: ☐ Power Failure ☐ Construction
☐ Blockage ☐ Storm Event
☐ Line Break ☒ Other:

Spill Duration: Start Time 3:00 PM Start Date: 2/21/06
End Time 5:30 PM End Date: 2/21/06

Spill to Surface Water: ☐ No ☒ Yes, Surface Water:
Wastewater flowed to a catch basin that flows to the Nashua River, We Vactord out the catch basin after the incident
Volume (gallons): Approximately 200 Gallons
Correction and Future Controls: Replaced pump control float switch that was faulty.
We are hooking up the pump station to communicate with our SCADA system at the Treatment Plant.

Presently the alarm is at the pump station and residents call if the alarm goes off
If you should have any questions regarding this matter, please feel free to contact me at 589-3560.

Sincerely,

Mario Leclerc

Mario Leclerc,
Superintendent, NWTF

cc: Richard Seymour Jr., Public Works Director
Scott Pollock, Superintendent, Streets
Steve Dookran, City Engineer
Joy Hilton, USEPA
Kenneth Lowe, NWTF Assistant Maintenance Foreman
Sue Jeffrey, Risk Management